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BY

JOHN BRUNNER

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HALLOWEEN FOR MR. FAULKNER

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SAVE YOUR CONFEDERATE MONEY, BOYS

by ROSEL G. BROWN

IT WAS not, of course, the sort of thing that happens to the ordinary person.

But then Grandfather Mayberry was not the ordinary person, even to begin with. When Walter—I don't think it's respectful to refer to your grandfather as Walter, either, but we were never allowed to call him anything else. He was frequently referred to in the family as Yankee Walter, but no one ever said it to his face. It happened that his mother, great-grandfather's first wife, was from Massachusetts and because of this everyone always thought of Walter as being a little bit *different.* I think maybe this might account for a lot of Walter's peculiarities. I mean when people expect you to be a little peculiar all the time—well, as Walter's descendant I can understand how he felt. Whenever anyone mentions something like Protointegrationist somebody looks a little guiltily over at me as though I caused the second secession and whoever mentions it in front of me is being tactless.

I was only a child then.

And I remember thinking it was awful to secede and not have anybody care. I mean to have big industry just move away and to get poorer and poorer and have to pick the cotton yourself.

And wrap it in tissue paper and sell it to the tourists for ten cents a boll—Confederate money.

But look at it this way. Your Confederate money's worth something now. And why?

Well, when Walter announced, back in 1990, that he had no intention of dying, I was immensely relieved. If Walter said he wasn't going to die that winter, he wasn't going to. So I had Mama spray on the tightest corset I could stand and took off for my year of Precollege with a light heart and a twenty-inch waist.

I didn't really expect to be able to pass the college boards, even with Precollege. And if I did, I wouldn't have been able to go to college. It was all the family could do to send the boys. But Mama didn't want anyone to say her girls weren't educated, so we all went to Precollege and gracefully flunked the college boards.

It was that summer—after my two semesters of Precollege—that I brought the Price boy back with me, Jerry Price. I ended up not marrying him, of course. He really wouldn't have done at all, but boy, could he court!

Well, I was all watery-eyed and pink-skinned over Jerry then and I knew the family would just love him and I sort of hoped he'd stay more than just two or three days. I mean if he could find a summer job maybe he could stay until September 15, which was the date for the college boards. The thing was, would Jerry like the family?

"The one I really want you to meet," I told him, feeling a little uneasy about it, "is my grandfather. Walter."

"You call him Walter?"

"Yes. Er...he's a real character. You know... The thing is, though, he's almost bedridden."

"*Bedridden*? You mean rocking chair ridden."

"No. Bedridden. I know it sounds unusual, but my grandfather Mayberry refused to take his chloresterol pills. Or antichloresterol pills, or whatever it is. He said they weren't Natural. And now it's too late. He's ruined his arteries."

"It takes a real character to do something like that."

I didn't like Jerry's tone of voice, but I couldn't help but agree with it. Maybe Walter wasn't a character. Maybe he was just stupid.

"The thing is," I said, because the postbellum buggy was almost there, "that the extra cot is in his room and you'll have to sleep there. I mean I'm sure you'll find Walter an interesting character."

"Sure," Jerry said.

Surely, I thought, Jerry will not disapprove of the bottle under Walter's pillow or his swearing or his insulting—but then even Walter wouldn't be able to find anything insulting to say about Jerry.

The house looked silent and empty when we drove up. Cousin Dickie helped me out of the buggy and held out his hand. I didn't put anything in it so he drove off in a huff and left a whirlwind of dust for us to track into the house.

I swang open the screen door and yelled, "Yoo-hoo!" But I could hear it echo way to the kitchen without striking anything soft.

"Must be out showing the end of the season tourists around," I said. "The trains are all local here and they never run on time so nobody knew just when we'd be in. I mean, if they'd known, they'd certainly all be here to welcome you."

"Sure," Jerry said.

Really, I thought, they could have left somebody. It all seemed such an anticlimax.

"Well," I said, "there's still Walter. You'll want to bring your bags up, anyway."

Halfway up the stairs I stopped. I could hear water splashing and a quavery voice singing, "Don't Sit Under the Apple Tree."

Oh, Lord, I thought. He's gone and gotten drunk in the bath tub again and there's no one to get him out.

Jerry looked at me with raised eyebrows.

"Grandfather Mayberry," I explained, "remembers all the old World War songs. He likes to just splash in the bathtub and just sing and sing. Isn't it wonderful!" I finished up as enthusiastically as I could.

"Sure," Jerry said. "My grand-

father," he added, "makes a hobby of taking school kids out on hikes. You know."

"Sure," I said. I decided then and there I'd rather let Walter drown than send Jerry in there to get him out of the tub.

Just then the screen door slammed and Mama said, "Yoo-hoo! Annabelle! Is your young man with you?"

"Yes!" I called, hissing on the *s*. Mama's phraseology is always so irritating. I wasn't at all sure Jerry wanted to be referred to as "my young man."

"Be right down!" I added. "Jerry," I said, "you just put your things in there and come on down when you're ready."

What I wanted was a moment alone with Mama and I got it.

"Someone has got to do something about Walter," I whispered. "He's there in the bath tub again and singing and you *know* he's dr..."

"Don't you dare," Mama cried, "say that. Your grandfather Mayberry is perfectly all right and he'll get out of the tub when he's ready."

"Mama, at a time like this you cannot close your eyes to ugly reality. You know Walter can't get out of the tub by himself and none of the men are here and pretty soon he'll start yelling and then Jerry will have to go hoist him out. Call up cousin Jefferson. *Please!*"

"Now, dear," Mama began soothingly, "I haven't written you about it, but Walter has had the most amazing..."

There was a hoarse screech and Jerry came barrelling down the steps with his cuff ruffles untaped and one boot off.

He grabbed Mama with one hand and me with the other. "Get out of the house!" he cried. "We'll lock it in and get it when the rest of the men get back."

Mama removed his hand firmly.

"Your grandfather Mayberry," she told me, "is out of the bath."

"There is an alligator up there!" Jerry cried, still trying to herd us out.

"Is *this* your young man?" Mama asked in a tone which she never used with the tourist trade.

"Yes," I answered. "Mama, if Jerry sees an alligator..."

"Please make yourself at home, Mr. Price," Mama said with a severe look at his hanging cuffs. "Since we no longer have servants you'll have to excuse me while I get supper started."

We hadn't had servants for as far back as I could remember.

"Look, Annabelle," Jerry began, whispering nervously and looking like he'd gotten off on the wrong floor of a hospital. "I don't want to insult your..."

It was at that moment that I found out what the word galumphing means, because Walter came galumphing down the stairs.

In all justice to my grandfather Mayberry, he didn't really look like an alligator.

But in all justice to Jerry, I could see how a mistake might have been made.

"Hello, Annabelle," Walter said, as though he'd just seen me last this morning. "Your boyfriend's got no guts."

"And you," I said furiously, "have no manners. Walter, how *can* you come out in front of company looking like this?"

"Can't look any other way, chick," he said. "Hormones."

"I'm going to be a freshman in premed next year," Jerry said, "and I've never heard of a hormone with those kinds of side effects."

"Cap," Walter said, "you've got an awful lot of ignorance to lose."

"*Annabelle*!" It was time for me to see to the biscuits and set the table.

"Make yourself at home, Jerry," I

said, feeling sure this was not the way things were at *his* home.

The kitchen was unnaturally cool. Furthermore, it didn't smell like anything at all.

The air was clear.

"Mama!" I cried. "We've got an atomic stove!"

It was built into the side wall. The old wood stove was still there, of course, for the tourists. But the tin chimney was gone and the lids were clean and the cracked one had been replaced.

Mama smiled and pressed a button. The wall panel slid back and inside were eight dinners, neatly set on plates and plain raw.

"All I have to do," Mama said, "is press a button and the food is cooked and the plates come out just warm."

"You had a good crop of tourists?"

"No. Your grandfather Mayberry provided this for us."

"You know Walter can't even provide himself with cigars."

Mama bit at her upper lip with her lower teeth, a sign that I will never learn to be tactful. "Walter has built up quite a little business. At first we thought of it as just a hobby but now it's growing into—well, it looks as though we may find ourselves carrying on the tourist trade as a sort of hobby."

"Whatever kind of business can Walter have got into?" A horrible thought struck me. "Not Yankee wines?"

"*Dear!* It's a...um...mail order business."

"There's something you're trying not to tell me. But if you don't, Walter will. And he'll make it sound even worse than it is."

"Dear, your grandfather Mayberry is handling the distribution of Swamp Water Youth Restorative for the entire Confederacy."

"Sw...!" I simply collapsed into hysterics. It was such an absurd thing and Mama said it so primly.

"Oh, Mama!" I finally managed. "That's plain disgraceful. We didn't need an atomic stove that bad. And oh, he'll tell Jerry! I'd better go get him right now."

"It is not disgraceful. Swamp Water Youth Restorative actually does restore youth."

"Is that those hormones Walter was talking about? Is that what makes him look so peculiar?"

"I don't know that he looks peculiar. It is simply the next stage after old age. People look different at different stages. You should have seen yourself when you were one day old."

"Oh, all right. I don't know why you have to remember these things about time and bring them up all the time. Let's put it this way. Walter has changed since I was home for the Christmas holidays."

"Yes, and I just explained it. The Youth Restorative contains hormones which, as I understand it, cause changes in the basic structure of the cells of the human body. DNA or RNA or something like that. Women are not expected to understand these things, Annabelle."

"That's your excuse for things you don't want to understand. But I've seen Walter so I know this Youth Restorative does something. Where on earth did he get this stuff? Surely it isn't plain old water from the swamps."

"No. It's from—dear, didn't you all hear any rumors over at Precollege?"

"We hear all kinds of rumors."

"Well, this thing is big. It involves the whole Confederacy and there's more to it than just Walter's mail order business. Is that the men coming in?"

It was either them or a herd of elephants. Every time Brother walks in the house the chandeliers sway. And there would be Uncle Gary and...

"Set the table, Annabelle!"

I got out the good silver, because of Jerry, but not the crystal, which makes me nervous.

Everyone was a little stiff during dinner. I think this was partly due to the fact that while the rest of us had chicken and mashed potatoes, Walter had a string of raw fish. And the more everyone tried not to notice it, the more he chuckled.

I could have just *died*.

After dinner we cleared the dishes and I found out we had a dishwasher-stacker-disposal unit that even ground up the bones and sloshed the leavings in a bucket for the hogs.

Mama and I left the men to smoke in the dining room while we went out to smoke on the gallery. There's nothing sillier than this segregated after dinner smoking, particularly as this is the time when all the interesting things get said. I know, because once when I was ten I hid in the china cabinet, and boy, what I didn't hear!

The stars were flung all over the sky and just blazing away and I had to sit there through two cigarettes fending off Mama's questions about Jerry. Finally she said, "I do wish your father were alive," which meant she gave up.

"Now where did Walter get this Youth Restorative?" I asked.

"Ah, that," she said with a sigh. "You know, Annabelle, you couldn't have picked a worse time to bring a guest home. Particularly one we know almost nothing about. I've written Ada Sue in Jackson to find out what the Prices are like, but I haven't heard from her yet and Jerry's in there listening to all that talk and I'm not sure that Walter will remember to be discreet."

"If there's anything Walter's good at, it's being indiscreet. You still haven't answered my question."

Mama sighed again and got that dignified look on her face that she uses when she says things she doesn't want people to laugh at. "The Swamp Water," she said, "comes from the planet Venus."

At that moment Jerry walked out, flipped a cigarette into the petunias, took my elbow and guided me out for a walk in the starlight.

"I'll bring her back alive."

I knew without looking that Mama smiled and then went frowning into the house.

A little down the road, near the Leaning Pine Tree, I stumbled over a rock and came out of my daze.

"Jerry," I said, "my mother is stark, raving mad. There's a plain bad streak in the family." I shuddered. Who'd be next?

Jerry laughed. "Don't you know what's happened?"

"No. And if somebody doesn't explain it to me pretty soon I'll lose what little remains of my mind."

"The Venusians have landed," Jerry said, "in a swamp around Bayou Teche. They landed, in fact, in a bayou that runs behind your great Aunt Felicie's house. You *have* a great Aunt Felicie?"

"Great aunt by marriage. Aunt Felicie is nine hundred years old and she insists on living by herself out there with the alligators. Every Christmas she comes in with a great big pot of gumbo. Otherwise, we never see her."

"Well, your great Aunt Felicie took to the Venusians and the Venusians took to your great Aunt Felicie."

"I suppose Walter told you all this and I suppose you swallowed it hook, line and sinker. But will you please explain why nobody's heard about the Venusian landing."

Jerry shrugged. "Apparently Felicie tried. She wired the president of the Confederacy. She wired her state representative. She even wired the Union government and several top Union scientists. When no one came she apologized to the Venusian representatives and wrote a letter to

Grandfather Walter."

"Did the Venusians learn English from her?"

"No. They learned Cajun from her?"

I giggled. It all sounded so exactly like Aunt Felicie.

"Do I see a nice piney bank up there?" Jerry asked, pointing to the bluff beyond the old Carey place.

"You do. Here, hold my hand and I'll take you around the back way. You can't get there from the road."

I led Jerry around the dark, crumbling house, which looked like a place where no one had lived but many had died. We crossed a queasy little bridge with stars laughing in the creek beneath.

"What did Aunt Felicie say in her letter to Walter?" I asked when I had gotten Jerry across the creek safely and on to an overgrown path that no one could have found but me.

"She said the Venusians wanted to know what sort of present the people of the Confederacy would most appreciate. And of course Walter, being badly in need of rejuvenation himself, suggested a Rejuvenator."

"The Venusians didn't know he and Aunt Felicie are both half crazy?"

"They're not so crazy. Let me finish. The Venusians thought this was a perfectly good idea, and they whipped one up."

"*Really*, Jerry."

"You said you wanted to hear. You're the one that wants to waste all this starlight talking."

"I mean it's hard to believe the Venusians just happened to have a recipe for human Rejuvenation with them. Particularly since I assume they're not human."

"Not human the same way we are. But they do have one useful area of scientific knowledge under control. And that's virology. The study of viruses."

"Given time," I said, "I could have figured out what virology is."

"You're not being a good listener," Jerry said. We sat down and watched the fireflys across the road, and there was something lovely and comforting about the darkness and the stars and the little surprise glowings of the lightening bugs.

"What does virology have to do with Swamp Water Youth Restorer?" I asked, dropping pebbles off the edge of the bluff.

"Just this. The Venusians had increased their own life span enormously through the use of viruses."

"I thought Walter said it was hormones."

"He does think so. But from what he says, I think it's all done with viruses. This is a guess. I gather they have a virus that goes in and replaces the template of the living cell. The template is the pattern from which new cells are formed. And if you change the template, a different cell is formed. Now maybe for themselves, they can rejuvenate without changing their appearance a great deal.

"But you can figure out what happened. Working with viruses with which they were familiar, they found one which alter cellular patterns but not to the extent of causing shock or death. But it was, after all, a Venusian virus, and the effect is—well, rather amphibious. You see how Walter looks."

"I don't know," I said, "but what I'd rather look like Aunt Felicie and die at a reasonable age than end up like Walter."

"If you think Walter minds, you're wrong."

"Oh, I know. Walter's enjoying the living soul out of all this.

"At the rate the mail order business is going, everyone may soon be just exactly like Walter."

"Jerry, I get the oddest picture of the old guard UDC sprouting tails

and swarming down en masse to Bayou Lafourche. In all humanity, somebody ought to go and warn the alligators."

Well, Jerry left in a huff the next day and at the time I thought it must have been because of something I'd done—or more likely what I'd not done—the night before.

But the next week we got a frantic telegram from Aunt Felicie. Apparently Jerry had gone North and convinced somebody about the Venusians, because Aunt Felicie's house was running over with Union scientists. Well, this would get Jerry into a good Eastern medical school.

Of course, nobody told him *not* to do this, but he should have asked us about it beforehand. It sounded like he was selling out to the Yankees.

Even so. The Venusians are on our side, because that's where the nice, warm swamps are. Not to speak of Aunt Felicie, who has a way with people when she tries.

No doubt the Union scientists learn many useful things from the Venusians. But Walter has an exclusive franchise on the Swamp Water Youth Restorative.

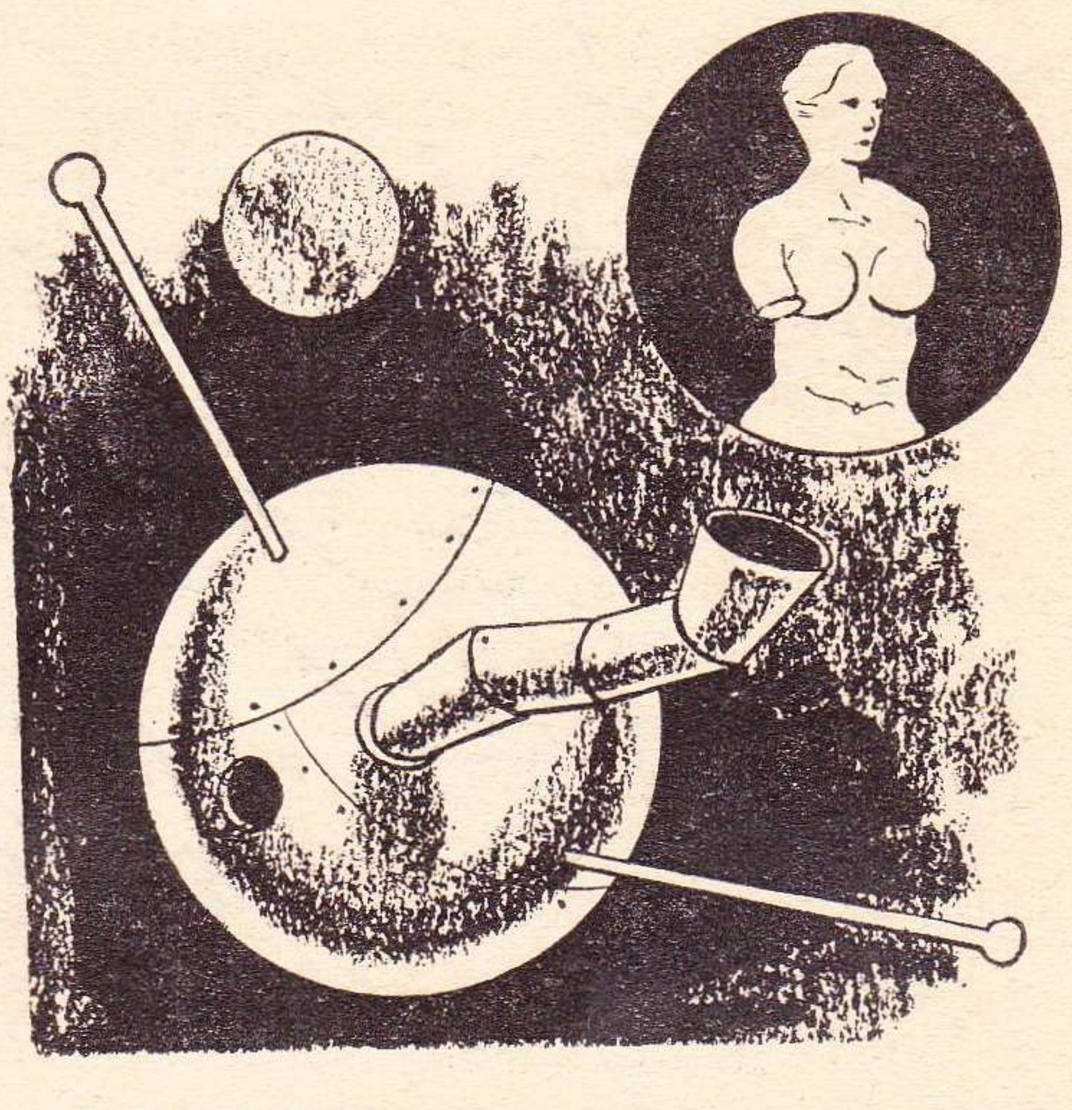
And the swamps are a paradise for rich old post-senescents, which is nice for the poor old natives. Not to speak of the poor young natives.

The latest thing is, of course, top secret. But since cousin Jefferson is in the senate I know all about it and I think it's a grand idea. Watch for the Annexation of Venus.

WHAT ABOUT ATOMIC WASTE?

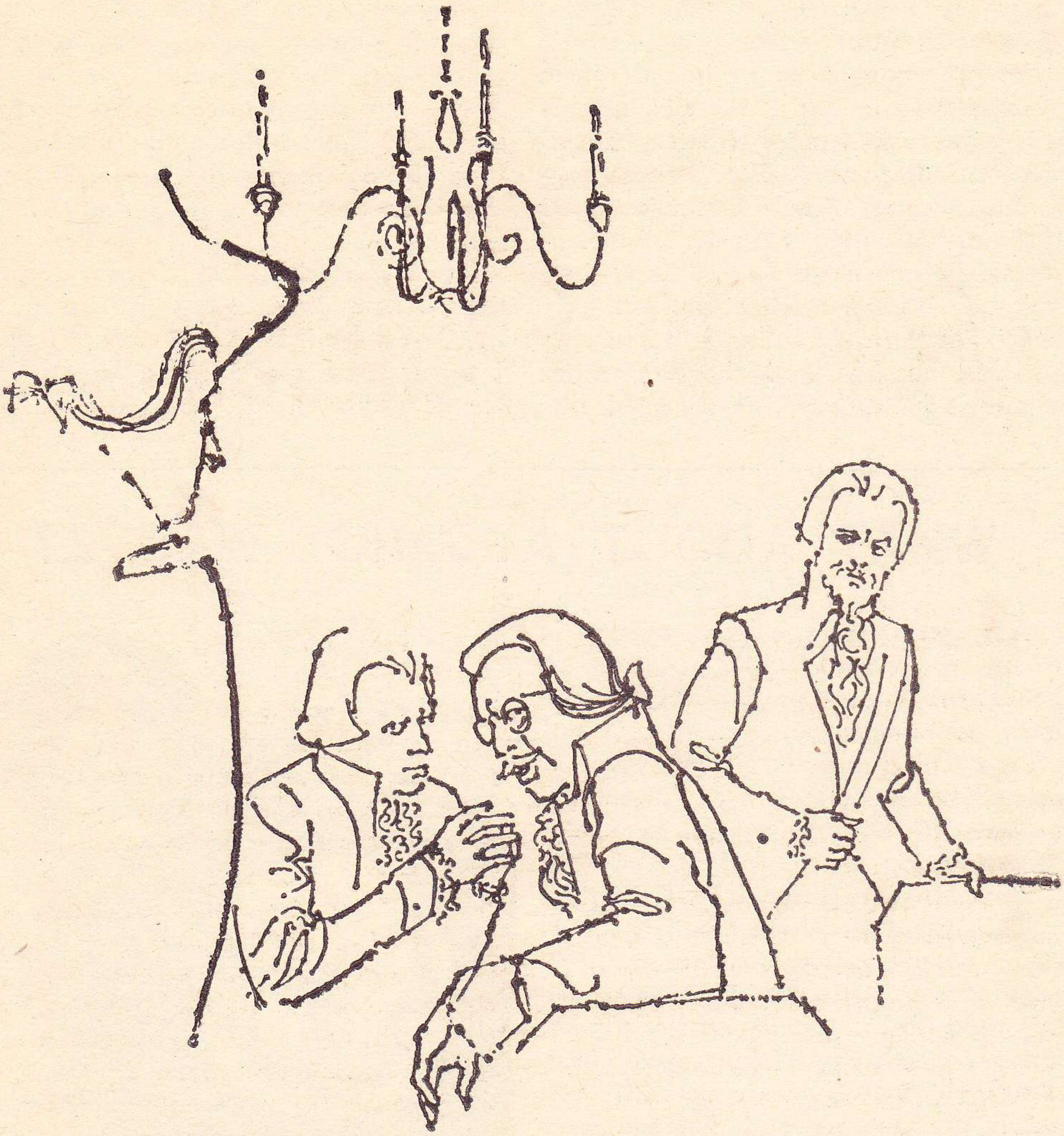
A government scientific agency is acting to remedy what promises to be one of the more distasteful problems attendent with modern, nuclear-age living. For fifteen years, a monumental cesspool of 60,000,000 gallons of atomic wastes has been accumulating at a rather alarming rate; a decade hence it will double.

This residue, which costs the taxpayer $2. per gallon, consists of "hot", radioactive waste materials that are not used up for fuel by atomic plants. They are extremely dangerous. Less dangerous materials are normally encased in concrete and dumped into our oceans.



Reprocessing plants can convert most wastes into valuable isotopes, but they in turn leave wastes, so one can apparently never escape the problem. In the instance of the much publicized strontium 90, it has some medical use and is being tested for use in batteries. But if you get enough to produce 2 or 3 cents worth of electricity, you also get enough to kill ten thousand people, unless it's handled with caution.

Other atomic wastes, such as cesium 137, from which can be extracted barium 137, carry with them serious dangers. The feasibility of storing them in abandoned salt mines is being explored.



Halloween For Mr. Faulkner

by AUGUST DERLETH

THERE WAS simply no use going farther; so Guy Faulkner stood where he was, as helpless as if he were in the midst of a chartless sea. He was somewhere in London, in a sea of fog. Was it in Lambeth? And had he not heard the bells of St. Clement's? He deplored his insistence on going out that afternoon in trace of some faint lead to supplement the work now being done by Inigo Gunter, who was an expert in matters historical and genealogical, and whose report had been promised him this very day. A pox on his own impatience! Now there was no telling just when he would escape the fog.

He stood resolutely still. Sooner or later someone was bound to come along. If it were a bobby, he would be given good conduct to his hotel. If it were anyone at all familiar with the district, he might at least learn where he had wandered to. The fog swirled around him, g r o w i n g ever more dense—not yellow, as he had been led to believe, but a kind of gray shot through with a glow rising as from distant lights which had no separate identity. He quelled his impatience; he had no alternative but to wait. He would have been almost as helpless in Chicago or New York, for all his familiarity with those cities, so thick was the fog.

Quite s u d d e n l y a dark shape loomed beside him.

"Pardon me," he said.

"Match, Guvnor?"

Faulkner took out his lighter. Fortunately, it lit at once. He held it up.

The fog played tricks on him. The face he looked into might have been his own. It bent to light a pipe, seemed to flatten, to dissolve—the fog again.

"I'm afraid I'm lost," said Faulkner.

"Come along," said the other, beginning to move away.

Faulkner followed. His companion walked with sureness and ease; he at least could find his way.

"I want to go to the Chelsea," he said.

But the other did not reply, and Faulkner had all he could do to keep up with him, trying to keep from falling over curbs and colliding with lamp-posts. Should there not have been more light as they approached the hotel? he wondered. But abruptly his silent companion turned off the walk, and mounted a few steps. Faulkner was conscious of a typical iron railing at either side. Coming up behind his guide, Faulkner lit his lighter again; the figure *16* gleamed on the heavy door. Then the door swung open upon a darkened hall, and immediately his guide was engulfed. Faulkner hesitated only a moment—anything was better than the oppressive fog. The door closed behind him, and another opened before upon a dimly lit room into which he had hardly stepped before he was aware of the strangeness of it—a room, as it were, of invaluable antique furnishings; it might have been lifted completely from a museum. He turned to his companion to ask—and found himself alone.

The door behind was closed. Down along one wall of the room was another door, beneath which showed a brighter light; and behind it rose the murmur of voices. Had his companion gone that way? But no, how could he? There had not been time. A sudden panic assailed Faulkner and he turned to go back the way he had come.

But even as his hand fell upon the knob, the door at the end of the room opened, a yellow glow spread into the room, and a h e a r t y voice said to someone behind, "Here's Guy now. We were waiting for you."

Faulkner turned, surprised. The man was masked with a domino. And in costume. Behind him, grouped about a table, were others, likewise costumed and masked. But, of course, the night was near to All Hallows and some people celebrated the time of masks throughout the week; these were doubtless traditional maskers, and known to him, perhaps, behind their masks. He hesitated but a moment more; the man before him held the door invitingly open, and his smile bade Faulkner welcome as no words need have done.

"You're late, Guy..."

"We thought you'd failed of coming..."

"What kept you?..."

A chair was pushed forward for him.

Bewildered, he sat down. He was aware of a strange kind of apprehension within him, as if something ominous lay behind this mask of comradeship. He could not remember a voice; a face, a gesture. And yet, so f a m i l i a r were these men, that he could not but wonder how he could have forgotten them. In a moment, certainly, their names would come to them; someone would mention them.

"I say, Wright, now Guy's here, we can get on with it."

Wright—John Wright, Faulkner said to himself. And that man talking was Tom Winter. And that, Robert Catesby. And the fourth, Tom Percy. And finally, Ambrose Rokewood. Faulkner could not recall where he had met them, yet their names were now certainly coming back to him. But the feeling of apprehension did not leave him.

He waited.

The bottles and g l a s s e s were pushed aside, and Catesby leaned over.

"The day's been chosen, you'll recollect, Guy."

"The fifth," said Winter.

One of them chuckled. "Was it not a clever thing to have chosen a night of this week for our last meeting? When one and all are in costume, and the most improbable of all excites no question?"

"But for your own, Guy," said Wright. "A strange costume, indeed. And unmasked! How bold!"

"Ah, I am but a humble servant of Mr. Percy," Faulkner said, and grinned.

But simultaneously he thought: Percy: But of course, he was employed by Percy. Had he not come over the sea from Flanders not long since? And spoken there with Stanley of Deventer? What nagged in his mind was a perplexity indeed. A broader ocean, a strange land, great cities...

"The powder's laid," continued Catesby.

"Aye, and the fuse is placed," said Percy. "He had good time in which to do these things from my house next door to parliament house. A good and willing servant, indeed. Once this business is done with, I commend him to you. He will go to heights."

"One way or t'other," said Wright sourly. "High by his skill or by the scaffold if we're caught."

"Come, come, let us not speak of being caught," protested Catesby. "We've come a long way; we are on the threshold of success. Victory will be ours within the week, mark me."

"Who will light the fuse?" asked Rokewood. "I offer myself."

"Noble and generous Rokewood," said Catesby. "But this would scarce be fair to the others who are as eager to consummate this task. Shall we not draw for it?"

"Aye," said Wright.

And "Aye," said Percy.

Winter nodded, without saying anything, and Rokewood made no protest.

"It will be arranged before this night is done. Come now, let us look to plans to which we must adhere once the thing has been accomplished. Draw closer."

Catesby produced a map and spread it before them. Six heads circled it. Catesby's elegant fingers, dark against the white ruff at his wrist, descended to the map.

"The moment it is done, I will ride to my mother's house at Ashby St. Legers. We shall, several of us, ride through Warwicksire to rally the country behind us. I myself will ride straight to Digby and enlist his aid, by which time he will be ready, if I tell him both James and Salisbury are dead."

"And what if they are not?" asked Rokewood.

"We dare not fail."

"There are thirty-six barrels of gunpowder under coal and faggots in the cellar. More than a ton of the stuff," said Percy.

"But, since it's been there so long—May, was it not?—what assurance have we that it has not got wet?"

"It was put in a dry place on purpose," said Percy, and turned to Faulkner. "Was it not, Guy?"

Faulkner nodded.

"And the Jesuits?"

"We have Garnet's blessing, at least. But Greenway and Gerard know our plan and have not spoken against it."

A doubt beset Faulkner. He closed his eyes. Instantly all this elaborate play was alien. He was Guy Faulkner of New York, in London pursuing his genealogical studies. The year was 1953. But when he opened his eyes a moment later, he could have taken solemn oath that it was some other year. The candles flickered, and appurtenances of the house loomed grotesque in their age in the candlelight, the five masked men who stood about him, leaning over the map on the table, were impeccably dressed in the costumes of the turn of the seventeenth century.

An elaborate hoax. Who could have been responsible for it. Or, for that matter, for his own words, spoken so glibly? Or was it a plot, indeed? Was it by some accident that he had stumbled upon an attempt to repeat history, to blow up Parliament? Apprehension took hold of him again.

"Guy says little," said Wright suddenly.

"I am no man for words," Faulkner responded without hesitation.

"True," agreed Catesby. "Would that all others had to his credit Guy's deeds. We should not now be in doubt of the success of our plot. Where is Tresham?"

"None knows. Safe in his bed, most likely," said Percy.

"I said it was a mistake to invite Tresham to take part in this," said Rokewood heavily. "Monteagle is his brother-in-law; can he contrive to keep him from Parliament and be destroyed with James and Salisbury?"

"He dare not."

"Who will say him nay? Was he not all eagerness and will at the beginning; but now that the thing is all but done, where is Tresham?" demanded Rokewood. "A peer's brother-in-law has no place among us."

"A man's a man not by any accident of blood," said Catesby.

"Nor of religion, then," said Percy.

"Agreed," said Catesby. "Or color, age, or temper."

All this time Winter had said nothing. Now he put on the table six sticks he had been fashioning. All save one were of equal length; the one was shorter.

"How say we?" he asked.

"He who draws the short stick shall light the fuse," said Catesby.

There was an immediate chorus of agreement.

Catesby slipped on his gloves, so that he might not himself feel which was the short one among them, picked up the sticks, rolled them about a little, and held them out, stuck in his fist.

Percy drew first.

Then Rokewood. Since both had sticks of equal length, neither had drawn the short one.

Winter drew—a long stick.

Wright—another of similar length.

Catesby grinned sardonically, and held the two remaining sticks before Faulkner. "It lies between us, Guy. Fate would have it so."

Faulkner drew. He had the short stick.

Catesby opened his hand, let the remaining stick fall. "I congratulate you, Guy. None could better perform this task to free our great country from the oppressions of James and Salisbury."

Faulkner smiled. Uncertainty, apprehension, astonishment vied for revelation, but none showed on his features.

"You'll remember what was agreed upon," Catesby went on. "You'll get into the cellar in the night, and, as soon as the King has arrived, light the fuse, and make your escape at once. Fly to join me at Ashby St. Legers."

Rokewood came to his feet, a heavy man, dark of feature. He reached behind him for his cloak. "The thing's as good as done. I bid you good-night, Gentlemen. May God attend our plans."

One by one they withdrew, until only Catesby was left.

"You have not moved, Guy. Is anything wrong?"

"I must have time to think on this," said Faulkner.

"Ten days, no more. The calendar marks the twenty-fifth of the month. In six more, November's upon us. Aye, and within the week beyond that James and Salisbury will be no more!" He stuck out his hand to shake Faulkner's "Good luck, Guy. We'll to victory or hang with you." At the threshold he turned for a final word. "I trust when again we meet at this place, 'twill be Old Paradise no longer, but New!"

Then he was gone.

Faulkner sat alone and for the moment, unmoving. How quixotic were his thoughts! Were it possible for a man to step back into time, he might have done so. The time would be 1605, the event the Gunpowder Plot against James I and Lord Salisbury.

But in his mind was a core of turgid confusion. How was it possible for him to remember so well these people with whom he had sat this night and yet never met?

Was there, indeed, a hoax that intended him for victim? Or was there, on the other hand, a danger that there was indeed some plan afoot to blow up Parliament. He grew cold with fear. Something must be done to prevent such a plan's fulfillment. But what?

Who was it had mentioned Tresham and Lord Monteagle?

He looked wildly about him; there was not much time. At any moment he might be interrupted. The householder might come back. Wright, it seemed, was owner here. Or was it but another of Catesby's houses?

He came upon paper, a quill pen, ink.

"My lord, out of the love I bear to some of your friends, I have a care for preservation. Therefore I would advise you, as you tender your life, to devise some e x c u s e to shift of your attendance of this Parliament, for God and man hath concurred to punish the wickedness of this time. And think not slightly of this advertisement, but retire yourself into your country, where you may expect the event in safety, for though there be no appearance of any stir, yet I say they shall receive a terrible blow, the Parliament, and yet they shall not see who hurts them. This counsel is not to be condemned, because it may do you good and can do you no harm, for the danger is past as soon as you have burnt the letter; and I hope God will give you the grace to make good use of it, to whose holy protection I commend you."

Without hesitation, he signed it, "Tresham." His own name would have no meaning to Lord Monteagle. He folded the letter, folded another paper around it so devised to hold it as might an envelope, of which he saw none, wrote Lord Monteagle's name in a bold hand on the outside, and, without another glance for his surroundings, fled the room, fled the next, and in a few moments was outside and running through the fog as fast as possible, until he found a postman's box, and there dropped his letter, trusting that it would reach Monteagle in time. Ten days. He felt for his lighter, but he had left it, as he had his hat. He would not retrace his steps.

The air stirred him, the closepressing fog brought him once again to awareness that he was lost. But, no, not quite. Was not that Westminster Bridge ahead? He walked on, and soon found himself above the Thames, with the fog beginning to thin.

Though it was past midnight, Gunter was still waiting for him. Not because he had intended to do so, but because he had fallen asleep in Faulkner's room. He started away under Faulkner's touch.

"I've been asleep," he said, ruefully, looking at his watch. "And missed a nightcap with Barry."

"Have one with me," said Faulkner, moving t o w a r d the decanter. "I've had an evening."

"In this fog!"

"It's beginning to lift." Faulkner came back with glasses and the decanter. "What have you found?"

"Ah, something of interest, indeed," said Gunter, becoming alert at once. "Though I've no way of knowing how you'll take it." He tossed off a drink and complimented Faulkner. "It's all in these papers." He took them out of his pocket, tapped them intimately where he held them in his hand, and gave them to Faulkner.

"I've got you back as far as York. The name was changed, you see, in 1605. Used to be Fawkes. Family of Edward Fawkes of York. It was Edward's son, Guy..."

"The Gunpowder Plot!"

"Of course. The disgrace of it upon the family brought about the change in name. One understands that, of

course. But no doubt you Americans look upon these things in a more romantic light."

Faulkner's mouth went dry; his whiskey was tasteless on his tongue.

He opened the papers and read of the succession of the line of Edward Fawkes, father of Guy Fawkes, who lent his name forever to the Gunpowder Plot to blow up Parliament with King James I and his ministers...

In the clear light of morning, he knew what he must do. He had a perfect excuse—to look for his hat and lighter. True, he did not know the address, but had not one of them spoken of "Old Paradise", and was there not a street by that name not far from the Thames, off Westminster Bridge?

On that chance he called a cab. "Take me to Old Paradise Street."

There was no question. He got in, settled back and was soon rolling toward his destination. The number, he remembered, was 16.

Someone had made game of him for Hallowe'en. Who they were, Faulkner would soon know. There was no fog this morning to confuse him.

The cab rolled over Westminster Bridge and soon after came to a halt.

"Old Paradise, sir," said his driver.

Faulkner got out, paid him and let him go. He walked slowly up the street. He could hardly hope to find any familiar facet, for the thick fog of the preceeding e v e n i n g had shrouded everything unrecognizably. Even the walk beneath his feet felt different. It had had the feel of cobbles in the night.

A short street. But there was no number 16.

He stood for a moment puzzled. But a postman coming along gave him hope and he stopped him.

"Number 16?" said the postman. "I'm old enough to remember that. Before the war. it's rubble now. Come along, I'll show you where it was."

Faulkner followed him, and they came presently to a cellar filled with rubble. There had once been a house there, and steps leading up to it, and iron railings about it. The railings were still there. Beyond all was rubble. But not far from where they stood, in the rubble, lay the same numerals Faulkner had seen less than a day ago—not bright and gleaming now, but old, worn, bent. And beyond that...?

"They've not got around to cleaning up here yet," said the postman apologetically. "The place was hit not long after Coventry. Historic house, too. Said to have been used as a meeting place for the Gunpowder plotters. Oh, I say now, you'd b e t t e r not go climbing about in that rubble—it's posted and dangerous."

But Faulkner had gone ahead.

He felt he had the best right in the world to do so. Hoax, hallucination, dream—whatever had happened to him, he meant to retrieve his hat and the lighter which lay gleaming not far from it in the middle of the ruin and a little toward the rear...just where the room with the table would have been...if there had been such a room...and such a house...New Paradise indeed!

He went back to his hotel and telephoned Inigo Gunter.

"Tell me, did they ever find out who wrote that letter to Lord Monteagle in the Gunpowder affair?"

"No, Mr. Faulkner, to the best of my knowledge, they did not. They thought it was Tresham, but he denied it and died in the Tower. He might have won his freedom."

"Never mind, Mr. Gunter. I did it myself."

That was a break he had not meant to make, he told himself after he had cut off. He had meant to voice his belief that Guy Fawkes had written Monteagle and disclosed the plot. But to call Gunter again and explain would only complicate matters more.

Inigo Gunter entertained his colleagues for weeks with his anecdote about the mad American and his delusion.

I've been trying to tell you

by **GORDON R. DICKSON**

"DO YOU think it's the end of the world?" asked the girl.

It had been a sweltering summer. And now, on a late afternoon in August, the sun seemed to hang still in a brassy sky and broil the earth beneath it. The office of the State University that Jem Allinson sat in, mentally damning the day he had ever become a reporter, had its air conditioning on the blink for some strange reason. He sat with his jacket taken off and thrown over the back of his chair; and he suspected that there were large damp spots staining the underarms of his dress T-shirt. He did not care. He knew that he stank—although the less sensitive nose of this girl could probably not catch that—clear through the deodorant with which he had anointed himself, and he did not care. Why should he, he thought? Long since he had weighed the human race in the balance of his admiration and found it lacking. For this reason the girl's remark, so much like some he had made himself from time to time, tickled him.

"What gives you the idea the world's close to ending, Miss Hansen?" he asked her. Almost immediately he regretted the question. He was not here to talk about philosophy. The day had been long; and he was tired—and thirsty. To compound the delay, she was gazing away out the office window at the 1980 skyline and did not answer immediately.

Miss Hansen, of course, was not a girl. She was an entomologist, a "Doctor" and a member of the University Staff. But she was extremely small and young-looking, with a round pretty face and a voice so soft that Jem seemed always on the verge of having to strain to hear it. The sort of girl, Jem thought bleakly, he might have fallen in love with once upon a time, when he had been equally young—equally innocent. Eidel Hansen, her name was, Asso-

ciate Professor of Entomology. She did not look it. Jem shifted restlessly in his straight-backed chair, smoothing out the wrinkles in his jacket. He did not want to talk about the end of the world. What he wanted was some good, quotable quotes to take back to the Courier's newsoffice and write a Sunday feature article about.

"The old order of things is breaking down," she answered. "Everything's different. You—don't you feel different?"

He felt tired, Jem thought, old and tired. He looked over at the piece of white paper towelling on her desk, on which were spread out the corpses of the half-dozen odd-shaped insects that had been brought in to the Courier by people during the last two weeks. She had hardly glanced at them. She was more concerned with the end of the world and how he felt. Well, how should a man feel when he's thirty and some and has worked too hard and drunk too much for twelve years? He thought of the article to be banged out after he left here. An hour's work—and then the blessed numbing coolness of a dark bar. Anonymity and forgetfulness. Lethe....

"Mr. Allinson!"

She was staring at him. He roused himself.

"I feel dead and unburied," he said. "It's the heat." He looked at her. The article didn't have to be in until tomorrow and an idea was tempting him. Well, why not? She was good-looking enough in her schoolgirl way. "Feel like a drink?" he said.

She hesitated.

"I—" the hesitation vanished. "Yes, I do. Thank you."

"Don't thank me," he said. "I want one myself."

He should have said it lightly. They should have smiled. But neither did. The day was too heavy for anything but plain speaking.

"Do you have a car—"

"Outside," he told her.

She got up from the desk without adding a jacket or a hat, or stopping to correct her makeup; and they walked down the summer vacation emptiness of the building's ringing stone corridors. His car, a convertible, was parked with the top up against the fierceness of the sun, in a no-parking zone before the building's steps.

The brightness of the sun on cement and concrete almost blinded them. Jem had a sudden vision of them coming out and shielding their eyes as they were doing, she small and neat, he large and untidy, his black hair damp with sweat above the heavy bones of his face. Then he was leading her down the steps and handing her into the car. He went around and got in beside her.

"Any place in particular?" he asked her.

"I'll leave it to you."

She answered almost inaudibly, leaning back against the hot brown leather of the seat, still shielding her eyes. He started the motor and drove off.

They went to Danny's—a good bar, but a little run-down, in the market area south of the town's business district. After they were seated with drinks in a high-backed plastic booth which all but cut them off from the view of the rest of the bar, a little lamp gleaming in the dimness—faint watts of light through a yellow shade on the wall beside them—Jem remembered something.

"The bugs," he said. "I left them back at your office."

"It doesn't matter," she twisted her glass around between her fingers. "I can tell you what they were. They were all *diptera*."

"Diptera?"

"Two winged insects," she looked up from the glass to him. "In the

case of the ones you brought me—flies and mosquitoes."

"Flies and mosquitoes?" He stared at her. "You sure? I never saw any like that."

"I know. Our department—" she caught herself. "They're mutations."

"Mutations?" he stared at her for a second, searching his mind for the meaning of the word. Instantly, he was all reporter again. "You mean they're freaks hatched out by ordinary bugs? Is that official?"

"Well," she said, turning her glass again, aimlessly. "We all think—yes, you could say that."

"How come?"

"No one knows," she said. "No one."

He peered at her face in the dim light. It was unhappy, lost.

"There's something here," he said. "Mutations—nobody knows—do I think the world's going to end. If you don't want to tell me about it, what're you hinting around the subject for?"

"That's all there is to it." She raised her head and met his eyes. "There's nothing but monsters being born nowadays."

He waited, but she sat silent.

"I don't get it," he said, flatly and finally.

"How do you want me to say it?" she asked. "Nine little insects out of ten. Nine little animals out of ten are coming out—different. Have been for the past year."

He stared at her.

"That's crazy," he said. He almost glared at her. So young, so—so something that it reached inside of him and twisted at him with an almost forgotten feeling of tenderness for her. So full of crazy ideas. "You're crazy. I'd have heard about it."

"Haven't you?"

He began to remember. Farmyard freaks. There had been an epidemic of them in the spring. But they'd died out. He told her so.

"Farmers stopped talking about them," she said. "There's a scare through the upper midwest and probably the rest of the country, too. Sort of a superstition. Farmers kill the freaks and don't tell anyone. But there's government secrecy in on it, too. And the University Farm Campus has been going out of its head trying to figure out reasons for it."

"I still would have heard."

"Because you work for a newspaper," she smiled sadly.

"That's right."

"How'd you like to talk to Peter—DeWin, he's head of Zoology?" she asked. "He's worked with some of the animal mutations. You might believe him."

"All right." Jem shoved back his drink and stood up. "Let's go."

"Go?" she laughed, then stopped laughing suddenly, like someone who abruptly realizes she is at a church, or a funeral. "And leave this nice bar? Let him come to us. He could use a drink, too."

Standing, Jem considered her. Did he want somebody else barging into the party? He had planned—you could always lose yourself in a woman. For a little while. For a few hours, or a night, you could forget that there was nothing left to believe in, that all the bright, shining words and principles that people prided themselves on were cheap and fragile hollownesses inside, like Christmas tree ornaments. It all came back in the morning, of course, but meanwhile there had been a moment of rest and forgetting—and the fresh, soft youngness of her had beckoned his arid soul like an oasis.

But this was more important. This was news.

"Why not?" he said. She stood up.

"I'll go phone him," she said. He watched her walk away from him.

Professor Peter DeWin was a thin, slight man in his fifties. Both his

voice and his hands shook a little and his face was tired. He called Eidel "my dear" like a stage grandfather; but Jem, listening closely, understood swiftly that it was not so much an affectation as the sort of nervous habit a shy, elderly man might fall into in trying to avoid both intimacy and formality.

"It was nice of you, my dear," he said, "to call me. And thank you, too, Mr. Allinson." He lifted the drink the waitress brought him.

"No thanks necessary," said Jem. "I got you here to pick your brains."

"There's nothing up there any longer to pick, I'm afraid," said Peter DeWin, apologetically. "Nothing but a lot of obsolete knowledge."

"Poor Peter," said Eidel, softly.

Jem frowned at him.

"Sorry," he said. "I don't get it."

"He means," Eidel answered, turning to Jem, "that all the old classifications are breaking down, now."

"Oh?" he said. He looked at Peter. "Miss Hansen said—"

"Eidel said," she corrected him.

"Eidel said, then"—he stumbled a little, awkwardly, over her first name, feeling again that same odd twisting sensation of tenderness toward her.

"That's better," she said quietly, looking at him.

"—that nine out of ten births was producing a mutation. Is it that high?"

"How can you tell?" the older man shrugged wearily. "Maybe it's ten out of ten. A mutation isn't necessarily something you see right off."

"But *all* animals and insects?" demanded Jem, incredulously.

"Perhaps," Peter drained his glass and set it down on the table. "I'd like another drink, I think."

Jem beckoned the waitress. After she had taken their order and returned with a fresh round, he turned back to his questioning.

"When did it start?"

"Sometime earlier this year," said Peter. "It's hard to tell when."

"What started it?"

The older man smiled.

"Wouldn't everyone like to know," he answered. He seemed to hesitate; and Jem—out of more than ten years' experience in interviewing people—sensed something held back.

"You wouldn't," he said, looking closely at Peter, "have some theory of your own?"

Peter looked up at him sharply for the first time. "Is this for publication?"

"Not if you don't want it to be."

"Never mind." The older man seemed to sag suddenly. He turned to Eidel. "I'm sorry—the Security men were around a month ago. They said not to let it out even to the department. It's strontium-90, of course."

"I'd guessed," she whispered.

"Strontium-90?" said Jem, leaning closer.

"I'm sorry," said Peter, turning back to him. "You'd simply call it radioactivity. There are other villains in the fall-out from the bomb tests we've been having these last thirty years. But strontium-90 seems to be our leading assassin. It's a radioactive isotope of the element strontium, capable of causing osteosarcomas, leukemias—" he gave a sad little laugh that was half a hiccup "—capable of causing genetic changes, hereditary changes in the reproductive—" his voice dwindled off into silence "—tissues," he said with a sudden final effort.

"What're you talking about?" demanded Jem, staring hard at him. "We've lived with various levels of bomb-test radiation for forty years."

"We let it get too high," said Peter. "Not war but peace has destroyed us. Now, as if passing over a valley ridge, we get the strange little insects, the strange little animals. And the children?"

"What about the children?" snapped Jem.

"I don't know," Peter said. "Has anyone checked lately? Maybe it's already started."

Jem considered them both through narrowed eyes. Then he whistled a few thin notes betwen his teeth, rubbed his chin and stood up.

"I can check on that," he said. Eidel got up quickly to stand beside him.

"I'll go with you," she said.

"My dear—" Peter looked up at her. "I wish you'd stay here with me and have another drink."

"We'll come back." She reached out and touched his shoulder lightly, in a little comforting gesture. "We'll be back as soon as we can. Come on, Jem."

He led the way out of the bar.

Colin Powers was an intern Jem knew at General Hospital. He was off duty and they persuaded him to come out for a cup of coffee; but he was nervous and ill at ease.

"I ought to be getting back," he said, after they had sat and talked a while.

"What's eating you?" demanded Jem with harsh suddenness. "What's going on, over there?"

"Just the usual things." Colin looked at his coffee cup.

"And some unusual, maybe?" said Jem.

Colin looked up abruptly. His brown young eyes had gone hard.

"So that's why the visit," he said. "You asked me out to pump me about something."

"Then I'm right."

"No," replied Colin, evenly, rising.

Jem slammed a large hand down on the other's arm, almost knocking him back into the little coffee-shop booth.

"Want me to write up a question about something being kept under cover at the hospital?" he said, tightly. "And see it printed with your name mentioned?"

Colin's face was pale with anger.

"A physician isn't required to violate the confid—"

"Shut up and listen to me," said Jem, fiercely, feeling for the first time a cold, uneasy stirring in his guts. "I know what's going on over there. It's happening everywhere and to everything. You've seen these freak insects we've had flying around lately. Well, it's all insects and all animals—and now all humans. Isn't it?" He shook the younger man's arm. *"Isn't it!"*

"I've got nothing to say," gasped Colin.

Jem jerked his head in Eidel's direction.

"Miss Hansen here is from the Zoology Department at the U.," he said. "She's been studying the animal and insect part of it for months now. So don't try to kid us!"

Colin's face wabbled toward Eidel.

"Is—are you—"

"Yes," she answered him. "What Jem says, is true."

Colin slumped, sinking back in the booth. Jem let go of his arm.

"Just tell us one thing," Jem said. "When did it start?"

Colin turned a ravaged face toward him.

"All year, and getting worse and worse—." He buried his face in his hands.

"All the kids?"

"Most of them. Four out of five—" the young man shuddered. "Some were—pretty bad."

Jem nodded, slowly.

"That's all," he said, soberly, getting to his feet. "Thanks. You can go back now."

"Are you going to print it?" whispered Colin.

"I don't know," said Jem. He turned to Eidel, who rose also.

"Where're you going then?"

"We've got a date with a man

named Peter," said Jem. "And some drinks."

Peter DeWin was still sitting just as they had left him, when they got back to Danny's. He had obviously been drinking steadily, but he was not completely drunk—yet.

"Hi, sport," said Jem, following Eidel into the booth seat across from the zoologist. "How many's it been since we left?"

"I really don't know," answered Peter. His words came out a little slowly, but otherwise the alcohol in him did not show. He looked over at Eidel. "How are you, my dear?"

"Fine, Peter, fine." She reached across the table and patted his hand.

"And the children?" asked Peter.

"All year and getting worse," said Jem, grimly, signaling the waitress. "Four out of five. Somebody goofed about this business." He looked at DeWin with hard eyes. "Maybe a lot of people goofed. They should have started doing something about this a long time ago."

Peter broke suddenly into a little, hiccuping laugh.

"Do something—" he echoed. Then he got control of himself. "My dear Mr. Allinson—Jem—what would you suggest doing?"

Jem stared at him for a long, hard moment. Then he stood up.

"I know some people down in Washington," he said. "I'm going to call them."

He walked away.

He was gone for a few minutes. When he returned, he was walking slowly. He sat down in the booth again.

"Well—" he said, seeing the waiting faces of the other two upon him, "It's all over. The President is going on the air tomorrow in concert with the heads of other nations." He spread his large hands on the table. "Emergency conditions—world-wide."

"Yes," said Peter, nodding and lifting his drink in a gesture.

"What I can't understand!" In sudden fury, Jem slammed his fist down on the table before them. "This has been building over a year. They saw it coming. How could they let it go like this? How could they?"

"It was too late then," said Peter. "It was too late five years ago—or ten." He looked over at Eidel and patted her hand where it lay on the table. "My dear—"

"I'm all right," she answered; but she did not look up.

"Goddamit!" exploded Jem suddenly. "Can't you two do anything but sit there and cry? What's wrong with you, giving up like this?"

"Jem—" Peter shook his head, slurring the word a little. He signaled the waitress. "Like the dinosaurs, Jem. We had our chance."

"What're you talking about?"

"We made our own end. We had our chance to get together. We let things go—as we always let things go—even though we knew our time was shortening, that the sun was going down. Now our sun is setting." He made a little plaintive gesture with one hand. "Darkness."

"We're no bunch of lizards!" snapped Jem. "What're you talking about? That's what civilization's for—to handle things like this. We'll work out methods—some sort of radiation armor. Shield the nurseries. There'll be ways."

"No," said Peter. He shook his head slowly, and pawed among the change on the table before him. Selecting a half-dollar, he held it between thumb and forefinger while he rolled back the sleeve of his jacket. He displayed his hairy, old-man's forearm before them naked. It was thin and lumpy, with an odd swelling like a long tumor running from the base of the thumb back to disappear into the wider muscles below the elbow. "I'm in my sixties," he said. "And I was never strong. But

look—" Casually, without strain, he compressed his thumb and forefinger. The half dollar crumpled between them as the odd swelling bunched and moved. "You see," said Peter and let his head sink gently to the table. It nudged a half-empty glass, spilling it. The liquid pooled silver on the dark table top. "That's why it's too late. Even me. Even us." He closed his eyes.

Eidel drew in her breath with a hiss. She sat, huddled and frozen in the booth, her eyes on the mashed coin, their pupils abnormally dilated.

"Eidel!" said Jem.

She did not respond.

Eidel!" He shook her gently by one shoulder. A little of the paralysis seemed to leak out of her slowly. She turned her head to look at him; but the look of terrible, arctic fear was still there.

"Snap out of it!" said Jem. He shook her again, as if to start the watch of her life and youth again to ticking.

"You saw—" she breathed.

He felt the muscles clench in his cheek, spasmodically.

"Sure I saw!" he said harshly. "So he's a bit of a freak himself. So what's that got to do with the real mutations? And what if it did? There's no difference. The situation right now's still the same."

She did not answer, turning towards Peter.

"Look at him!" snapped Jem, giving the other man's head a push. It rolled a little on flaccid neck muscles. "Is *that* something to be afraid of? A drunk? A drunk who can do a coin trick?"

"No," she said, in so low a voice he had to strain to hear her. "There's more to it than that. You don't understand."

"I don't understand—" The waitress had come up to their table, carrying a bar towel. She mopped the wet surface before them, glancing at Peter's collapsed form.

"He out?" she asked.

"Just taking a little nap," said Jem.

"At that age they shouldn't drink." She finished and went off. Jem looked at his own hands, which were wet from the spilled drink.

"Excuse me," he said. "I want to wash. I'll be right back."

She nodded dully. He turned and went toward the washroom, cutting across a little courtyard filled with beach umbrellas and tables, now empty in the reddish light just before sunset. In the washroom, he washed automatically, his mind numbed-feeling as if by the action of some powerful anesthetic; and he shook his head angrily, to get it working again.

There was, he thought, something wrong with him. This situation was throwing him, and situations just didn't do that—to Jem Allinson. He had always had an invincible belief in his own ability to come out on top. So the world was in for a rough time. All right, what about it? He could take care of himself.

And then it hit him. Then it came home to him all at once; and he stood, dumbly watching the water flow over his hands. It was not himself he was worried about—it was her, Eidel.

Years ago, after his first wife had left him, he had cut a niche for the women in his life and kept them there. But now, suddenly with the world crumbling beneath him, he felt the tawdriness of his life and wanted something more, something real—someone small, with soft blond hair and large eyes who sat chilled by a strange, icy fear in the booth upstairs. He grinned at himself mirthlessly in the mirror.

"Well, sport," he said softly to his reflection. "What now?"

He dried his hands and left the washroom. As he stepped out into the little courtyard again, the whole western half of the sky was alive

with fire; and the murky coal of the sun descending beyond the far jagged teeth of the skyline, now black in silhouette. He was reminded all at once of Peter's words about the sun setting—the sun of the human race setting—and in spite of himself little hairy feet of fear ran up his spine and nestled in the dark back of his mind. He wondered then—

In the same instant he leaped—whirled and stamped. His shoe came down on something small, dark and scuttling whose sudden scream was smashed by Jem's crushing heel. Sweating, he stood for a second, then bent over to pick it up.

Its two protruding fangs were sunk into the leather of his shoeheel and he had to break them loose. He lifted it up in front of his eyes. It was evidently something that once had possessed rodents for ancestors. It looked a little like a mouse or rat and was halfway in size between the two. Forcing its mouth open he saw the small sac behind the two broken fangs. Poisonous, almost certainly.

Holding it, he found himself suddenly wondering what had warned him of its attack—for attack it most certainly had been. A musty odor from the creature's fur came up in his nostrils and he bent to sniff at it. It was unlike any odor he had heretofore experienced and that, alone, must have set him on his guard. Unconsciously now, he flared his nostrils and searched about for scent that would warn of any similar presence in the courtyard.

He caught no other like scent, but a great wave of mingled odors washed in on him. He had been cursed with this all his life—an unduly sensitive nose, so that the ordinary smells of human life were a torture to him and he had trained himself to ignore most of what came to him in this fashion, for the sake of his own comfort. Now, for the first time in years, he opened his nose wide to the atmosphere around him; and a thousand different reeks came in—the smells of people, wood, and metal and stone—and food and drink—

He caught himself suddenly. A slow, horrible suspicion was congealing him. He stood, motionless, and the body of the dead rodent mutation in his fingers slipped from his heedless grasp and dropped to the courtyard floor. Why, something cried out inside him, why hadn't he seen it before? Peter with his abnormal fingers and he, Jem, with—.

Abruptly, he began to laugh; and his laughter scaled up until he was forced to take great, gulping breaths of air to stop it. Then he sobered. He stood swaying, a big, raw-boned man, normal in all respects, now that he had ceased to use the animal-like abilities of his nose. His nose, he thought—oh, God, his nose!

He took one last gasping breath and straightened his shoulders and went back into the bar. Peter was once again sitting up in the booth, his eyes open, but staring at nothing. Jem ignored the other man and sat down beside Eidel. Through the window he could see the sunset.

"Listen," he said urgently. She turned her face to him.

"Listen—" he said again, "we're getting out of here, you and me. The world's going smash, all right; but we can get off somewhere where it's safe. Eidel—you understand what I'm saying? You and me."

"You and me," she echoed obediently, but without feeling.

"Listen!" he closed his fingers cruelly about her arm. "There'll be people who'll keep their heads about this. As soon as we know who—who's safe, we'll join them. But to start with, we can't take the risk. Everybody's changed—mutated, probably. Even me. I've known about it all my life, but I never realized. Look!" He

lifted his head, sniffing. "You've got face powder in your purse, and a little bottle of cologne, and a candy bar —look, see if I'm not right. Eidel!"

He shook her, but she did not move. She only turned her head away.

"Don't you understand?" he cried at her. "We've got to get away, so I can take care of you. Eidel, I want you—I love you. Look at me!"

She turned back to face him.

"Don't you understand me?" he said. "I—I love you. I want to protect you—"

"Too late," said Peter.

Jem turned furiously on the other man.

"What do you mean, too late? If we leave now, while there's time—"

"There is no time," said the zoologist. "There was no time yesterday, or last month, or last year, or fifty years ago. It was already too late."

"What're you talking about?" raged Jem.

"Like the dinosaurs," said Peter, dully, drunkenly. "We had our chance. We didn't take it. We could have learned, we could have put an end to the old instincts of fear and hatred, and fighting and killing, each man for himself. We could, have learned to like and trust each other—"

"Don't listen to him!" broke in Jem, seizing Eidel by the shoulders and turning her around to face him. "He's old. He's given up. That's no reason for us, for you and me—there's all the hope in the world for us to come through—"

"No," she whispered. There were tears in her eyes. "No, Jem. He's right."

"Right!" he cried. "He's wrong, I tell you. Wrong. Wrong!"

"No—" she shook her head. "I know." She looked up at Jem. "Don't you think I know? Didn't it occur to you that I might be a mutation, too?"

"You?" His hands dropped from her shoulders. "You changed? How?"

She whimpered a little, suddenly.

"I didn't want to tell you," she said, pitifully. "All those years in school I hid myself away from life. And now you come along, too late—too late—"

He drew back a little from her in the booth.

"What is it?" he said harshly. "What's happened to you? Tell me!"

"I can see, that's all!" she cried. "I can see it all as it's going to happen, every time I lie down to sleep, every time I close my eyes, I see it like looking through a window—all the future."

Jem sucked in breath.

"The future?" he said, quietly. And when after a minute she still did not answer, "You can see the future?" Suddenly he shouted at her. "Well, tell me! Tell me, then! What do you see? What's going to happen?"

"Oh, my God!" she screamed suddenly. "I told you! I've been trying to tell you all day. The fighting and the feeding—all over, all over! The end of the world!

city of the tiger

by JOHN BRUNNER

HE GREW slowly aware of a gentle rocking motion, like that of a boat on a choppy sea, but less yielding. For a while he let his body go with it, unresisting.

After a time, other things impinged on his consciousness: cold, that ate into his hands and feet, and a firmness about his body; distant shouting; and a smell that is like no other smell that ever was.

Finally a booming bass shout from a few feet away jarred him into wakefulness, and he opened his eyes. "This, then, is Tiger City?" he said.

"From the way you were sleeping, Hao Sen," said the man with the bass voice, "it could as well have been the city of your ancestors that you were traveling to. It surprises me you do not fall off!"

"Starlight would never let that happen," said Hao Sen, reaching forward to scratch the top of his mount's head. "Eh, darling?"

The magnificent she-camel he rode answered him with the derisory curl of the upper lip which passes for expression among camels, and both men laughed.

"What have you to do in Tiger City, Kuo Ming?" Hao Sen added, checking his belongings with the routine of many years' experience. They were all there: the brazier and charcoal and the cooking pot; the block of tea-dust and the cake of milk; the cape of camelskin that served him as coat and blanket; the long pike with the jointed haft that drew apart into two; and most important of all the short broad sword that was his special pride, safe in its brass and leather scabbard at his side.

"I have money to spend," said Kuo Ming negligently, patting the pouch at his belt. It jingled pleasantly.

"And after?"

"Who knows? There's a rumour that the emperor intends to levy an army against the bandits of the hills southward—"

"Camel-droppings," said Hao Sen bluntly. "Since I can remember he has been saying that, and still there is a call for caravan guards—without which, where would we be, you and I? Would you join such an army to go deprive yourself of your living?"

He reined Starlight to a halt as the whole long snaking caravan paused before the gates of Tiger City.

Though night was almost fully on them, and stars twinkled through the frosty air, there was still a faint stain of blue on the western sky where the sun had sunk behind the mountains, and in the dusk they could discern the black walls of the city ahead clearly enough to make out the black puppet shapes of soldiers marching back and forth along the ramparts. Above the gate was a balcony, on which guttering torches revealed rows of round shields bearing the stylised black and yellow emblem of a tiger's head.

The travellers, footsore and tired from six days' hard marching, were silent in the gathering dark. They numbered mostly traders, with some itinerant families and wandering entertainers. Now they paused and rested on their heavy burdens—bundles tied up in once-gaudy cloths, yoked shoulder-loads of personal belongings. One old woman just ahead had nodded to sleep almost before she halted. Those more prosperous urged their mules or camels onward slowly, hoping to reach the city gates a few yards ahead of their rivals.

Together Kuo Ming and Hao Sen did the same, and their steeds moved in the slow ungainly walk that, speeded to a gallop, can wear down the most tireless of horses. They rode along the flank of the caravan, sitting their mounts easily, heads up and shoulders squared, an occasional torch new-lit by a traveller glinting on their harness and helmets.

"And you?" said Kuo Ming when they had gone a little way. "What do you do here in Tiger City?"

"I have an—errand—to perform," said Hao Sen. "After that, who knows?" He broke off to exchange a ribald greeting with another of the soldier mercenaries who had escorted the caravan through the bandit country of the hills behind them. This man's camel had a sore pad, and for the past day he had limped beside her like a common wayfarer. His mood was irritable and his answer crude.

The city ahead grew more distinct, and the sound of its busy-ness, which carried in the still air, came more strongly to their ears. "Ah!" said Kuo Ming, stretching himself a little with satisfaction. "Tiger City! Many times I have been here, yet every time I have found something new."

"Hao Sen," said a soft voice from one of three travellers standing on the track, all wrapped indistinguishably in furs against the cold and huddled in the tiny amount of shelter afforded by their flea-bitten mule. He pulled Starlight over to the group, reached down from her lofty back, caught up the girl who had addressed him in one strong arm, and kissed her chilly face soundly.

One of the men beside her said in a jocular tone, "Much more of that, Hao Sen, and we shall begin to suspect that your intentions toward our sister are honourable."

"And is not the fair Lin Ten almost enough to wean my affections away from my one true love?" countered Hao Sen, lowering the girl back to her feet.

"You have a true love?" said the second man, who, in spite of his frosty fingers, was juggling with four little coloured balls while he spoke. "I thought men-at-arms such as you had no time for lasting attachments."

"I mean of course the one female who shares all my wandering,"

laughed Hao Sen, and jerked his thumb at Starlight's head. The beast turned and curled her lip again in what looked for all the world like a sneer of contempt.

"You go too far comparing our sister to a camel," said the juggler.

"There is *no* comparison," asserted Hao Sen. "And that, O moon of my delight, is a compliment."

"Thank you," said Lin Ten gravely. "For whatever the other likenesses may be, I cannot curl my lip as she does. Look." She demonstrated, and achieved only an enchanting *moue,* which Hao Sen kissed away. Then, bidding them goodnight, he eased Starlight onward.

"You'll see us in the market-place tomorrow?" the juggler called after him.

"Assuredly!" Hao Sen shouted. "But expect small pay for your performance!"

He urged Starlight into her racing gait for the short distance separating him from Kuo Ming. When they fell in together again the latter grumbled, "The one woman in this caravan worth a second glance, and you cut her out for yourself."

Hao Sen looked down at himself with some complacency. He was tall among the others of this race—just short of two metres—broad-shouldered, deep-chested and strong in the arm. His face was squarely handsome, with a short crisp beard that was now spangling with frost.

He answered peaceably, "Can I help it that she is attracted to me?"

Kuo Ming boomed out a deep resounding laugh, and said nothing more as they forced a passage through the walkers slowly filing into the gate of the city. They exchanged soldierly insults with the men-at-arms lounging on the balcony over the entrance, saluted the master of the caravan who sat his camel next to a high officer of the city guard and watched the motley procession going by. It was this master's custom to pay his guards not when they entered the city but when they came in sight of it, so they had spoken their last with him for the time being.

Then they were pressing through the gate, and neither of them noticed the officer of the guard tilt one finely-plucked eyebrow at them as they passed, and then fall deep in talk with the master of the caravan.

Tiger City! To many people the name was like magic—and of course in a sense it *was* magic, for at its founding the emperor had wisely decreed that the name of the second most powerful beast in all the world should be bestowed on it as a charm against ill-wishing. But to most people the magic was of a less subtle kind, implying glamour and excitement and gaiety and a press of men and women.

At once Kuo Ming and Hao Sen found themselves in the middle of the city's kaleidoscope, lit by enormous flaring torches at the eaves of the low stone houses. Here and there in the narrow alleys charcoal braziers glowed deeply red, and people paused beside them for a little warmth before rejoining the hustling throng. There were sharp-eyed merchants awaiting the coming of the caravan, hoping to snap up bargains before they had to haggle in the competition of the open market; stall-holders, spreading their wares on low wooden trays, selling hot rice and steaming tea to the cold and weary newcomers; nobles strolling casually among the crowd for a thrill, their confidence being accounted for by the heavy swords at their sides and the presence of tall broad men-at-arms who followed them like trained dogs; jugglers, conjurers, entertainers of all sorts; dancing girls swaying to high thin piping music, their bodies white with cold in their thin open-fronted jackets and cotton

trousers; and the street-walkers shrewdly sizing up the passers-by. On one corner an itinerant story-teller was loudly recounting the fable of Young Ryin and the dragon, halting at the most poignant moments to demand further payment from his listeners; on another, an aged greybeard bent almost double over a lute.

Noticing the way Hao Sen gazed about him, Kuo Ming seemed struck by a thought. "Have you never been to Tiger City before, Hao Sen?" he inquired wonderingly, and Hao Sen shook his head.

"Well, then," Kuo Ming exclaimed, "you have much to look forward to! First, let us find a tavern before the rabble fills every room that is to be had. Last time I was here I found lodgings in a good house, with few fleas and a fine line in dancers, but I had words with the landlord regarding his daughter, and he waits for my return with a bowl of poisoned rice. This time I wish to try the tavern of the Silver Fountain, but I have no idea on what street it is to be found."

He swung down from his saddle to shout at the greybeard with the lute. "Which way lies the tavern of the Silver Fountain, venerable sir?"

The greybeard did not reply, and Kuo Ming was on the point of shaking his sword under his nose to teach him better manners, when Hao Sen interrupted him. "He may be deaf, Kuo Ming. Why not ask that lotus-flower yonder?"

"Deaf?" grumbled Kuo Ming. "A deaf musician?" But he followed Hao Sen's pointing arm and needed no further convincing, for the lotus-flower was young and slender and had long lustrous black hair and dark almond eyes and lips like a glowing coal. He urged his camel a few paces towards her and repeated his question about the tavern.

The girl looked him up and down and answered casually. "On the Street of a Thousand Felicities, near the market."

"Know you the street, Hao Sen?" Kuo Ming demanded with a wink. Hao Sen obediently shook his head, and he turned back to the girl with a helpless shrug. "You see, blossom of the water-lily? My friend and I are strangers, and would surely run astray in looking for the street. Would you not condescend to guide us?"

The girl laughed with a high clear sound like temple bells, and said, "Who could fail to take pity on your ignorance, soldier? Who could resist your pleading?"

"Many," muttered Kuo Ming ruefully under his breath, but only Hao Sen read the movement of his lips. He swept the girl up into the saddle before him, and said, "Which way, then, O beautiful as rare jade?"

"Straight from here, along the Street of Many Kites," the girl answered, and leaned back against his chest as the camels trotted forward.

During the ride, Hao Sen's mind was busy analysing and absorbing impressions of the city; without seeming to, his eyes took in every detail as they followed the tortuous route to the Street of a Thousand Felicities. This one was ablaze from end to end with gaily-coloured paper globes.

They found the inn without trouble, and gave their camels into the charge of the stable-boy. Kuo Ming swung the girl to the ground and dropped lightly after her, and they entered the low-ceilinged, stuffy main room of the inn, which was full of a smell of people and wine and the smoke of the open fires that burned on the floor. Joss-sticks smouldering in front of gilded idols in niches in the wall thickened and sweetened the air almost to the limit of breathability.

Hao Sen purchased one of the sticks from the nodding, toothless vendor at the door, lit it, and placed

it at the feet of the plump-bellied god of laughter, whose round face was eternally fixed in a wide-mouthed bellow of merriment.

"Why do you choose laughter?" asked Kuo Ming, setting a stick of his own before the patron god of travellers in recompense for a long journey safely completed.

"Is it not written that if thou laugh three times a day and be glad, thy stomach, the father of affliction, shall never trouble thee?"

"Where is that written?" said Kuo Ming with a frown of puzzlement. "It is not among the sayings of K'ung Fu Tze."

Hao Sen shrugged, trying to pass it off, and cursing himself under his breath. "It is something I have heard said, nonetheless, and I pay heed to it, for by following it I have found it true." He broke off to return the bow of a plump man, almost the colour of a ripe lemon, who bent before them.

"My humble greetings to you honoured gentlemen," he said. "The resources of my lowly establishment are yours to command."

"We wish accommodation, food and drink," said Hao Sen shortly, and the lemon-coloured man bowed again, naming a price. Hao Sen beat him down to half, ordered bowls of hot fish, rice and wine, and seized the chance afforded by the departure of three swaggering merchants to find them a place to squat beside the fire.

They tackled the food and drink with the serious voracity of active men who have been cold and rather hungry for a week on end, and the girl matched them bowl for bowl, her chopsticks sometimes moving so fast the eye could barely follow them.

Kuo Ming regarded her with astonishment. "Have you not eaten for so long, bloom of the peach?" he inquired, and she shook her head. When her mouth was empty enough to talk with, she replied.

"Times have been lean in Tiger City these three months, and your caravan is the first we have seen in all that time. The emperor himself has come hither with an army, and they have sat and eaten and drunk their fill without doing anything about the bandits who have plundered us."

Hao Sen leaned forward. "Yet we saw no sign of a bandit on our journey! Why should this be?"

"The winter is passing, of course," said the girl. "For two months of every year the only road to this city which is open is that from the north-east, which runs through the worst-plagued districts. Yours is the first southern caravan of the spring."

"And it is along the north-eastern trail that the bandits gather thickest at any time," said Kuo Ming, nodding. "Yes, I understand."

"The next caravan to follow your route will not have such an easy time of it. The bandits follow mountain passes, and they will still be snow-bound, but as soon as a thaw sets in, they will take the road and harass the southern trail again."

"What does the emperor's army, then?" demanded Hao Sen. "Have they not guarded the north-eastern road?"

The girl shook her head again; the gesture made her hair swoop round her shoulders like a raven's wing. "Two caravans have been lost completely, and I have heard it said that some of the soldiers, disgusted with their idleness and tired of doing nothing more than patrol the streets, have themselves turned bandit."

Kuo Ming chuckled reminiscently. "And I am not over-surprised," he said. "I remember—well, no matter."

"Were you not talking of joining this army?" Hao Sen put in maliciously. "It is then your ambition to police the streets of the town and go to bed drunk every night?"

"Perhaps the second," said Kuo Ming, glaring. "Not the first."

"Well," Hao Sen commented, setting his fourth rice-bowl empty on the floor, "ours was a rich caravan and reached here intact. Perhaps things will be more lively tomorrow."

"Indeed yes!" The girl smiled. "Tomorrow's market will be the finest for a very long while."

Kuo Ming yawned hugely. "Well, one will need to rise early to see the best of it. For myself, I am not overworried. A mercenary like me has small need of goods which clutter the back of one's camel."

He leaned back, putting out his left hand to support himself, and an instant later let out a yell of annoyance. "Why do you not look where you put your feet, oaf?" he bellowed, and scrambled up to face a thick-set, pompous man in a gorgeously embroidered robe.

"Feet belong on the floor," said the man who had trodden on his fingers. "Hands don't. Let me past."

"Why, you walking bundle of crow-carrion!"

The pompous man's eyes glinted dangerously. "I am not accustomed to such words from a common soldier. Make your apology, and be quick about it."

"I will *not* apologise!" He let his hand fall to the hilt of his sword. The pompous man watched the movement unblinking, and his composure discomforted Kuo Ming, who hesitated and asked, "Who are you, anyway, that you're so arrogant?"

"I am the wizard Chu Lao," said the pompous man solemnly, and Kuo Ming threw back his head and laughed.

"If you're a wizard, friend, why do you not conjure yourself a place to lodge better than this flea-ridden hole? Why must you come here associating with us rabble?"

"You amuse me," said Chu Lao bluntly, and shook the sleeve of his robe. From it struck a snake, black and vicious and as long as a man's height. Kuo Ming let out a yell of terror and jumped backwards, not fast enough to prevent the reptile dropping across his shoulder and coiling round his arm. The other people in the inn stopped talking and eating and edged away as far as they could until, seeing that the snake was fully occupied with Kuo Ming, and that Chu Lao was standing with his arms folded and a slight smile on his face, they let out a roar of amusement at the soldier's ineffectual attempts to deal with his problem.

Hao Sen, watching with narrowed eyes, reflected on the situation. A wizard. Interesting. Now the question was: a wizard who could actually (he did not take the trouble to ask himself what he meant by actually) work magical effects, or someone nothing more than a conjurer? The trick with the snake could have been either; indeed, a snake was as good a weapon as any in some cases, and possibly Chu Lao carried it as a pet which offered personal protection. Warm in the full pouch of his sleeve, it would lie comfortably torpid, but would resent being disturbed.

At length Kuo Ming managed to get hold of the snake behind its head; one gigantic squeeze with his thumb and forefinger, a cracking noise as the bones of its skull were crushed, and it began to writhe itself loose from its hold. He unreeled its sinuous length furiously, and the crowd, reading real anger in his expression, stopped chuckling at his plight.

As if it were a whip, he slashed it at Chu Lao's face; the wizard was faster than he, caught its tail in mid-air and made it vanish—presumably into the same sleeve that it had occupied when living.

"A snake this time," he said. "Perhaps it will be a dragon next time—

and you will be even less happy with it."

He took advantage of the space which had cleared around them to stalk past Kuo Ming and disappear into the smoky recesses of the tavern.

Kuo Ming, rubbing his still-sore fingers, sat down and grew voluble in his description of what he would like to do to Chu Lao next time they met. Hao Sen paid no attention; after a while, he got to his feet, yawning ostentatiously, and bade them good-night.

The room to which he was taken was no more than a cubicle partitioned off at the rear of the house by wooden screens; still, they were opaque enough to afford visual, if not auditory, privacy. He defeated the landlord's attempt to sell him the use of a dancing-girl for the night, and then squatted down on his camel cape by the light of the smoky lamp.

For some time he sat cogitating, his eyes unfocused. At length he stretched himself and undid his belt, taking from a pouch attached to it a dozen miscellaneous objects: a coin, an opium pipe, a length of cord, a small wooden box, and other things.

Now how—?

He thought back carefully over basic principles, and selected the length of cord as the most likely choice; then a possibility of danger occurred to him, and he changed his mind. Suppose this one turned out to be poisonous? He did not want to be defeated by his own ingenuity, and he knew that in his present situation, he was as much at his own mercy as at anyone else's, although he was quite alone.

He turned the objects over, puzzling, seeking some sort of likeness or superficial similarity of nature which would aid him in his experiment. Then an idea struck him. Inside the wooden box was a piece of crystal. It was warm in the room, but the crystal, which had been insulated from the heat by the box and the thick leather of his belt, still retained a little of the chill it had acquired during a week of below-zero journeying.

He took it up meditatively, and set it in the bowl of the opium pipe. Then he spoke a gentle word to it, and put the pipe towards the lamp as though he were about to warm a piece of opium for smoking. He concentrated; he had—he had to have—an excellently disciplined mind.

In a few moments he knew that his task was far harder than he had expected; he knew that Chu Lao was a very dangeorus man, for he was a real wizard, and moments before he flung it at Kuo Ming the snake was probably no more than a thread from the frayed hem of his sleeve.

For the one word he had whispered to the rock crystal was "ice", and now, with the warmth of the lamp, it was melting and trickling in a thin stream of clear water through the mouthpiece of the pipe.

He slept badly that night; his brain was whirling with new possibilities, and for a while he even considered going back where he had come from. Tiger City was dangerous.

Nonetheless, the sun was up somewhat before himself, and when he descended to the main room by the rickety wooden ladder which served as steps to the sleeping gallery, there was no sign either of Kuo Ming or his girl. He paid the landlord for his night's lodging and reserved his place for the next night in case he should need it, and went out into the street.

It was a clear, cold morning; the air, thick though it was with city-smells, was still cleaner than that inside the tavern, and he drew deep breaths as he turned towards the market-place. He had no trouble lo-

cating it—the clamour which rose from it was sufficient guide.

The market-square was a broad stretch of hard-beaten earth in front of the biggest of the many temples in Tiger City. Before the main portal was a flight of ninety-nine wide steps, of which the lowest dozen were now monopolised by traders in meat and fish. Its many pagoda roofs were painted brilliant hues of sky-blue, crimson and gold, and ornamented by hundreds of hundreds of fantastically complicated carvings. A faint aroma of burning incense drifted from it to mingle with the smells of the market.

For a while he simply wandered through the press of bargainers haggling with the newly-arrived merchants from the caravan. He exchanged greetings with a fur-trader whom he recognised, and with a seller of gods from the south, and with a group of hard-faced mule-sellers whom he had travelled beside the whole of one day. For a while he paused to listen to a singer accompanying himself on a crude dulcimer, but the song was a dull one, and he moved on to join the group about a thick-set gypsy with a performing dragon.

The dragon was a poor specimen, half-starved and less than three-quarters grown, its scales patched with a mildew-like fungus disease, but its vicious three-inch teeth were still clean and white and very sharp, and it bared them in ineffectual snarls. The gypsy was making it move its legs in a kind of clumsy dance, goading it with a sharply-pointed *ankh* which he heated at intervals in a brazier.

Hao Sen studied the baleful look in the beast's eyes. This, he suspected, was one dragon which was not going to stand much more such treatment. He said as much to the gypsy, who answered with a string of curses and then ignored him.

A little uneasily, Hao Sen made sure that his sword was running free in its scabbard, and walked away. Close by, a barber had set up his stool and his stove, on which steamed a pan of hot water, and was calling for customers. Hao Sen touched his beard, for he was not a little vain of his appearance now, and then took the stool, telling the man to trim his beard and comb out his long, soft, plaited hair.

The task was finished, and the barber was importuning him to have his nostrils and ears cleaned also, when there was a scream. He leapt to his feet, seeing a wave of catastrophic panic begin to break across the market like a bore in a river-mouth. Shouting began, and in a moment it made sense.

"The dragon! The dragon!"

The barber incontinently joined the rush, forgetful of what Hao Sen owed him; the buyers and sellers alike streamed outwards from the square, overturning booths, scattering merchandise and trampling old people and children underfoot. But Hao Sen was not minded to join them; rather, he wished to go the other way, and by shoving and pushing he shortly managed to break into the clear space surrounding the dragon.

The beast itself was no longer the sullenly submissive thing he had seen before; it was an incarnation of menace, and stood on three of its sharp-taloned legs above the inert body of a man in gay silk clothing, slashing at his face. Hao Sen at once recognised one of the jugglers he had met on the trail, the brothers of Lin Ten. But that meant that she herself—

He scanned the neighbourhood, and saw her lying in the ruins of a merchant's stall, where the crowd must have trampled her down. She seemed unharmed, though unconscious, for he could tell by the way her hair stirred over her mouth that

she was breathing, and she moved slightly even as he looked. But she was in deadly danger, for the dragon was tiring of the motionless body as a plaything, and its yellow eyes were hunting for a new prey.

Its gaze passed over the body of its master, who lay with his head buried in a pile of red-hot coals from an overset brazier, ignored Hao Sen, who stood with his sword unsheathed and watched it warily, and looked still further.

Hao Sen knew something of the ways of dragons. He knew that, although they might be half-crazed with fear or pain, they would not attack unprovoked. But they hunted man as they would hunt anything else—for food. And this dragon was hungry.

In a few seconds it would start to move among the bodies on the ground, for it hated to eat any but living prey—if it could, it would never do more than stun a victim before it fed. And if it found Lin Ten—

Hao Sen shrugged, and wished for his long pike, which would have spitted this dragon in mid-rush, but that was far behind him at the tavern. Besides, though it was not good policy to take the offensive against a dragon, this time it would have to be done, and for that a sword was wieldier than a pike. Luckily, the disease which patched its hide would have made vulnerable points in its armoured body.

As he had feared, the dragon now began to move, its body rippling from nose to tail. It sniffed at the nearest carcase. Hao Sen stepped closer, moving sideways at the same time, to get it if possible away from Lin Ten.

Its head came up after dismissing the corpse which had drawn its attention, and for the first time it considered him as prey. Its nostrils twitched. But it was weak with starvation, and went on looking for unconscious food.

By now the square was virtually empty, and from the comparative safety of the temple steps and the mouths of the streets a crowd watched anxiously.

The dragon tried more corpses without success. Then with a burst of energy which took him completely by surprise, it scuttered past him and was snuffing at Lin Ten.

Hao Sen's patience snapped; he seized the broken shaft of a tent from close at hand and hurled it like a javelin at one of the mildew-weakened spots in the beast's plated skin. The disease must have made it abnormally sensitive, for though the sharp wood barely made a noticeable gash, the creature howled with pain and spun round to charge at him.

On the first attack, he had time to throw himself aside and let it go past him, but the second time it had mastered the smart of its superficial injury, and although he dodged again it cunningly curved its tail in mid-air so that it caught his shoulder and spun him round, gasping. The whole dragon must have weighed as much as a man, and its tail was thick, muscular and spiny.

But it had misjudged the length of its leap, and it fell into a tangle of cords on a rope-seller's stall, which delayed it long enough for Hao Sen to recover his balance and devise a tactic to meet its next pounce. This time, instead of leaping sideways, he flung himself backwards, in the same movement bringing up his sword point foremost so that it sank deep into the dragon's underbelly.

The hilt was wrenched from him with such force it nearly sprained his wrist, and the violence of the impact made his helmet ring on the frosted ground. Shrieking with pain, the dragon scrabbled with its clawed hind feet and triple lines of pain

told him where the blind slashes had penetrated his leggings.

He brought up one booted foot with all his force and kicked at its belly close to the place where the sword had stuck fast, its point buried in a rib-cartilage. That hurt the dragon, severely enough for it to waste a few moment trying to double its neck back under its body and pull the blade out with its teeth. Dark blood leaked down the hilt, but slowly.

Hao Sen rolled half clear, and risked losing his fingers in a desperate attempt to gouge out one of its eyes. But his hand touched only the bony skull, and then it had pinned him to the earth again.

This time it did not make the mistake of standing directly above him and leaving its belly exposed; it stood off to one side, holding him with one foot while bending its head towards his throat.

Just in time he got his right arm, palm upwards, straight against its lower jaw, so that to bend any further the dragon would either have to tire him out or dislocate his elbow. But he could not hold out for long. At any time, even now, a dragon this size was a match for an unarmed man, and before the sword in its vitals drained enough of its strength to dull its determination, it would have fatigued his arm to the point of bending.

No, this could not go on for long.

Hao Sen took time to curse himself elaborately for a stupid fool. Then he cursed the dragon, but before he had finished there were running footsteps in the market-place.

The pressure on his arm relaxed perceptibly, for the dragon was turning its eyes to see what was coming now. A familiar voice cried out; a bright sword crashed down on the dragon's skull with a jar that ran clear down his arm. Instantly he went limp, as if dead, knowing that the dragon would at once turn to face the new adversary.

It did. The moment the weight came off his chest, he rolled over and stood up. Summoning the last reserve of strength in his body, he grasped the dragon's tail as it faced his rescuer—he saw briefly that it was Kuo Ming—heaved, and lifted it bodily off the ground. For one fantastic second it seemed that it was trying to climb down its own tail to get at him, and then he began to spin on his heels, the weight on his arm giving place to an outward tug.

Four times—five—six times the market whirled giddily; the dragon's blood spattered an ever wider circle on the earth, and it cried in a voice of terrible agony. Then he added one last ounce of violence to its course, swinging it upwards, and let go.

Across the ruined cord-seller's stall it flew, above the spilt chest of coins of a money-changer, and fell, its head twisted at a strange angle, agaist the lowermost of the temple steps.

Then Hao Sen fainted.

He was unconscious only for a few seconds, and he recovered to see the familiar and very welcome face of Kuo Ming bending over him. He was saying admiringly, "Ah, but that was a bold trick, Hao Sen!"

"The dragon!" Hao Sen demanded, struggling to regain his feet. "What of the dragon?"

"Dead," said Kuo Ming with much satisfaction. "I did not even have to give it a final stroke, for its fall broke its neck. Here, let me help you." He hoisted Hao Sen bodilv to his feet. "You feel well enough?"

Hao Sen nodded. "But what of Lin Ten? She was lying—" He tried to regain his sense of direction, achieved it, and immediately identified the spot.

Kuo Ming hastened across to her, examined her swiftly, and gave Hao

Sen a reassuring nod as he came up. "She's unhurt, barring that bruise on her head. Look, she's wakening."

Hao Sen barely noticed that the square was again filling with people, some going to wonder at the dead dragon, some to see the man who had mastered it, until some of the latter offered him congratulations. "Go see to the injured!" was his curt response, and he himself got a wet cloth and applied it to Lin Ten's brow.

"Hao Sen," said a soft voice, and he glanced up to see the girl's brother. This was—Lin Soo, that was it; the other juggler, of course, was dead.

"She lives," he said roughly. "Though not your brother."

"I know. I saw him die," said Lin Soo. "And I had thought my sister dead also. But you have saved her, and henceforward, whatever you require of her or me, is yours for the asking."

"Attend to your sister till she is better," said Hao Sen, a little embarrassed. "I'll go and find my sword."

Still swaying a little on his feet, he made his way over to the dead dragon, amid the exclamations of the curious and the moans of stall-holders whose goods had been ruined in the panic. He rolled the beast on to its back, and braced his foot against its breastbone, grasping the protruding hilt.

A glance told him that his effort was wasted, and he let go again. In its final fall, the hilt had been bent almost to a right angle with the blade, and even if it were straightened it would never be reliable again; it would fracture in use.

"Are you not the companion of that man whom I threatened with a dragon?" a familiar voice inquired of him, and he looked up to see Chu Lao the wizard pushing through the crowd.

"I am," Hao Sen admitted. "Was this dragon of your doing, then?"

The wizard half-laughed. "Think you *my* dragons are disease-patched yearlings? *My* dragons are a match for ten men, let alone two. But it was a good fight, and a neat trick by which you overcame him. Your sword, I see, has suffered."

Hao Sen nodded, his eyes on Chu Lao's face.

"Draw it out," said the wizard. "If you can."

Hao Sen gave him a brief glare, put his hand to the hilt again, and heaved. The blade came away with a sucking sound, and blood crept from its tip.

Fastidiously the wizard drew his robe aside, and then told Hao Sen to hold the blade before his body. Hao Sen did so, and Chu Lao made a ring of his forefinger and thumb, which he passed the length of the blade, from tip to hilt.

The blood curdled and fell away, leaving the metal clean and bright; the dented edges became sharp and even. When the wizard's hand reached the place where it was bent on itself, the sword quivered in Hao Sen's hand. He grasped it with all his strength, and it sprang suddenly to straightness, singing.

"It is better than new," said the wizard negligently, and made his way off into the crowd.

Now why do that?

Obviously, out of the people Hao Sen had met so far on this trip, Chu Lao was the most significant. Was it possible that Hao Sen's action in killing the dragon had stamped him also as a significant person? Well, that was inevitable, of course; one could not hide one's individuality in a place like this.

But to have received special attention in that way meant that he had drawn too much attention. He would either have to be bold about it and

openly admit the fact—and he felt that it was too soon to do that—or relapse into the background and trust to Chu Lao and anyone else of major significance whom he ran across to ascribe it to chance.

Well, one thing was certain; if he wanted a sword he could rely on, he would still have to get himself another, for what Chu Lao's magic could do by way of strenghtening this bent blade, it could certainly undo. He knew from last night's experiment that he could probably reinforce or counter-charm the blade, but he dared not use magic openly, for that would instantly confirm his real significance as an individual.

What would be the logical thing to do? Answer: give this sword to Kuo Ming in gratitude for saving his life.

When he returned to the place where he had left his friend, he found Lin Ten recovered and standing by herself. On seeing him, she prostrated herself, going on her knees before him and vowing eternal indebtedness. He dissolved the mood by picking her up and kissing her, and demanded to be led to the tavern to have a drink and recover his strength.

"And, Kuo Ming," he said, "do you recall that wizard with whom we had words last night?"

Kuo Ming nodded, and Hao Sen explained what had happened. "So—since your intervention saved my life—take it," he finished, and handed over the newly beautiful sword.

He overcame the other's protestations, accepted Kuo Ming's old weapon in exchange, and went off with him to the tavern, leaving Lin Ten and Lin Soo to seek the body of their brother and take it up for burial.

In the tavern, Kuo Ming retailed the story of the fight twice over with embroidery, and the landlord said he was flattered to have such a distinguished man-at-arms as Hao Sen lodging with him and told him that he could have his room and board for today without payment.

Whereupon Hao Sen promptly went off to the room to squat on his camel cape and consider the situation.

It was his custom to order the people he met, so far as he could, in relative significance, but he had seldom been forced to do it so soon after his arrival. Now it seemed imperative, for he had been caught up in such a web of tangled circumstances that he needed time to think them out.

Chu Lao he had already nominated as most important. Add to him, the emperor, the commander of the city guard, and the master of the caravan, relative seniority unspecified. In all likelihood the emperor would also be a wizard, and so might one or more of his generals—assuming that this army of his had any objective reality.

Kuo Ming next? After all, he had saved Hao Sen's life, which made him at least superficially significant. But the difficulty there was that the reflex response to impending death in Hao Sen's mind might well have *created* that significance in the moment of need. Did the same thing go for Lin Ten and Lin Soo? He did not think so; he suspected that their protestations of gratitude might be individual.

But their brother was dead. And that complicated things.

He stretched out on the cape at full length, mentally reviewing—his memory was nearly perfect—everything that had happened since he came to Tiger City. The complete analysis took him some hours; it left him very little wiser than when he started.

No, he could do no more than see what happened next.

Effectively, that was nothing, for he passed the three days following in peace, undisturbed by anyone ex-

cept the landlord of the tavern and Kuo Ming, who took him around the town to show him the sights and embarrassed him exceedingly by introducing him to everyone they met as the dragon-killer.

After the three days, he judged himself fairly safe; apparently no one had realised his individual significance. Therefore he would be able to investigate somewhat further, and the first person to call for his attention would be Chu Lao.

He debated for a long time as to the best manner of tackling his problem. Ultimately, of course, it was simple: to eliminate the most significant individual involved, to take on the central motivation himself, and—piece by piece—to destory it. The intrusion of real wizards, who could operate real magic, trebled the complexity of the task, for magic might work according to any laws or none—though broadly speaking there were two principles which were never transgressed.

But the worst aspect of the appearance of real magic in Tiger City was that it protected the most significant person very thoroughly indeed. It meant that the man wielding the real power might not be the emperor, might not be a general or chief counsellor, might be—the greybeard on the street playing the lute.

He resolutely bet himself that human vanity was against the last possibility, and went to talk with the landlord of the tavern.

Two pieces of gold bought him the knowledge he wanted, and he added two more in the hope that it would guarantee the man's forgetfulness of what he had asked. Another piece went to Kuo Ming's girl on the understanding that she kept him very thoroughly occupied and if possible drunk that night, and he considered he had prepared as thoroughly as he could.

It was well after midnight when he left the tavern—not the one where Kuo Ming was drinking—in which he had installed himself until the crucial time arrived. It was some distance from the market-place, in a quiet district, which meant that it was not over-well patronised and he risked being remembered; but by the same token the streets were empty and the only light came from a moon two days short of its first quarter.

Silently, his feet muffled in fur boots, he made his way towards Chu Lao's home.

As Kuo Ming had tauntingly suggested on the occasion of their first meeting, the wizard had somewhere better than a flea-ridden tavern for his abode; he had something near to a palace, in fact, standing on its own in a garden through which a brook ran chuckling. It was beautifully laid out; there were lawns, bowers and paths which were thickly shadowed but afforded Hao Sen all the more concealment for that.

The wall around gave him no trouble; a convenient tree stretched a branch towards him, and he hoisted himself up and dropped inside the grounds. He paused, listening keenly, and heard nothing.

Across the garden he fled like a shadow, until he came to the rear of the house, and there studied the blank wall facing him. Wooden shutters closed the windows against the cold night air; the doors, beyond question, would be heavily barred. He pondered; then he saw a flicker of light through a chink in a shutter, and put his eye to it.

Beyond was a kitchen; the stove, with its many different fires to suit the needs of a skilled chef preparing a meal of many courses, was dying into darkness. A single lamp shone dimly, revealing that there was no one, not even a kitchen-maid, within sight.

He had to take a risk, and immediately.

From his pouch he fumbled the little wooden box which had contained the crystal. The catch worked smoothly, and it opened and shut without a squeak. He wondered if the same would hold for the shutter, but he had to try it.

Withdrawing to safety ten paces away, he looked at the shutter and the window which it closed. Then he took up the lid of the box, whispering to it and concentrating fiercely.

Every shutter that he could see—and there were half a dozen within a few yards—began to creak open.

Hastily he shut the box again and waited for someone to be awakened and come looking for him. Nothing of the sort happened; at length he did what he should have done in the first place, and broke a piece of wood off the bottom of the shutter he was interested in, where it was rubbed into splinters against the sill of the window, to put in the box. This time he got the results he wanted, and clambered stealthily into the kitchen.

The draught made the lamp gutter alarmingly, and he was startled to see what looked like a tall man moving in the shadows behind him. A second glance reassured him; it was a statue carved in stone, and the movement of the flame was all that made it seem to be alive.

He noiselessly reconnoitered a small room leading off the kitchen, finding a gentle snoring which came from a youth of twelve dozing in a corner. Safe enough; he was probably so overworked he wouldn't hear anything short of thunder.

He returned to the centre of the kitchen, and looked for the entrance to the rest of the house. It was opposite him, behind the statue, and completely in darkness. He would have to go carefully.

He gave a final glance into the alcove where the boy was asleep, and started to creep towards the exit. The statue raised its arm to bar his way.

He froze instantly, possibilities crowding his mind. This was not a statue, but a guard dressed as one; no, for he could see distinctly that the arm it had raised to bar the exit did not wrinkle at the elbow as would clothing or canvas. It remained as smooth and round as before. Therefore this was a statue, and he had been stupid to remember to use magic for his entrance and forget that it was probably also employed to guard the house.

It made no further move for a while, and he wondered: what sense does it use to track me? Something that is independent of special organs, for it must be solid stone. He pondered, and decided that it was probably hearing, for the vibrations conveyed through the air and the ground would provide sufficient information for it to recognise a stranger.

He stepped backwards, and it followed him with a single huge stride, raising its arm to strike across where his body might be presumed to be. He barely escaped the blow, but when he froze again it also halted.

It could move very swiftly, then. That was worse still. He had half-hoped it would be slow and ponderous, which would enable him to elude it long enough either to get into the body of the house or out through the window again.

He turned his head, barely daring to breathe, and saw that standing against the wall was a large jar with a dipper hung to the rim. It was directly below the flaring lamp, which made him suddenly hopeful that it might contain oil. He thought he could see a few drops shining on its sides which confirmed the suspicion. It any case, he would have to try.

Judging his movements exactly, he leapt for the jar and overset it with a splash; the heavy liquid it con-

tained *was* oil, and the statue's ponderous foot slipped and slid as it strode forward. On the second stride it lost its balance, and came down with a thunderous crash, breaking into two pieces across the waist.

He seized the lamp from the wall as a cry from the alcove told him that the boy had been awakened, and dropped it into the pool of oil. Bluish flames spread at once across its surface; thick black smoke chokingly veiled his departure.

Outside, he dashed across the lawns and paths with more attention to haste than to concealment, while lights flared up and shutters were flung open in the house behind him. He had memorised the route which led to the convenient tree, and he followed it directly.

He was within a few paces of the wall when it began to grow.

It stretched upwards until it was more than twenty feet taller than before, thicker and apparently stronger—that its substance might in fact be more tenuous because more expanded. He drew his sword and slashed at it, finding his guess confirmed. The wall was now tough, but he could hack chunks from it if he was determined enough.

He carved a hole large enough to let him through, sheathed his sword again, and dived head foremost through it. As he dived, so the wall began swiftly to shrink to its original size, and before he was all the way through the hole—big enough for his shoulders when the wall was expanded—was too small for his feet, so that he was caught by the ankles with his face in the dirt.

He was still stuck in that ignominious position when Chu Lao and his retainers came to find him, cursing, and striving vainly to break loose.

On the whole, Chu Lao behaved in a very restrained fashion. He decided (or affected to decide) that here he had no more than a case of a common soldier with ideas above his station, who had been sufficiently ungrateful regarding the favour done for him in the matter of the sword to come burgling.

Accordingly, he sent for the city guard, and delivered Hao Sen to them bound hand and foot and looking much the worse for his night's experiences. Face down across the back of a camel he was brought to the gate of the city and there thrown into a cell built in the solid wall. A single barred window, far too small to afford anything but a glimpse of the outer world, was the only other opening beside the door.

A one-eyed man with muscles like a horse was his jailer, and sat on a low wooden bench beyond the door, staring unblinkingly at Hao Sen as though he was an unidentified germ in the field of a microscope. Hao Sen ignored him.

Plainly, he berated himself, he had been over-confident. Now he was in the tightest possible corner, with a choice of two alternatives. One was to attempt to escape by magic, in which case he ran the risk of overreaching himself and finding that someone else knew more about its laws in Tiger City than he could guess at. That, effectively, would finish him. The other choice was to wait until they executed him, and he fancied that least of all. He had been executed once before, on a much earlier trip and in entirely different surroundings, and it was not an experience he wanted to repeat.

Of course, it would apparently eliminate him, and perhaps make a second try simpler. But it would involve delay, and every day that passed was a serious waste of time. It would not be possible for him to come back at once after his execution; he would have to wait, or someone else would have to take his place and laboriously go through all the

stages of investigation he had already performed. And that would be a blow to his vanity, too.

No, magic it would have to be. But he was sorely handicapped by the fact that everything had been taken from him except his clothing; even the pouch on his belt had been emptied. Without money or weapon, even assuming he did get free, he was going to be labouring under major disadvantages.

The one eye of his jailer stayed firmly fixed on him; he did not dare start right away. Disciplining his tumultuous mind as well as he could, he lay down on the palliasse in the cell and composed himself to an uneasy doze.

A question ran all the way through it: was it pure chance that Chu Lao should be the instrument of his downfall, or was the wizard indeed the most significant person in Tiger City?

Bright sun and a blue sky showed beyond the window when he woke up. His jailer was standing at the door, holding a bowl of hot rice and a mug of water to the grille. Hao San got quickly to his feet and reached for them.

"What will happen to me today?" he ventured, seeing that the jailer was somewhat less unprepossessing by daylight than he had been last night.

The man answered in a coarse country dialect which Hao Sen barely understood, but he managed to make out that he was to be tried, at least, before execution. In that case, he reasoned, he might as well delay until the trial was over, for it would yield him further knowledge and might prove useful.

When he had eaten, there was nothing to do but sit on the palliasse and stare at the wall, or at the jailer, who took up his post again patiently. The patch of light from the window had crept three-quarters of the way round the wall before anything happened.

Then there were footsteps, and an officer of the guard whose face seemed familiar to Hao Sen came tramping down the corridor towards the cell. With him were two muscular men-at-arms.

"Is this the man who was found breaking into the wizard's kitchen?" demanded the officer; Hao Sen now recalled that he was the one who had been talking to the master of the caravan as it entered the city. The jailer nodded, and the officer addressed Hao Sen directly.

"On your feet, you! The emperor heard about your exploit in killing the dragon, and wants to have a look at you before you're put to the sword."

The jailer opened the door; it creaked protestingly.

"Going to behave yourself?" said the officer, in a not unfriendly tone, and Hao Sen nodded. "That's right! More dignified to enter the emperor's presence on your own two feet than dragged by these fellows." He indicated the two men-at-arms with him.

A gesture to the jailer, and the officer, with Hao Sen beside him, began to tramp back the way he had come. As he strode along, he talked casually.

"Heard about what you did to that dragon myself. Sounds quite remarkable. Brave. Never been able to understand why brave men in general, saving the names of the greatest heroes, haven't got more brains. Now take yourself, for example. I don't know if you knew whose house you were trying to break into, though if you did you must have even less sense than I suspect. Still, I presume you found yourself short of cash—happens to all you mercenaries after you've been in town for a short while. That's why I think the emperor's idea of keeping the army in Tiger

City for a few months is a good one. Usually a soldier set down on the Street of a Thousand Felicities is as able to look after himself as a new-hatched fledgling. His money goes, he wakes up in the morning with an aching head—just not used to city ways. So he goes off and does something stupid, like burgling a wizard's home.

"Now if I'd been in your position, I'd simply have got hold of a companion or two and gone around the market pointing out that you'd just performed a major service to the people of the city, and wouldn't they like to recognise the fact with a small gift? You'd soon have found someone who did feel grateful enough to toss in a few cash, and after that the others would feel dishonoured if they didn't copy." He shrugged. "Still, it's foolish telling you now."

They had passed through several passages during this long speech; at this point they emerged into daylight and found themselves on a steep flight of stairs leading from the top of the ramparts to the ground. A detachment of soldiers waited patiently at the foot; they fell in around Hao Sen and the officer and proceeded to escort them through narrow alleys for a mile or more.

They emerged into the grounds of an imposing building, but instead of entering it, they crossed a lawn towards a summer-house whose nearest side was open to the fresh air. Twenty paces away, the soldiers halted, and Hao Sen felt himself thrust to the ground. As well as he could, he followed the movements of the officer beside him, who was performing the elaborate imperial kotow.

Stealing a glance upward, he saw that a slender man with sharp black eyes was facing them from a couch half-covered by his vast and gorgeously decorated silk robe; around him stood slim girls and stout officials, and behind his head, almost exactly framing it, hung a huge bronze gong.

On his left, on a lower couch, sat the wizard Chu Lao.

"You may advance," said one of the officials in a fat and wheezy voice when they had performed their obeisance, and—prodded by the men-at-arms—Hao Sen did so.

"So this is our dragon-killer." The emperor spoke thoughtfully. "A man presumably of more brawn than brain. What do you know of him, Chu Lao?"

"Very little, august majesty," the wizard answered. "I crossed a companion of his in a tavern a few nights ago; I saw him kill the dragon—with some assistance from this same companion. And last night he was caught escaping from my house after breaking in."

"And for what reason did you do this stupid thing?" the emperor said, speaking directly to Hao Sen.

Hao Sen thought furiously. "I was in drink," he said humbly. "And there was a certain kitchen wench... It was not for the purpose of stealing —the honourable wizard will testify that I had money in my pouch when I was trapped."

The emperor glanced at Chu Lao, who seemed taken aback. "I do not know," he admitted, and gestured to a retainer of his own who stood somewhat apart from the emperor's companions. This man stepped forward, bowing.

"Indeed, there were several gold pieces from the south in his pouch, which I do not recollect seeing the like of."

"That alters things somewhat," admitted Chu Lao. "I had not thought to inquire."

The emperor's sharp black eyes searched Hao Sen's face. "I like the look of you," he said suddenly. "You would make me a good soldier. For

your effrontery you deserve punishment, but I am not one to deal overharshly with mere fools. I give you a choice: go free, and be a soldier in my army, or stand your trial and face certain conviction."

Hao Sen looked at the wizard, not at the emperor; he was almost certain now that the emperor was of little importance. It was worth taking a very great risk to be sure.

"I am a fighting man," he said boldly. "I should not like to join an army that does nothing but sit in a walled town eating up, drinking and smoking away the resources of the populace!"

There was dead silence, except for a hiss of amazed horror from the officer of the guard at Hao Sen's side. Then the emperor leaned forward where he sat.

"It is of *my* army you are speaking?" he demanded. Hao Sen nodded. The emperor's face darkened.

"And that from a man who breaks into a house after a—a kitchen wench! Take this—this insolent windbag away!"

Immediately the men-at-arms seized him, and before he was forcibly turned on his heel and frog-marched back the way he had come, Hao Sen had a glimpse of Chu Lao studying him with an expression of amused triumph.

No more than an hour later he was back in his cell, with the one-eyed jailer patiently watching him again. He returned to his place on the palliasse and leaned against the wall.

So it *was* Chu Lao he had to face. And time was getting very short. Tonight at the latest, he would have to make his bid to conquer him.

The hours crept away slowly; at dusk, the jailer lit a torch a few paces down the passage, and returned to his post to eat a handful of rice and sip some tea, but there was nothing for Hao Sen. Then he composed himself to rest, closing his eye but seeming not to sink more than fractionally below the surface of sleep. The least noise from Hao Sen brought his eyelid up, as the prisoner proved to his own complete satisfaction.

That was the first obstacle, then: to put the one-eyed man completely to sleep.

Hao Sen cogitated. So abstract a concept might prove his most difficult task yet. But many men must have slept—some of them deeply—on this filthy pile of straw under him now. He took one of the straws, the longest and straightest he could find, and whispered over it; then he poked it through the grille of the door, and gave it a flick with his finger.

It twisted as it flew, but it struck its goal; it brushed lightly across the jailer's face, and he relaxed on the instant, his mouth dropping open and determined snores rising from it.

Hao Sen clattered at the door; the jailer made no move.

Satisfied, he turned his attention to the window. By pulling himself up to the sill and chinning himself, he could see that he was twice the height of a man or more from the alley which ran outside. The bars were thick, solid bronze; the embrasure itself was far too narrow for his shoulders.

But there were the straws in the palliasse, and he could pull the bars loose with them.

He chose six straws which matched the bars for length near enough, tied them with hairs from his coat until they formed a rough imitation of the barrier in the window. He hauled himself up with one hand and clung there, sweat running on his face with the violence of the effort, while he held the straws against the bars.

Closing his eyes, he concentrated, whispering. And the bars broke with such suddenness that he fell sprawling to the floor. The hand with

which he had been holding himself up now grasped only straws; the hand which had held the straws cluthed the bronze grating.

He reassured himself that the jailer had not been disturbed even by the noise of his crashing fall, and set about finding an answer to his final problem: how to enlarge the embrasure and get through it.

The chief quality of the hole in the wall seemed to be its vacancy now; but it would be hard to expand the hole and compress the surrounding stone to make way for it. Better, perhaps, to destroy the mortar which held the stones in place.

He worked a crumb or two of it loose, cupped it in the palm of his hand, and rubbed it until it was friable, speaking to it the while in a gentle whisper. The sound of dust falling from between the stones above him told him that he was having some success.

He scrambled up to try tugging loose the first stone below the embrasure, and found himself looking directly into the eyes of someone outside the window.

"Hao Sen! Hao Sen! Is that indeed you?"

It was Lin Ten's voice.

When he recovered from his astonishment, he whispered to her urgently. "Yes, indeed it's Hao Sen. But how—what are you doing here?" He craned his neck and managed to look down at the ground, discovering that she stood on her brother Lin Soo's shoulders and he in turn on someone else's, though whose Hao Sen could not discern. It was a trick he had often seen them practising on the journey, with the other brother—he who was now dead—taking the full weight.

"We heard what had happened to you, and Kuo Ming sought out one of the city guards who knew where you were. So we came. But is there anything we can do? You are shut so fast in this prison!"

"You can save me breaking my neck when I jump to the ground," said Hao Sen. "I shall be free from here in another few moments. Here, if you can, help me push some of these stones loose."

"What's happening up there? This is tiring work!" came a furious whisper from below, and the voice identified the lowermost of the three as Kuo Ming.

"Hola, my old friend," Hao Sen whispered back. "A few more minutes and it will be done."

With Lin Ten pushing so vigorously she all but lost her balance, the loosened stones came free rapidly, and Hao Sen soon judged the aperture wide enough for him to get through. Telling Lin Ten to drop to the ground, he backed his body carefully into mid-air, placed his feet on Lin Soo's shoulders, and then lowered himself to the earth.

As soon as he was standing beside her, Lin Ten flung her arms about his neck, and he was surprised to find that the cheek she pressed to his was wet with tears. "Oh, I was so frightened that we might not be able to save you!" she exclaimed. "What did you do to be imprisoned, Hao Sen?"

"I'll explain later," he promised, gently disengaging her and turning to face Lin Soo and Kuo Ming, the latter of whom was rubbing his shoulders with a rueful expression.

"I was never an acrobat!" he complained. "Well, my friend, now you're out, what are we going to do with you?"

"Come away as soon as we can and as far as we can," Hao Sen answered. "I laid a charm on my jailer, but I do not know far how long it will keep him sleeping. Which way do we go?"

"We know all the alleys," said Lin Soo. "Through there to the right.

I know a tavern where no one will ask questions."

Smoky, disreputable, the tavern proved ideal for Hao Sen's intentions, and over cups of wine he explained what had happened to him. When he again referred to the charms he had used in his escape, Kuo Ming interrupted.

"I did not know you were a wizard, Hao Sen! If you have the art, why are you a soldier like myself?"

"Because I like not magic!" said Hao Sen emphatically "Is it right that one selfish man should be able to command all the doings of a whole people? To command the emperor himself?"

The others exchanged glances. Lin Soo voiced their common thought. "I do not see you as a man who makes such accusations wildly, Hao Sen. You have knowledge to support them?"

"I have," said Hao Sen grimly. He recounted what had happened when he was brought before the emperor and Chu Lao. "You have all heard," he concluded, "how the emperor's army sits idle here in Tiger City, while the bandits ravage the country and rob the caravans. Think you that the emperor is doing this willingly? Not so! I am convinced that Chu Lao is pandering to his vanity by keeping the emperor in this town, at his own beck and call, heedless of the needs of the populace."

"It fits," said Kuo Ming heavily. "It is certain that the army is discontented. I have drunk with many of the men-at-arms since we came here, and they are all sick of doing nothing."

"But what can we do about it? Chu Lao is a very powerful wizard," Lin Ten pointed out. "Would it not be dangerous to cross him?"

Hao Sen hesitated for a moment, and then brought out his suggestion.

"What say you to turning bandit for a while?"

Kuo Ming was the first to answer. "With such an emperor and such an army as we have in Tiger City, a bandit's life should be an easy one. I remember—well, no matter." He coughed, and hid his confusion in his wine-cup.

Lin Soo glanced at him, and then back at Hao Sen. "There is something more than a desire for plunder in your proposition," he said shrewdly. "Explain."

Hao Sen did so, and they listened with rapt attention.

"It is much to ask," he finished. "But it might prove worth it."

"If it was no more than a passing whim, we would still fall in with you, my sister and I," Lin Soo stated. "Have you forgotten our vow to you? But it is a bold plan, and may well serve. You, Kuo Ming? How say you?"

The bass-voiced soldier set his wine-cup down. "As you may perhaps have guessed, I was not always a respectable mercenary as you see me now. I once passed a brief time with the H'ung H'udze—the Red Bandits... I think I could call back to mind sufficient of what I learned then to serve us in good stead."

He looked at Hao Sen. "You will need Starlight," he said. "Likewise a sword, since I see yours was taken from you. I think I run least risk if I show myself around the town now. I will meet you at the broken place in the wall to the east—Lin Soo also knows it—at dawn. If your charm on the jailer lasts the night, we should be well into bandit country before they discover we have left the city."

He rose smoothly to his feet and was gone.

The north-eastern road lay between very steep hills, on whose summits the snow was still crusted thick. Dawn mists swirled around the legs of their camels as they put the miles behind them, and it was not

long before the shape of Tiger City was completely blotted out.

They halted at about mid-day, and made a fire to warm themselves. Squatting around it, they discussed their best choice of direction.

"As I read the situation," said Kuo Ming, to whom they looked for information garnered from drinking companions and the soldiers with whom he had talked in the city, "the bandits have been much emboldened throughout the winter by the inactivity of the army, so much so that whereas they formerly only ventured as close as three days' march from any great town, they have been seen less than one day's march even from Tiger City. There can be few passes open even yet, in this sort of country, but when we find one the chances are that we will come across bandits simply by following it."

"That is what we must do, then," said Hao Sen. "But we must not be precipitate in our action. I need a little time to practise my skill in magic, for Chu Lao knows very much more than I, and the chances of finding a first-class wizard content to live a bandit's life when there is so much more wealth and comfort in the city are small."

He plucked a brand from the tiny fire, blew on it and muttered a couple of words; the licking tongue of flame which clung to it burst out into a jet like a blowlamp, ten meters long, and boiled the snow from the crevice between two rocks. He dropped the brand again, and his companions looked at him with awe.

"Where did you get your skill in magic, Hao Sen?" asked Lin Ten timidly.

"Far to the south, many years ago," said Hao Sen, and thought what an interesting double meaning the perfectly factual statement contained.

Of course, there were probably no bandits at all. But his own individual significance was at least as great as Chu Lao's, and he had by now decided that with him were the three other most significant persons he had yet met.

Between them, they should be able to finish the task.

Somewhere, deep in his mind, he found himself regretting that it should be over so soon. The regret mingled with a contrasting pride at having—despite his own arrant carelessness at one or two points—mastered the situation so thoroughly in that brief space of time.

Had Chu Lao really made himself over-c o n s p i c u o u s? Or—nagging doubts assailed him—had he himself been too hasty in jumping to the conclusion that he had identified the most significant person?

Human vanity was on the side of his decision, he told himself. After all, in a place such as Tiger City (and he had been to many, most of them less impressive), there could be only a few major foci of significance at any one time; he had seen towns, when he was much less experienced and had to undertake comparatively simple tasks, where one might turn one's head and find that a house was nothing more than a shell, uninhabited and ruinous.

Yes, the chances were in his favour.

He got abruptly to his feet. "I scent bandits," he said. "Let us take the first hillside pass which we find open, and I think we will meet what we want."

They re-mounted as they had been before: Lin Ten astride Starlight, clinging with her arms around Hao Sen's waist, and Lin Soo, teeth chattering, behind Kuo Ming. Before they departed, Kuo Ming scooped snow over the site of their fire, and they took care not to let their mounts tread anywhere but on hard-frozen ground which would not show a spoor.

It was logical that they should

soon come up with bandits, given the postulated situation; Hao Sen scanned the trail ahead and gestured that they should swing off to the right between two rocks and scramble up a cleft. The winding path soon took them out of sight of the road, and Hao Sen was just thinking, "Somewhere around here?", when a cold voice commanded them to halt.

Two bearded men, wrapped in heavy skin jerkins, were regarding them from a higher point of vantage. Each of them bore, strung and levelled, a bow with a red-feathered arrow.

"Tsien Po!" said Kuo Ming suddenly, and flung up his arm towards the nearer of the pair. "Surely the gods of luck are with us!"

Uncertainly, the man he had addressed lowered his bow, though his companion did not follow suit. "That is my name," he admitted. "And you —are you by chance Kuo Ming?"

"That I am!" chortled Kuo Ming in his bass voice. "Sick of belonging with an army that sits in towns and has no bigger prey than a fat-bottomed street-walker! But who would have thought that we would chance directly across the H'ung H'udze when we grew tired of idleness and decided to take a share in the rich pickings the emperor is nowadays permitting?"

The other man spoke out of the side of his mouth. "He is known to you, Tsien Po?"

"He is. He was a good swordsman once. He turned caravan guard when times were bad some years ago, and went south."

"And I'm a good swordsman still," Kuo Ming boasted. "I have prevailed on these people with me to quit their soft way of living and return to a life of sport and adventure. He who rides beside me is Hao Sen, not only a soldier and a killer of dragons"—plural, now, noted Hao Sen wryly—"but a skilful wizard into the bargain."

Tsien Po hesitated. "The Chief may not be kindly disposed towards a man who left his band when times were lean and now wishes to wriggle his way back," he said warningly. Hao Sen spoke up.

"Any man would welcome news such as we bring," he said calmly. "For we have come to offer him the chance of sacking Tiger City."

The man whose name they did not know drew his breath in sharply. "A bold design! To sack a city is a thing which has much occupied the Chief lately. If you truly have the key to Tiger City, you will be welcome. My name is Ho Chan."

"We are honoured to become acquainted with the distinguished Ho Chan and Tsien Po," said Hao Sen. "But we crave more the privilege of encountering your leader."

The two bearded bandits exchanged glances. They seemed to come to a decision simultaneously, and dropped from their higher rock to the cleft below. "Through here," they said together.

A few minutes brought them to the bandit encampment, and Hao Sen was both surprised and pleased to see how extensive it was. Hide tents to the number of two or three hundred —almost the amount of a small army —were grouped in a bowl-like depression among the hills; riding camels and pack-mules were tethered beside them, and women went between camp fires with bowls of food and buckets of snow to melt for drinking water.

There was one tent larger than all the others, which even had a certain barbaric magnificence; part of its door-flap was a badly weather-stained Turkey carpet, and dull brass ornaments and charms hung from its poles.

"Wait here," said Ho Chan curtly, and pushed his way inside.

They attracted surprisingly little attention as they dismounted stiffly and stood with Tsien Po awaiting the reappearance of Ho Chan. A few curious glances was all that they received.

Then the flap of the tent swung aside again, and Ho Chan came out with another, smaller man in garish clothes, whose hair was foppishly long and heavily oiled. Brass earrings gleamed through the locks of it. He was wiping his mouth on the back of his hand, removing some sort of oily broth from his lank moustache.

"You I remember, Kuo Ming," he said abruptly. "And you have brought a wizard with you? I like not wizards."

His eyes fastened contemptuously on Hao Sen. "Show me a trick," he commanded, and Hao Sen nodded without speaking. He walked brazenly to the side of the tent and detached from it a polished metal mirror; holding it so that it cast its reflection of the tent from which it was taken to a point on the ground a few yards to the side, he muttered an improvised charm.

Another tent, slightly distorted but quite recognizable, sprang into being alongside the original.

"A good trick," agreed the Chief grudgingly. "What purpose does it serve?"

"You know that the emperor's army grows fat and lazy sitting on its behind in Tiger City," said Hao Sen.

"Of course. One could hardly overlook the fact," said the bandit leader with heavy irony.

"Suppose now that I were to double—treble—quadruple the apparent size of your band? Suppose it should seem that the city was besieged by thousands and not by hundreds? Do you think such an army would not panic?"

An avaricious gleam showed in the Chief's eyes. "Come into my tent," he said grandly. "For once I meet a wizard who speaks sound sense."

Before night fell, they had come to an agreement. Hao Sen felt it hardly worth while to haggle about conditions, since this stroke they were planning would put a permanent end to Tiger City if he had sized up the situation correctly, but for the sake of appearances he bargained for a respectable share of the loot.

They feasted and drank with the bandit tribe around the fires when their plan was settled, and then the Chief ordered the best and most wind-proof of his tents vacated for them. Sounds of laughter and shouting still rose from around the camp as Hao Sen threw himself down happily on a heap of soft furs. In a way, it was an admission of weakness to go outside the city in his search for the solution, but now he was sure he had found the key.

He was on the verge of drifting into a contented slumber when the flap of his tent lifted and dropped, and a warm lithe form stretched out beside him on the furs.

Later, he regretted more than ever that his task was nearly done.

Effectually, of course, it would not matter whether the army panicked or not. The reflection crossed Hao Sen's mind as he watched the bandits form up preparatory to marching on the final leg of their approach to Tiger City. The army meant nothing. What was necessary, was to put Chu Lao sufficiently off his stroke—to disconcert him by demonstrating that there was more to the world than simply Tiger City—and to take advantage of his even momentary loss of self-control. The one thing that made the problem seriously complicated was the fact that Hao Sen was having to work in accordance with his opponent's rules. But he was used to that.

And it was at least an even chance that Chu Lao knew very little more of the real laws governing the conflict than Hao Sen did.

The gongs began; the banners were lifted up; the barbarian army of conquest took the trail.

Hao Sen had insisted on leaving Lin Ten behind in the camp, although Kuo Ming had been surprised at his attitude, pointing out that it would be useful to have her along to bandage him if he was wounded and in general to console him. Hao Sen had laughed it off with reference to his magical invulnerability—something he was only too acutely aware did not yet exist and might only exist for a few seconds some time in the not-so-distant future.

Now he eased Starlight into a gentle walk alongside Kuo Ming's mount, a few places behind the Chief in the procession. "How does it feel to be taking the warpath as a bandit again?" he inquired.

"Much as it ever did," said Kuo Ming, idly following the beat of the gongs by drumming with his fingers on the pommel of his saddle. "How do you feel, doing it for the first time?"

"Much as you did, I imagine," Hao Sen answered, and they both laughed.

Hao Sen had chosen the hour before dawn for their final approach, arguing that for the night-watch to see an army of tents and banners facing them as soon as it was light would play havoc with their already low morale. More to the point (though he did not mention this openly), for Chu Lao to be called from his bed and find his city besieged would render him that much more apt to lose his head.

So, with the first hint of sunlight staining the sky, the bandits deployed all round the city, pitching tents and taking their mirrors to do with them as Hao Sen had instructed. He did not want to risk duplicating men—such experiments were likely to backfire—but banners and other inanimate objects he intended to copy wholesale.

When the first shout of amazement went up from the sleepy guards on the gate-houses and the ramparts, there seemed to be thousands of tents in view.

"Good work, wizard," said the Chief with satisfaction. "Now let us see if you can fight as well as you can throw a spell!"

He turned his camel and yelled at his main war-party, and with gongs beating thunderously the armed men galloped towards the eastern gate.

Kuo Ming and Hao Sen followed, Kuo Ming eager for action, Hao Sen wishing to get as close to the city as he could. He scanned the walls keenly to tell whether—so far—there were any signs of the panic he hoped for.

The attackers drew up in half-moon formation facing the gate, to await the arrival of the first reply from the besieged. It took the form of the officer of the city guard whom Hao Sen had met before, shouting at them to demand who they were.

The Chief signalled to a bowman beside him, who sent a red-feathered shaft whining into the wood of the tiger-head shields ranged on the balcony.

"We are the H'ung H'udze!" he shouted. "The Red Bandits! Tell your idle and dissipated emperor that he has one half-day to surrender his city to us. When the sun crosses the zenith, we shall attack."

The officer shouted back a coarse insult, and could be seen having a hasty discussion with one of his aides. Hao Sen caught the Chief's eye.

"It is not good for them to be able to study our formation unmolested," he remarked.

"Well taken," nodded the Chief,

and a hail of arrows drove the officer and his companions from the balcony.

The morning leaked slowly away. Every time a head showed above the ramparts, a watchful bowman loosed an arrow, and before noon there were twenty or thirty memorials to the incautiousness of soldiers accustomed to idleness bleeding down the walls.

Impatiently, Hao Sen rode back and forth around the city, wondering if this mere inaction betokened confusion on Chu Lao's part, and whether he ought to seize his chance now. He might, for all he knew, have missed his opportunity.

But he would know soon—and even as he quieted his restless mind, the boom of the great war-gongs thundered out. The first flight of fire-arrows soared over the ramparts into the city, and menacingly the army of bandits began to close in.

Suddenly, there was a response from the city. A figure clad in full armour strode on to the balcony over the east gate, and shouted loudly for the attention of the bandits. The Chief rode cautiously forward, and halted at such a distance that only a superbly well-aimed arrow could find him.

"Your emperor wishes to surrender?" he yelled.

"Are you the leader of this band?" the armoured man cried.

"I am!" the Chief agreed, and Hao Sen, seized with a sudden premonition, urged Starlight hard forward. As he began to move, the armoured figure—whom he guessed would be Chu Lao, confident of his ability to protect himself—signalled a bowman who had been crouching out of sight behind the wall. This man let off his arrow almost without aiming it; it flew high and straight and true, obviously enchanted so that it would not miss.

Alarmed, the Chief spun his camel on its hind legs, but the action would have been in vain—the arrow swerved to compensate, and a howl of horror went up from the bandits. Rising in his saddle, hoisting his shield aloft, Hao Sen seemed almost to fly the last few paces, and the shaft sank deep into his shield scant feet from the Chief's broad back.

Before the audience in and outside the city could recover from their amazement, he had loosed the arrow from its place, caught up the bow laid across the Chief's saddle, and sent it whining back towards the city. Perhaps the word he had spoken was not enough; perhaps the man in armour was not really Chu Lao—in any case, this time the spell was weak, and the arrow fell a man's height short of the balcony.

The seeming miracle acted as a signal to the bandits, and under the protection of a shower of arrows aimed at the balcony they charged towards the gate. The armoured man had ducked from sight; his place was taken by a group of men-at-arms who proceeded to put down a withering fire on the attackers.

Hao Sen ignored the thanks, grudgingly given, of the Chief. Things were not going quite as he had anticipated. Instead of a confused panic reflex, the defenders seemed to be settling down to a concerted plan of action. Hao Sen was sure—naturally—that the bandits would do their utmost; he was not worried that they would prove coward or inefficient at their task. But he had always to remember that he was working in accordance with Chu Lao's rules, not his own, and Chu Lao might well have his own ideas of the relative abilites of his army, even after three months' soft living, and a bunch of nomadic bandits.

He wondered what had driven a person like Chu Lao to this course. Personal inadequacy of some kind was the standard answer—desire for power? Kuo Ming was comparatively

simple: a need for colour and violent action explained him sufficiently. But what could be regarded as inadequate about the ruler of Tiger City?

Two hours passed, and the bandits withdrew an arrow-shot from the city, leaving fewer dead than could be clearly seen hanging on the ramparts, while under cover of their bowmen a group of pack-mules were driven towards the gate with loads of brush and dried wood. Several men fell as they struggled to heap the stuff against the heavy wooden gate, but at length the Chief gave the signal, and fire-arrows were showered on the inflammable pile.

A peal of thunder burst out in the clear sky, and it suddenly began to pour with rain. Hao Sen had visions of the clouds depriving him of his illusory additions to the number of tents, but that fear was spared him, for the rain lasted only a few minutes, and then the city gates were hurled wide over the smouldering sodden brushwood to let out the vanguard of the defenders. Mounted and on foot, they charged forward yelling, and the fight spread by degrees all round the city.

It was tough work; particularly around a huge and gorgeous silk banner bearing an embroidered tiger was there a violent melee. Seeing this, Kuo Ming shouted to Hao Sen that they should work their way towards it, and Hao Sen gave himself up to the sheer exhilaration of physical combat.

The time for arrows was past; now it was sword, axe and occasionally pike. He let Kuo Ming lead the way, finding that they worked well together as a team; Kuo Ming would distract the attention of a soldier who was proving too much for a bandit, and Hao Sen's long pike would reach past the hindquarters of Kuo Ming's camel, swipe sideways and drive down. Four or five times they repeated the same tactic, and Kuo Ming grinned back over his shoulder at his companion to shout something congratulatory and incomprehensible.

Then they were pressing close to the tiger-gaudy banner, and Hao Sen knew that Chu Lao was aware of his presence. Starlight stumbled and cried when there was no one near her, and twice her feet seemed to be tangled by invisible ropes.

Now he could see his opponent plainly, his round face shiny beneath his pointed metal helmet, ear-flaps giving him polished metal cheeks. Idiotically, he rose in his saddle and screamed Chu Lao's name; the wizard flung up his arm and shouted a command, and half a dozen of his closest personal guard thrust their way forward.

"With me, Hao Sen!" cried Kuo Ming, and he waved the sword that the wizard had repaired for Hao Sen after the death of the dragon. He swung it at the helmet of the nearest of the enemy, and in that moment Chu Lao bethought himself of the spell he had wrought—and countermanded it.

Instead of crashing through the soldier's neck, the blade in Kuo Ming's hand bent, before it struck, so that the hilt was at right angles. The startled man-at-arms whose life had so narrowly been spared wasted no time wondering about the fact—merely cut the throat of Kuo Ming's camel. One of his companions thrust upwards over his shoulder with a pike, and Kuo Ming slid to the ground over his mount's head, coughing blood.

Purposefully, the other guards made for Hao Sen.

He, seeing there was too much risk in staying mounted now, leapt from his saddle; relieved of his weight, Starlight kicked furiously, and heavy pads knockd the two foremost of the attackers flying, ribs bruised, wind knocked out of them.

"O wondrous beast!" whispered Hao Sen.

But the distraction afforded before the camel was herself slashed to the ground with wild sword-cuts was only enough for him to take a few steps towards Kuo Ming's body. One thing was clear to him now. there was a law governing Chu Lao's magic which was the same as for all magic, and it had not been broken. He had to get his hands on a sword—not the one he held, though it was straight and still keen, but the bent, apparently useless one which Kuo Ming even in death clung fast to.

It seemed that the three strides separating him from the twisted weapon were the longest journey he had ever had to undertake. He slashed and thrust and caught blows on his shield; twice glancing swords made his helmet ring, and twice he himself felt his sword-point slow and then free itself in a way which meant it had cut clean through human flesh. A dismembered arm seemed for one wild moment trying to catch hold of him by the beard; he beat it aside with his shield.

Then he made his dive for the bent sword, wrested it from Kuo Ming's dead grasp, and straightened up. Taken aback by his unexpected action, the attackers gave him a moment's respite.

"Chu Lao!!" Hao Sen shouted. "Chu Lao! *I name your city!*"

The wizard, as if struck by a premonition, wavered where he stood; all over the battlefield men seemed to lose heart for the fight and turned to see what would happen. Hao Sen rushed on.

"The city is Tiger City! That tiger is your city! The tiger is less powerful than the dragon!"

All eyes turned towards the city; how it happened could not clearly be seen, but where it had stood was a green-eyed striped cat, crouching and snarling, its claws unsheathed and huge beyond imagining.

"My Tiger!" cried Chu Lao. "That is my tiger!"

"And this sword has drunk of a dragon's blood!" Hao Sen shouted. *"This sword is my dragon!"*

He whirled the blade once around his head and flung it sparkling into the air; as it twisted, it changed, and as it fell it fell on four gigantic taloned feet. It raised its spiny head and waved its monstrous tail; from its open jaws it roared defiance at the tiger.

It reared up; it slashed, and its talons added stripes of blood to the tiger's striped hide; it bit, and rivers of blood stained the earth. Vainly the tiger's claws tore at its impenetrable scales; there was no chance for it. In moments it fell, with a thud that shook the world. The world was riven apart, and with it, Hao Sen's mind. For an instant he saw the tents of the bandits, the gory ground, the men-at-arms and the dying, and then—

—and then he was Gerald Howson, Psi. D., curative telepathist first class, World Health Organisation.

As he always had been.

The nurse waited until his eyes were fully open and taking in the room around him before she began to detach the artificial feeding machine which had kept him alive during his journey. She said nothing; she had attended to Howson before, and knew he disliked being spoken to directly he returned.

For a long time after he awakened he lay quite still, until the door of the ward slid back and Pandit Singh came in. His green hospital gown swished quietly as he approached the bed.

"Congratulations," he said at length. "It must have been tough. But they're coming out of catalepsy

now, one by one, and I think they're all going to be all right."

Howson didn't look directly at the doctor's serious brown face; instead, he glanced through the window at the great white towers of Ulan Bator. "Yes, it was tough," he admitted. "But not quite in the way you mean."

The nurse brought a chair to the bedside, and Pandit Singh sat down. "Gerry, there's something I want to ask you—off the record, before you have to do your report. It's been puzzling me. What makes these people do it? Why do they react that way? Do you know?"

"You mean, what impels a transmitting telepathist to invite people to join him in a fantasy world, and why do they accept a subordinate position in it apparently less attractive than their real existence?" Howson smiled faintly. "Odd you should ask me that. It was occupying me on this trip. The stock answer is personal inadequacy, isn't it?"

"Yes, but that's not the quarter of it!" Pandit Singh spoke emphatically. "Hugh Choong—the nucleus of this lot—we *need* men like that. He's a first-class psychiatrist and one of our top industrial disputes arbitrators into the bargain. There's nothing patently inadequate about him—he handles two of the most difficult jobs in the world with supreme confidence!"

"No wonder his Tiger City was such a polished job," murmured Howson; then, noting the expression of noncomprehension on the Indian's face, he added, "Tell you later. No, there was nothing incompetent about his fantasy-building. He must have a superlatively disciplined mind. And yet, as you say, he preferred to run off into the role of a barbarian Mongolian sort of grand vizier... A strange mixture of primitive actualities and modern concepts, his particular universe..."

He spread his hands. "No, I would rather not offer explanations for such behaviour. Now my case, on the other hand, is rather different."

"Your case?"

"Yes, my case. Some of the less significant individuals in one of these fantasies are comparatively easy to account for. There was a man called Kuo Ming—I doubt if I could identify him. In his case, it was a need for violence which lured him, persuaded him to join with Choong—how did he choose to start his group off, by the way?"

"Typically. He walked them into that square facing the hospital, sat them on benches, and sent them into catalepsy."

"Knowing that there of all places they were bound to be spotted before they starved to death, brought in and cared for. I see. Well, Kuo Ming's need for violence was satisfied—by a barbarian's pike. He died. I should imagine that will cure him.

"But my case. Now that would be one where the actions of the nucleus—the projective telepathist without whom a fantasy grouping would be impossible—would be more easily explained than those of the—the supporting cast."

"Are you jealous?" said Pandit Singh with horrified realisation.

"Yes, I'm jealous," said Howson. "And why not? There was a girl there—her name was Lin Ten—well, it wasn't real, anyway. I'll give you my report later, if you have no objection. I—I need to rinse my mind."

He got down from the bed; Pandit Singh's eyes followed him as he went towards the door. He had to reach up towards the handle, of course. It was slightly stiff, but when the nurse made to help him he glared at her, and redoubled his effort. After a second try he managed it, and Gerald Howson, four feet three inches tall, went limping slowly through the corridors towards the modern world.

planet of waste

by LESTER del REY

THE FIRST piece of fiction I ever wrote began with the idea that in a green and lovely world the last of the human race lay dying. Sometimes now, twenty-two years later, I wonder whether I will ever have to begin a serious fact article with the same words. Then I realize that this can never happen—b e c a u s e the green and lovely world will also lie dying.

The tragic fact today is that there are valid reasons to assume that man is passing an irrevocable death sentence upon himself and upon all other life forms which will leave the planet a literal wasteland. This is not only possible within our lifespan—it is being done at this very moment, without need of war or violence as an excuse.

Let me say at once that I am not greatly concerned with the standard, overpublicized dooms of war or peace. The cry of "Wolf!" has rung through the air since ancient times, but the flock still seems to graze unperturbed on the hillside.

Most dooms fortunately carry their own s a f e t y valves. Overpopulation can create untold misery, but will be checked automatically by the decimation of starvation and a new balance will be struck. A plundered world can somehow be rebuilt when the need becomes urgent enough, since the basic chemical elements cannot escape from a planet. The most virulent plagues capable of withstanding environmental dangers have never overcome man's incredible powers of resistance, and laboratory plagues are only variations nature has already tried before.

Even the danger of atomic warfare may prove a doubtful threat to man's survival as a race. Weapons capable of killing off both the enemy and the user have existed before, and somehow they have not been used. To either forest-dwelling or plains-living tribes, fire is as sure a doom as atomics to us; fire was therefore never

used except with the most careful controls. Somehow, even the madmen of the tribes were not permitted to use such fire wantonly. There is at least a chance that civilization may ultimately prove as prudent as barbarism, so far as war is concerned.

Nevertheless, the atom lies at the root of the danger. It can theoretically yield tremendous knowledge and contribute to life's ancient need of energy, but it carries with it a unique by-product known as waste, perhaps with almost poetic insight.

It was recognized long ago that an organism—and even many chemical reactions—will tend to die in a concentration of its own wastes. Yeast gains energy by turning sugar into alcohol, which is the waste by-product; when the alcohol concentration is too great, the yeast cannot survive. Here life forms which burn sugar to carbon-dioxide have a clear advantage, since this gas is more difficult to concentrate.

Until now, man and many higher animals could overlook this rule because the wastes produced were ones which did not tend to concentrate, or ones which man could escape or destroy. But now technology has produced a waste totally unlike any life has experienced in concentration before. (The creation of life initially seemingly could not have occurred had there been a high level of radioactivity even a billion years ago.)

Any isotope at all which is unstable—and hence emits dangerous radiation during its breakdown—may be considered as poisonous to life, though uranium-235 and plutonium are considered so desirable that they are not removed as wastes. At the current time, a lot of attention has been focussed on strontium-90, largely because of its spectacular spread; but actually it is no different in its nature from any other isotope—it is a radioactive by-product, or waste, of a release of energy from the atom. An atomic pile which uses the same amount of uranium as the bomb ultimately does may even yield a larger amount of wastes than the explosion does.

These wastes are created whenever matter is fissioned for energy or for other isotopes. Uranium breaks down into a great many different isotopes during fission. Eventually, these contaminate the uranium "fuel", and must be removed. The uranium or plutonium are carefully pulled out of the mess, but this still leaves a great deal of dangerous material which cannot be destroyed.

Hence, the use of our methods of atom-cracking for power will inevitably produce by-products which may prove dangerous to the race.

Nobody at this stage is going to suggest that all atomic fission be stopped (though the testing of bombs may not be permitted because of its specacular dangers). But when any action is potentially dangerous, we expect certain logical examination of the situation on the part of the one taking the action. We don't even permit the use of normal firearms without precautions dictated by such an examination of the dangers and needs involved. Surely we should examine this new factor as carefully.

Precisely how great is the danger from any given amount of atomic fission, particularly from the level of activity now going on? And is the need great enough to justify the risk involved?

Those questions must be asked, and the risk and the need must be balanced against each other. If the need is great enough, even a calculated risk of doom may be taken; otherwise, no greater danger than is surely tolerable can be permittted. And since the presence of danger alone makes examination of the need mandatory, that seems to indicate that the risk should be examined first.

That risk has recently become far more pressing than we had previously believed. Prior to the latest dis-

coveries, it had seemed that there was almost no danger below a certain so-called "safe" level of radiation. This "safe" level was reduced considerably with experience, proving a faulty examination of risk before, but the idea remained. Unfortunately, it seems untrue.

All radiation is dangerous, at *any* level! The latest discoveries indicate that any l e v e l of radiation, however weak, imposes some danger. The normal background radiation level of the earth—the lowest possible level with which we can deal—is itself somewhat dangerous, though not enough to eliminate life, of course. It has been estimated, however, that two million lives may be cut short annually by this low level; much of this is through damage to germ plasm that results in children who cannot survive either through birth or through a normal life span. The idea of a safe level must then be shown as ridiculous. All that can be said is that there is a level below which the body can seemingly repair the gross damage done it by radiation; even then, the results may show up much later in the individual, let alone in the delicate cells that carry the future of the race. Any raise in the background level in which man lives means the shortening and the loss of lives.

Additionally, there are dangers in some cases that exceed the apparent level. Several isotopes are ones which tend to be concentrated. Plants will draw them from the soil and concentrate them; animals concentrate them still more; and finally the men who eat the meat or animal products concentrate them still more. In some cases, local concentrations in the body are also set up. Swedish scientists found local spots in the bones where strontium-90 was 60 times as strong as its average in the body—and hence, capable of 60 times the damage to red-cell producing bone marrow. This is true of radioactive iodine and several other isotopes as well as of strontium-90. Hence, even the level of gross-safety may be only 1/60th as high as once was thought.

The obvious answer to this would be man's old one—either get rid of the wastes or escape from them. But it isn't that easy.

There is no way to destroy a radioactive isotope, except to wait until it decays into some safe isotope by itself. Here the half-life (ranging from minutes to many millenia) doesn't end the danger, but only halves it, of course. Men can do nothing about ending the breakdown of such atoms. Heating, freezing, alloying or compounding them produce no discernable change. Spreading them out avoids local concentration, but increases the background level for the whole world.

The only way to escape would be to leave the world, which is dear to all of us in science fiction. This involves a tremendous amount of time with a tiny segment of the population. We'll be lucky to land on Mars before the end of the century, and we most certainly won't be colonizing any planet within our lifetimes.

The one thing we can do about these wastes is to concentrate them and attempt to put them in some safe place, away from any great danger of affecting people. This is what is being done in the more careful methods of disposal of wastes today, though not in all cases. Some atom-cracking plants still release wastes through stacks into the air on the outmoded theory of "safe levels"; others release wastes into the rivers and seas, on the idea that they will be again deconcentrated below safe minimum levels.

A great deal of waste products, however, are disposed of in some attempt to answer the problem. Huge storage tanks have been built to handle the sludge, and in some cases the problem of finding a place for more storage is becoming acute already. Other wastes are concentrated in a dry form and sunk into the ground or

dumped in containers into the sea. In a few cases, tank trucks carry sludge to the sea and it is ferried out far beyond the shore.

It has even been proposed that dry salt or oil wells be used as dumping grounds.

So far as I can find, few scientists are satisfied with any of these disposal plans. The sea offers such a bad choice from current knowledge that it can only be covered in a separate article. England, where sea disposal has been the chief method, is already finding areas in the near waters where fish are showing a very high concentration of dangerous isotopes.

Underground storage in tanks implies that the activity level will reach "safe" levels before the tanks deteriorate. The faith in the tanks is as touching as the hope implied. I can't help wondering about what would happen in the case of a minor earthquake or even one of the trifling adjustments underground that might cause a leak.

But the chief trouble with the whole idea is that we have no real knowledge of what constitutes a safe place, or how safe this really is. We have no experience with long-range shielding of large concentrates of radio-active elements. Neutron-emitting breakdown is something difficult to isolate, since the neutrons must go somewhere; and what happens if the tanks or concrete blocks themselves become sufficiently "hot", or the nutrons begin to wander into surrounding territory? How sure can we be that dumping into oil wells will get rid of the wastes, when we don't know yet how much diffusion really occurs under the surface? We know that the "waters of the earth" underground do a tremendous amount of shifting things around—more than we thought a few years ago—but not how much.

The physicists are worrying heavily about the horrible inadequacy of waste disposal under the best system. But a lot of waste is not treated with any great care. Industrial plants use more and more isotopes. These are often disposed of by such simple means as washing them down the drain. No adequate controls are in force here—and these wastes are as deadly as any others.

Recently, to drive home the difficulty, a can marked as for A. E C. Waste Disposal turned up on shore. The news later announced that it was empty, but the shock reactions following its discovery indicated how very real the danger from it was considered by those controlling such things.

Certainly, the background count is rising. We had no really accurate world-wide picture of what it was before Hiroshima, but its rise is obvious. By no means all of it is coming from bomb testing, either. In England not long ago, a fission installation belched tremendous amounts of dangerous wastes from its stacks, and territory for a great distance around showed a spectacular rise in radioactivity. Apparently this was an accident—but even such accidents must be considered an inevitable part of the whole business of cracking atoms.

As a further cheerful thought, it's worth considering that we have no real surety of the permanence of the shielding of the atom plants themselves. Remember that if an atomic plant were to close down today, it could not be safely broken into for centuries to come, because of the level of energy already built up in its basic structure. Add to that the fact that Hanford nearly broke down during wartime through changes in the structure inside the shield, caused by only partly understood side effects of the radiation. Under heavy radiation bombardment, a great many substances seem to change form, and to lose their normal strength. Here we deal with what is practically an unknown factor.

If we add the submarines and near-future airplanes driven by atomic

power to the plants, and realize how subject these are to accidents, we can readily see where the count of radioactivity may be raised fantastically.

We can't count on the breakdown to make up for fresh additions, either. Even at the present level of atom-smashing, we are accumulating dangerous isotopes at a rate fantastically out of proportion to the rate at which their own activity renders them harmless.

One of the surprising things to anyone unfamiliar with the subject is the extremely low concentration—that is, the very tiny amount of such isotopes—needed to exceed minimum safety levels. The discussion of the dangers from fallout make it seem as if hundreds of thousands of tons were needed to blanket the earth with such results. Yet in reality, the total amount of strontium-90 produced by bomb testing should be measured in ounces and pounds, not in tons at all!

Yet in many areas, from that tiny amount of deadly substance, grain and milk showed concentrations that were almost as high as the most optimistic safe levels—and from ten to a hundred times as great as some scientists believe permissible!

Unlike other poisons, the wastes don't lose their danger on use, either. If a thousand men were to pass an area exceeding fatal levels at the rate of one a day, the thousandth man would be no safer (except for very slow decay of activity) than the first. If strontium-90 concentrates in the bones of a baby, it still is involved in raising the general background level of Earth.

Actually, there is no way to be sure of the danger. Explanatory biology (as opposed to the biology of classification) is a very new science, having found some keys to cell behavior only very recently. Real nuclear physics didn't get started until two decades ago. Ecology hasn't successfully been applied to man in general yet. And medicine was so unaware of the full danger of atomic or other radiation that few doctors today bother to keep an accurate record of total X-ray exposure of patients.

But the scientists are gravely concerned, so far as we can learn from those either free enough or brave enough to express an honest opinion. In Sweden—where no vested interest in atomics by the government permits greater freedom and objectivity—the worry has reached near-panic levels. Nor is Sweden alone. Even in the United States, men have issued warnings so grave that the papers have felt obliged to play them down to "protect the public"!

I have read varying estimates of the danger. One very optimistic one indicated that at the present level of fission (1958), the year 2000 would see 10,000,000 deaths caused by artificial radioactivity. I've seen other accounts that placed the figure at seven times this. They are all guesses. The figure could be only a single million and be appalling, because the year 2100 would then almost certainly see the rise of mortality exceed the total birthrate.

The danger to the race will be greater than the danger to the individual, also. For one thing, growing children are going to be the ones most affected; their bodies are acreting m a t e r i a l s and storing them in growth, and their bones will reach for strontium-90 as readily as calcium. Then these younger people are going to be the ones where genetic damages are most severe, since they will pass on germ plasm damage acquired during early years to the next generation.

This whole subject of mutation is itself a matter of controversy, but the most optimistic guesses of trained biologists are not pleasant to contemplate. A damage done to a single individual by radiation might conceivably effect thousands within a few

generations. We know that mutations were already being caused by background radiation—and we know that the great bulk of such mutations are harmful or lethal. The chance of superman from radiation is so tiny that it would certainly be unworthy of discussion, but the chance for man to mutate toward extinction is very real.

In this country, of course, the A. E. C. controls everything dealing with the subject of any importance, and provides jobs or opportunities (some indirectly) for most of our scientists working on the subject. And the A. E. C. has taken a view of the whole subject which makes the danger seem minimal, at worst, and hardly worth considering. Needless to say, most of our scientists have given public utterance to the same position, though some private comments have indicated greater doubts.

Let us admit at once that the A. E. C. probably has more information available to it than any other group in the world, and not gloss over its optimism without examination. But let's also recognize that this is not merely an agency for the control of atomic processes and dangers. True, it serves as our policeman on the subject. But it also serves as the body having the job of keeping us obviously ahead of all others in the development of bombs and power plants. Most of its appropriations go to causing fission, and only a tiny part to controlling the results. At the head of it are men who do not have the formal training in the methodology of science, generally, but rather are practical politicians. It polices itself only, and its influence is in proportion to the amount of wastes it creates, effectively, not to its predictions.

Few would question the intent of the body. But its record in estimating danger must cast a grave doubt on the reliability of its current stand. It has been forced by facts to make a very tardy but drastic downward revision of "safe" minimum levels already on several occasions. Its estimate of fallout proved grotesquely wrong. And generally, it has been the last body in the world to accept unpleasant facts about radiation, or has refused to face them. In addition, its reluctance to release knowledge to the public for fear of "needless fright" makes me reluctant to accept its releases as being representative of its own current opinion.

As a result of our official position being more optimistic than that found elsewhere in the world, we have embarked on a huge program of building atomic reactors, not merely for defense, but also for power and for sale to the rest of the world. This means that the current level of production of wastes must rise rapidly and any danger from the present course will be magnified. The guesses for the danger in 2000 are already out of date, and we may find it necessary to raise the estimate ten or a hundred fold before that date arrives.

Frankly, I'm not at all sure how careful some of the technologically less advanced countries will be when they receive reactors made by us. In the rush to get into atomics, disposal of waste may be given very short shrift, and some of these plants will probably be contaminating our Earth for all of us far more rapidly than those under direct A. E. C. control. Maybe we'd better revise our danger figures up that ten or hundred fold by 1980 instead of 2000.

Incidentally, the damages done won't be pleasant ones. The rise in radiation levels will make themselves felt in the cases of stillborn or defective children, in more and more cancer among younger and younger people, especially in the dread form of leukemia, and in other of the more horrible forms of death. The degeneration of the race through harmful changes will be less obvious at first, but even more horrible when it becomes obvious—because by then, it may be too late to do anything!

In other words, nobody can speak with any certainty of the degree of danger, but there is a possibility that we are gambling with the total and horrible destruction of the race.

It's a possibility of graver nature than we have ever faced, even in war. Certainly only a very pressing need could justify such a risk. Is there such a need?

The need for materials of war is the first answer that comes to mind. Here the decision to a large extent has been taken out of the power of anyone except top level policy makers, and there is certainly room for considerable disagreement. However, once a nation has sufficient hydrogen and A-bombs to wipe out any enemy completely as an effective enemy, how much can additional atomic development add to this power? The best estimates are that we already do have enough of such weapons to annihilate any country opposing us. I feel somewhat reluctant to add to the risk of survival to gain the power to wipe out such an opponent ten times or more—because I still consider death a one-time affair, and have no evidence that ten destructions are more final than one.

Anyhow, the need for war materials alone might be tolerated, provided the war itself did not create havoc. We could probably tolerate the amount of radiation from wastes developed in the making of bombs, since this effort would tend to fall off as our stockpile of bombs increased.

Actually, this is not the only reason for our work in fission. More and more of the wastes are being created from purely peace-time atomic efforts. In the near future, when we begin using the power piles we are developing, the danger will almost certainly come mainly from such non-military installations.

Research and necessary isotopes for medicine and industry account for some of this development, supposedly. The value of such isotopes is unquestionable, but the need will be a lot smaller than one might think. One plant capable of recovering a major portion of isotopes, rather than dumping most as dangerous wastes, could be designed to care for most real needs. For a lot of industrial uses, isotopes are simply more convenient or cheaper ways of doing what older methods could still accomplish.

However, the real goal of our tremendous drive toward more and more installations is the supplying of atomic power. And here, where most of the danger will arise, the need seem minimal, at best. In fact that need is so slight that in this country the power reactors must be subsidized by the government, since they cannot otherwise hope to compete with other sources of power. The cost of an installation will make the interest per killowatt come to a higher figure than the entire production cost per killowatt by other means. Water power is still probably the cheapest source of power, and has added advantages from control of the water supply to surrounding areas.

Have we begun to exhaust our water power possibilities. There seems no question that we have not. A great many such plants could be put up, except that the money for the projects is not available—though it is available for the less economical atomic fission plants.

Nevertheless, there can be no question but what mankind is using more and more power, and will continue to do so. Something must be done to increase the available supply of energy, and our coal mines are not going to last forever, nor are the oil wells we have been draining; it takes three hundred million years to make an oil field, but only a century to exhaust it.

Man, of course, is the only animal capable of great waste. He wastes without provocation. He enjoys it,

and sets himself up above other men by his capacity to waste more than they do. He has improved his talent in this more than any other talent. It took 2500 years to turn Etruscan Italy's fecundity into the late Roman malarial swamps. But in only 400 years, he has leeched out a huge rich continent, nearly exhausted the Mesabi range, created dust bowls in the center of the country and replaced the cone-bearing pines of the forests with cone-bearing signs advertising useless wood-pulp luxuries. In the last ten years, while crying about the coming exhaustion of oil, he has increased the horsepower in his automobiles from under 100 to over 250, and has refined the engines to accept only the highest-octane-rating gas.

So there is little question but what he will find ways in which to exhaust his main sources of power within finite time—darned finite, in fact.

Normally, that might seem to justify building the atomic reactors. But does it? Just what percentage of the coming need for power will be met by the reactors?

By 2000, when the pinch for oil, coal and water power might begun to be felt—they will last until then, certainly—the chances are that his current rate of reactor production might make a little difference—but not much. A hundred power reactors would be of little importance compared to the power drains today, and a thousand would offer no real end to the coming power shortage. In fact, if all the reactors used in calculating the worst prediction of doom were to be in use, they would not equal the power still available from developing hydro-electric potentialities, nor even come within 10% of it.

Furthermore, our current power reactors are not the ultimate in either practicality or possible control of wastes. It would seem that without an immediate pressure for more power, it might be possible to build only enough power reactors to test and develop them into better form, and then to put off building others until the need was great enough to justify any remaining risk.

There are other angles that indicate the wasted oil may not leave as great a power vacuum by 2000 as might be thought. We have just begun to make any serious attack on the problem of getting direct solar power—which might provide energy in tremendous amounts. The current cost is high and the efficiency low, but the return per dollar has been increased tremendously since the war. Since there is no danger attached to this, however, it would seem worth developing with at least some of the intensity devoted by the A. E. C. to fission.

Also, fusion begins to loom as a potential source of far better and cheaper power than fission. At the present time, the attack on peaceful uses of fusion has only been s c r a t c h e d, though we have moved from outright impossibility to fair probability within five years. Here, the breakdown wastes of uranium fission are not p r o d u c e d. When fusion power—through plasma research or otherwise—is attained, there will be no problem of waste disposal, from all we know.

The estimate for a final breakthrough on this indicates it will be developed by 1985—which would still give us enough time to go into production of power through this means by the time the need for extra energy sources becomes drastic.

In any event, the fission reactors themselves can be no more than stopgap affairs. If oil and coal are limited in nature, so is the available uranium and thorium supply. If called upon to yield the energy demands extrapolated for the future, that supply will carry us for perhaps less time than the sources of power uranium will replace.

The danger is impossible to figure, but the possibility of complete suicide for the race takes such a high or-

der of possibility that it cannot be overlooked by any logical mind. The need that justifies taking such a dangerous calculated risk remains so small that logic would dictate even a 1% fatality rate utterly insane.

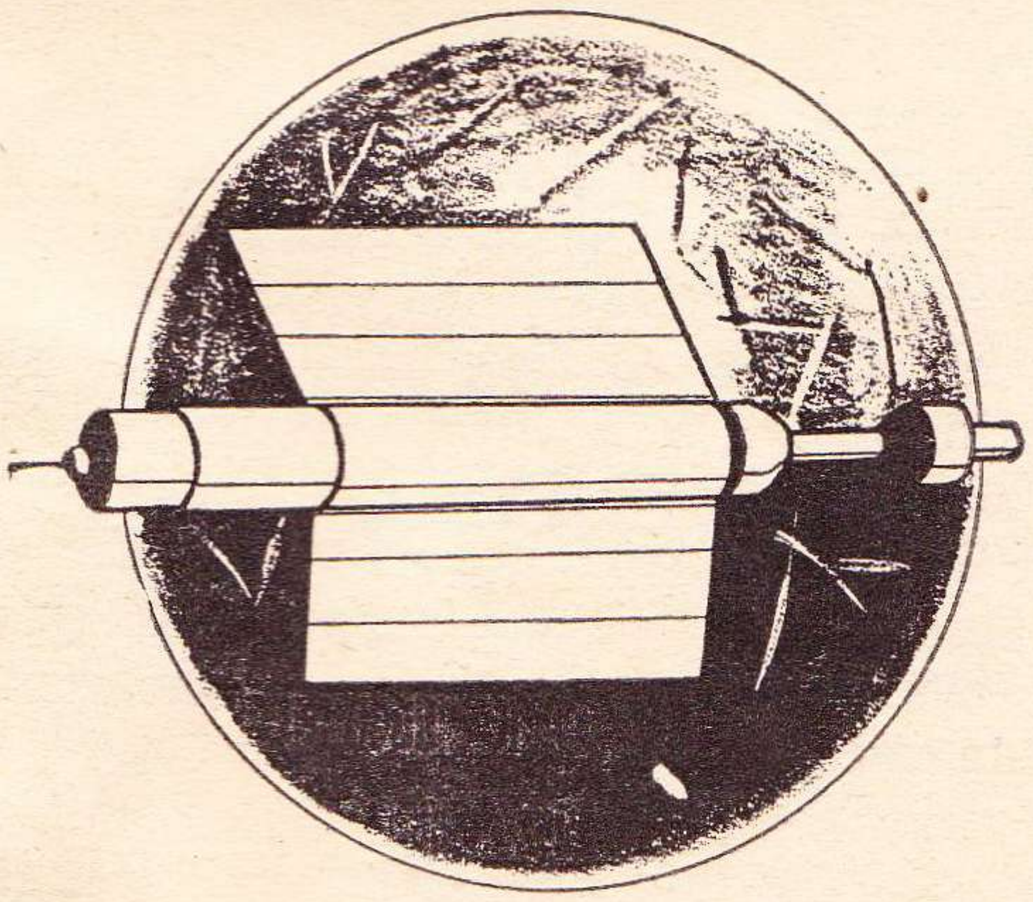
In fact, if a new chemical fuel deposit were discovered which could yield more and cheaper power than all the uranium on earth, and if its burning produced a toxicity in the air fatal to one out of ten thousand, no plants would be built until it could be tested fully and made safe. The need would never be considered enough to justify the end. Even the most optimistic scientists capable of objective thinking on this subject would never dare to call the need-to-risk ratio so favorable in the case of atomic wastes.

Maybe we should stop making jokes about the stupid pride involved in Russian roulette. It stops being funny when we are all involved in the game.

Up until now, the one thing man couldn't find a way to waste successfully was himself. He sometimes tried, killing off huge numbers of himself, but there were always more than before to replace the losses. Now he has achieved even this ultimate success. He *can* waste himself completely without any need for violent exertion or any conscious thought. He can even waste his seed through germ plasm damage that will eliminate his race forever.

He not only can do that; he *is* doing it!

AND AFTER THE MOON?



Will our next step into space be an unmanned reconnaisance of Mars? A major producer in the aviation industry has embarked on a study to test the feasibility of this problem.

The proposed space vehicle (see artist's conception above) will employ a plasma pinch propulsion system on its epic journey. As seen by researchers, this engine will obtain its power by compressing electrons and ions in an invisible cylinder of magnetism. Conventional or nuclear powered rockets would make the initial launch into orbit around the earth's atmosphere.

Once this orbit is achieved, the plasma power plant would go into action and drive the spaceship out into a pre-d e t e r m i n e d interplanetary flight path. While no one has advanced many theories on what protocol the vehicle should observe once it arrives at its destination, its 35,000 pounds will, in addition to the engine, include closely packed electronic equipment for guidance, control and surveillance.

V. R.

THE ANTS OF IRELAND'S EYE

by WENZELL BROWN

MOSAIC gynandromorph — this is the scientific name for one of the weirdest creatures that has ever made its appearance in the animal world. The mosaics are ants, but abnormal ants made up of scattered bits of the male and female of the species in contradiction to every law of orthodox genetics. The presence of these ants, over a hundred of them, found on one tiny rock-bound uninhabited island poses a frightening question: Has some power been unleashed that can upset the whole sexual pattern and change all animals, including man, into hermaphrodites?

To date, the emergence of the mosaic gynandromorphs has remained a scientific mystery, one that has been shrouded in secrecy for fear of the panic reaction of a public that may jump to the conclusion that atomic fall-out can destroy man by converting him into a fantastic creature made up piecemeal of the two sexes. Incredible as this may sound, some scientists believe that such a theory may well contain an element of truth and they point out that it has already been established that radioactivity can effect the genes of the second generation in such a way as to cause sterility.

A tiny island known as Ireland's Eye forms an almost unearthly backdrop for the inexplicable phenomenon that violates every biological law. An aerial view of the island gives the landscape, with its deeply ridged and eroded rock surface, a lunar cast. There are no houses but perched on the highest peak are the ruins of an ancient abbey, bleak, crumbling walls, a spiked gate and eeriest of all, two leper windows ranged on either side of a roofless altar. The only inhabitants that Ireland's Eye has ever known were a group of lepers and the Catholic priests who tended them. Even so, more than two centuries have passed since the last of these lepers left this island retreat.

Ireland's Eye is in sight of Howth Head on the mainland of Ireland. The fisherfolk of Howth have always regarded the island with superstitious dread and their fishing vessels have habitually kept a goodly distance from its shores, particularly at night when, according to rumors lights sometimes wink on and off among the rocks and banshee screams echo across the waters. A plausible explanation comes readily to hand. Ireland's Eye lies in the hollow of Dublin Bay, just opposite the estuary of the Liffey River and for this reason is ideally situated as a way-station for smugglers who for generations have prided themselves on running the blockade of the river patrol and delivering their illicit cargoes directly to the warehouses of Dublin.

The presence of mosaic gynandromorphs on Ireland's Eye was orignally reported in unsigned articles in British medical journals. The ants were first described as "degenerate females" unable to mate or lay eggs. It was pointed out that hitherto all known ants had belonged to one of the two "true sexes," but that these ants were "monstrosities" wherein male and female parts were thrown together in a seemingly senseless pattern.

The hermaphroditic ant was not altogether unknown. Prior to the find on Ireland's Eye, a total of thirty-seven such ants had been recorded, throughout the world, over a period of one hundred years. In Ireland's Eye, one hundred and fifty-seven mosaics were located; moreover, these mosaics were of three separate and distinct species; thus shattering any theory that they were the offspring of a common queen.

The mosaic patchwork of the ants of Ireland's Eye, rather than the fact that they were hermaphroditic, was what marked them as weird and frightening. We know that in human beings elements of the male and female exist in every body, that the most virile of men has a miniature womb. In rare cases both the male and female characteristics are fully developed to create the full-fledged hermaphrodite. The mosaic is something quite different. Translated into human terms, the individual might have a single breast, the arms and legs might be shaped completely differently, the eyes might not match, the face be bearded on one side but not on the other and the sexual organs non-functional.

Photographs of these ants show wide variations on the mosaic patterns. One ant has a female left wing and thorax while the abdomen is half male and half female, divided in the center. Another ant of the species *Myrmica Rubra Sabuleti* is composed of scattered bits of dark male tissue embedded in light female tissue. It has one short male antenna and one long female antenna. Each ant photographed is completely individualistic in its bisexual pattern. The only common note is that none is fertile.

The scientists who discovered the mosaic gynandromorphs of Ireland's Eye were first attracted to the island by rumors of strange fungi growing among the rocks close to sea level and of unexplained mutations in plants along the shore and in sea animal life in the vicinity. The theory was immediately advanced that unpredictable currents had brought down small particles of radioactive materials which had washed across the shore of the island. Presumably, this was the aftermath of nuclear tests made by the Russians in far northern waters. However, absolutely no trace of radioactive deposits could be found. This did not completely obliterate the theory. Heavy storms or even the natural movements of the ocean waters could have removed these deposits or reduced them to such a degree that current testing methods would have been useless.

As scientists flocked into Howth, it was inevitable that word should

leak out to the press. The first stories printed in London papers created a miniature panic as a segment of the public foresaw a future in which the sexes would be hopelessly scrambled. Fearing public reaction against the entire atomic testing program, British and Irish authorities quietly put the lid on the happenings in and about Ireland's Eye.

Nevertheless, speculation continues among British scientific journals, and several less spectacular theories have been produced to account for the strange denizens of the island. One of these is that the ants have been effected by contact with the skin, tissue or other castoff bodily material from the lepers who once lived in the sanitarium. Medical officials tend to scoff at such a theory, labeling it as preposterous, especially so because of the number of years which have elapsed since any leper has set foot on Ireland's Eye. They point to the countless generations of ants that must have been bred during this interim.

Another theory is that the soil in this particular area possesses some peculiar chemical substance which causes the mutations. This theory was strengthened by the finding of other colonies of mosaic ants on the mainland near Howth Head. However, a careful examination of the soil for chemical content has failed to give any clue to what this substance, if it exists, may be. A still more prosaic school of thought has suggested that chemicals used in the factories that dot the River Liffey might be the causal factor in the creation of these monstrosities of the ant world. These chemical deposits are so dense that they dye the water of the Liffey a deep brown which appears black as it flows under Dublin's picturesque bridges. Nobody, however, has been able to isolate any specific chemical compound which could cause the mutations nor has any explanation been advanced as to why, if this theory is correct, these colonies of mosaic ants should be restricted to the very limited area of Ireland's Eye and the adjacent mainland, while not existing along the Liffey's shores.

To date, the solution to the mystery which shrouds Ireland's Eye remains in a state of speculation and it looks as though this condition would continue for some time inasmuch as many of Europe's leading scientists have appeared on the scene and failed to come up with any satisfactory answer.

Meanwhile, whatever the cause of these monstrosities, they cannot fail to excite the imagination of every true aficionado of science fiction. Since the dawn of the genre, science fiction writers have been fascinated by the concept that through some process of development, ants may challenge mankind for domination of the world. Whatever the forces at work on Ireland's Eye, they have brought about the most uncanny animal mutations in history. This being the case, is it not possible that these same, or other, forces could result in even more fantastic changes? Could radioactivity develop ants of gigantic proportions? Could some chemical substance, as yet unrecognized, endow ants with superhuman brains? The possibilities are limitless and present an intriguing challenge. Perhaps in the end, where the scientists have failed, the true solution to the mystery of Ireland's Eye may be brought to light through the fertile imagination of some sf fan.

PHYSICS OF SPACE

by LESLIE R. SHEPHERD, Ph.D.

RECENT advances in the field of rocket propulsion have brought nearer the possibility of flight above the Earth's atmosphere. Few people doubt now that this will lead eventually to the successful accomplishment of interplanetary travel. It is not easy to predict how far we are from this ultimate achievement, but we *can* say that flight into space is possible today, since we already have vehicles capable of penetrating far into the void.

The space between the planets is a vacuum, several million times more tenuous than the best we have been able to produce in the laboratory. Flight in this environment will introduce a host of new problems, partly from the extreme variations in conditions from one point to another, but mainly from the absence of a protective envelope of air. Some of these problems are chemical and biological, such as that of providing and maintaining a breathable atmosphere inside a vehicle. Others are matters of physics—problems connected with heat balance, cosmic radiation, solar radiations, and meteors. It is to these that we shall give our attention here, beginning with the problem of maintaining a correct heat balance inside a space vehicle. An appreciation of the nature of this problem can be obtained by studying the exchange of heat to and from bodies isolated in a vacuum.

The Temperature Of objects in Space

THE TEMPERATURE of an object at some fixed position in our solar system is not a unique quantity. It depends upon the nature of the surface of that object, its size, shape, and even its *attitude*. Indeed, these factors can make considerable difference in temperature, so much so that one object placed at Jupiter's orbit might reach a higher temperature than another at the orbit of Mercury.

An object in space can gain or lose heat only by the absorbtion or emission of electromagnetic radiation. The sun itself emits radiation of widely varying wavelengths, ranging from one hundred-millionth of a centimeter (low energy X-rays), up to many hundreds of meters (radio waves). A high proportion of this radiation lies in the visible spectrum with wavelengths between 0.38 and 0.76 microns, (10,000 microns = 1 centimeter), the maximum intensity lying at 0.47 microns and only a small proportion being emitted above 1.5 microns or below 0.25 microns.

All objects radiate electromagnetic energy with a continuous spread of wavelengths. The hotter the object, the shorter the wavelengths. Thus, while the sun at 6,000° K* emits with maximum intensity at 0.47 microns the maximum intensity from a good emitter at 6,00° K occurs at 4.7 microns (the two quantities are inversely proportional).

The rate of emission of radiation depends very sharply on the surface temperature of the object. Radiation from a perfect emitter varies as the fourth power of the temperature, a tenfold increase in the absolute temperature resulting in a ten-thousandfold increase in the rate of radiation. A perfect emitting surface at 1,000° K emits 5.7 watts per square centimeter.

Not only temperature, but also the nature of a surface determines the rate of emission of radiation. The ability of a surface to emit radiation of a given wavelength is proportional to its power to absorb that radiation. The perfect emitter is a body which is completely absorbent to radiation of all wavelengths. Such a body looks black, of course, and is consequently called a black body. The emissivity of a surface measures its ability to emit radiation in comparison with a black body. Thus a surface with an emissivity of 0.5 emits radiation at only half the rate of a black body, at the same temperature and with equal area. Generally speaking, the emissivities of surfaces are temperature dependent; emission is consequently not exactly proportional to the fourth power of the temperature.

Surfaces can be roughly divided into three classes. In the first class are those which *absorb and emit radiation almost perfectly*, over a wide range of wavelengths, so that they can be considered to be black bodies. The soot deposited from burning camphor or acetylene comes nearest to providing such surfaces. In the second class are surfaces which absorb and emit low wavelengths more readily than long wavelengths. Polished metal surfaces come into this class; silver for example, absorbs about 7% of solar radiation, but at low temperature (long wavelengths) emits only 2% as much radiation as a black body. The extreme example is polished zinc, which absorbs 55% of solar radiation but has only 5% of black body emission at low temperatures. Finally, there are surfaces which absorb and emit long wavelength radiation more readily than they emit short wavelengths. In this class are metal oxides, pigments, and most paints. White metal oxides, in particular, are very poor absorbers of solar radiation (magnesium oxide surfaces can be made which absorb only 2%), but on the other hand, they approach black body performance in the emission of heat at low temperatures. Zinc oxide for example, has 95% of the ideal black body emission at low temperatures but absorbs only 15% of solar radiation.

If the three types of surface were exposed to the sun's radiation in space, the polished metal surfaces would reach the highest tempera-

*The absolute zero of temperature is — 273° centigrade. This is 0° K. To convert temperatures from Kelvin to centigrade, add 273.

tures, the oxide or pigment surfaces the lowest temperatures, the black body surface falling somewhere between *(see page 72)*. This appears, perhaps, to be a surprising result to those who have been accustomed to thinking of polished metal surfaces as best for maintaining low temperatures inside spaceships venturing near the sun. *The temperature is determined, in fact, not by the ability of a surface to absorb the sun's radiation, but how this compares with its ability to re-emit this radiation at low temperatures.*

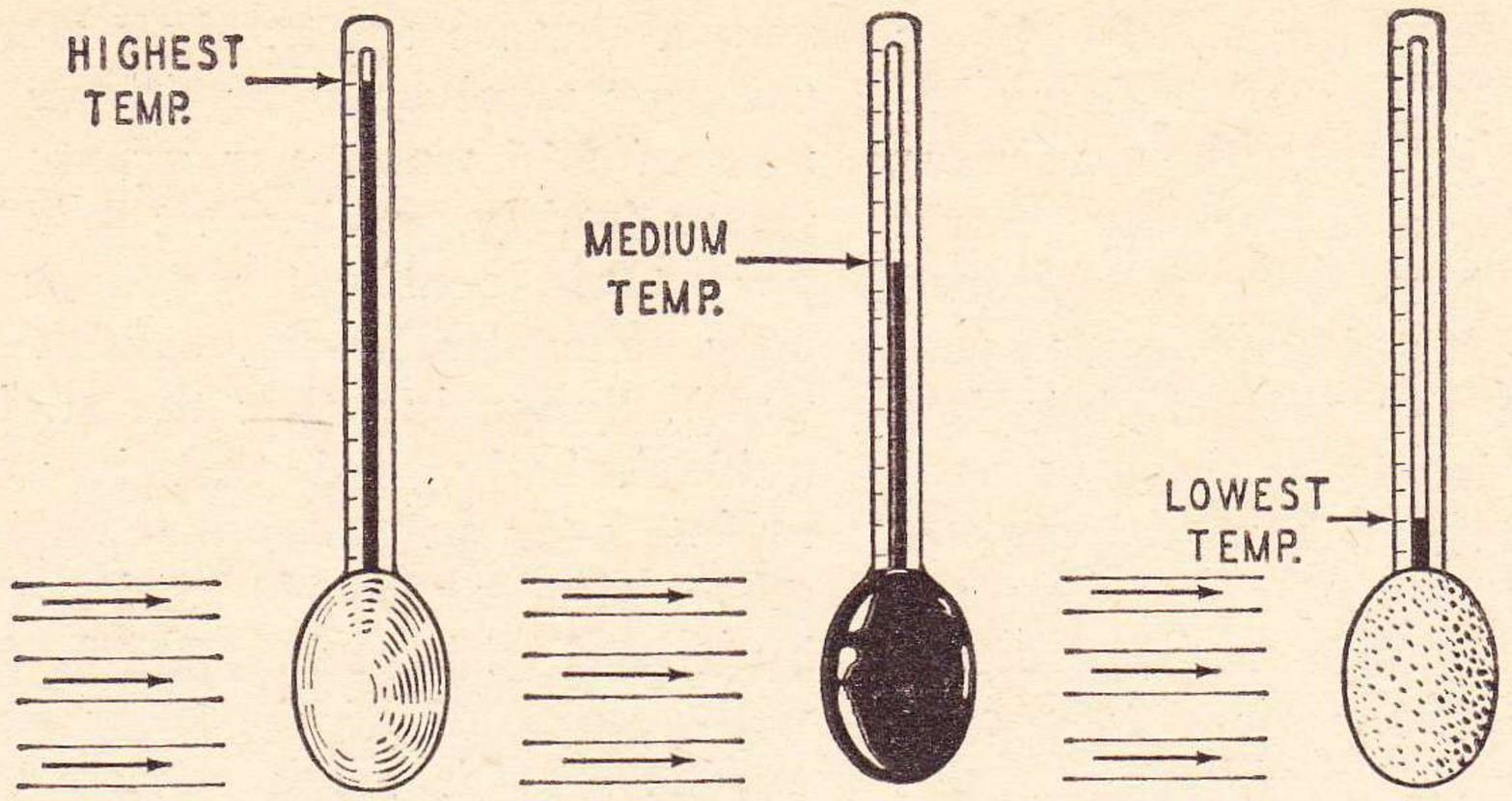
The equilibrium temperature of a surface exposed to the sun also depends upon its *orientation.* A surface at right-angles to the sun's rays will intercept more radiation than an identical surface inclined to these rays, and one lying parallel to the rays, intercepts scarcely any radiation, and would tend to go to a very low temperature. The total surface area of a sphere, is four times its greatest cross-section, so the average equilibrium temperature of a sphere would be lower than that of a flat plate of identical surface properties, set at right-angles to the sun's rays.

The determination of *equilibrium temperature* in the case of a flat surface is very simple. At the Earth's orbit, 15 million kilometers from the sun, a surface set at right-angles to the rays receives solar energy at the rate of 0.15 watts per square centimeter (at Mercury's orbit it is 1 watt per square centimeter and at Pluto only one twelve-thousandth of a watt). Supposing that the surface is a black body, and that it may re-radiate only on the exposed side (the other side assumed to be covered by a perfect heat insulator), then it will absorb all of the solar heat. *At equilibrium it must radiate energy at the same rate.* The temperature at which a black body emits 0.15 watts per square centimeter is 127° centigrade, so this is the equilibrium temperature of a single-sided black body surface at the Earth's orbit. The corresponding value for a polished zinc surface is 460° C., and that for a zinc oxide surface is –22° C. *The zinc surface would actually melt.*

A case of some interest is that of a spherical spaceship, in which the surface is kept at the same temperature all over, by circulating a *heat-transfer* fluid round the walls to convey heat from those regions receiving direct sunlight to those parts which are in the shadow *(see p. 72)* The equilibrium temperatures for

Position in Space	Solar Energy (watts per square meter)	Temperature in degrees Centigrade		
		Sphere 1	Sphere 2	Sphere 3
Mercury	10,000	183	13	561
Venus	2,900	65	—62	345
Earth	1,500	10	—95	246
Mars	650	—41	—127	152
Jupiter	55	—149	—195	—45
Saturn	16	—182	—216	—106
Pluto	0.8	—230	—246	—193

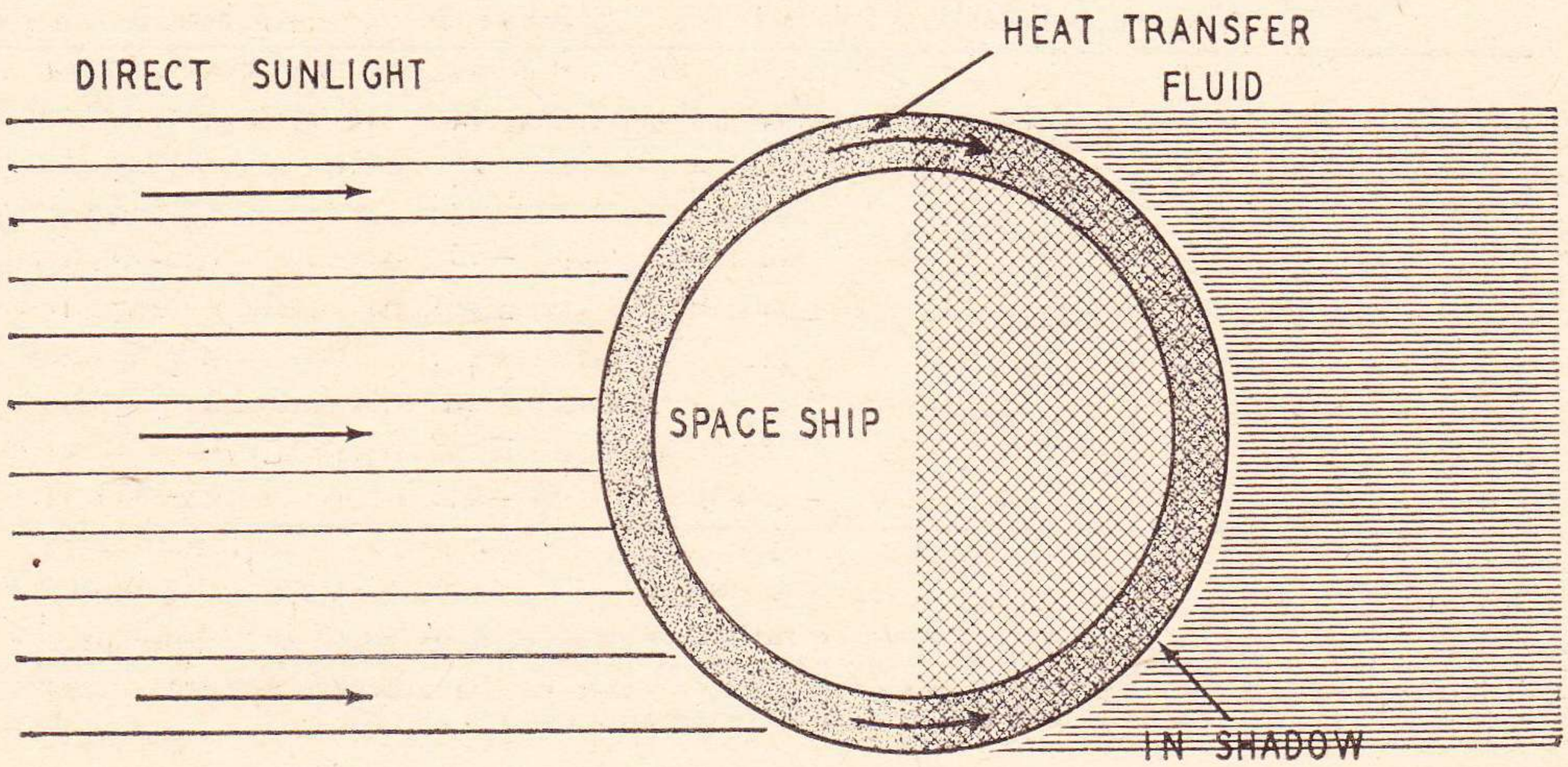
The higher figures in column 3 may be rather inaccurate because of increase in emissivity with temperature. The table shows that a comfortable temperature at the Earth's orbit is obtained in a black sphere; at Mercury's orbit in the zinc-oxide-coated sphere; and somewhere in the asteroid belt in the polished zinc sphere.



such spheres at various points in the solar system are given in the following table. Three types of surface are considered, sphere 1 being a black body, sphere 2 a zinc oxide coated surface, and sphere 3 a polished zinc surface. It is assumed that *no heat is generated inside the vehicle.*

The heat received by a vehicle in the shadow of the Earth is a point of some interest. Assuming an average surface temperature of 280° K, and an emissivity of 0.5, the average heat flux just above the atmosphere would be 170 watts per square centimeter (comparable to the solar heat in the asteroid belt). A one-sided surface exposed to this heat would reach an equilibrium temperature of –45° C. The nature of the surface would be unimportant in this case, because the distribution of wavelengths in the incident and emitted radiation is about the same.

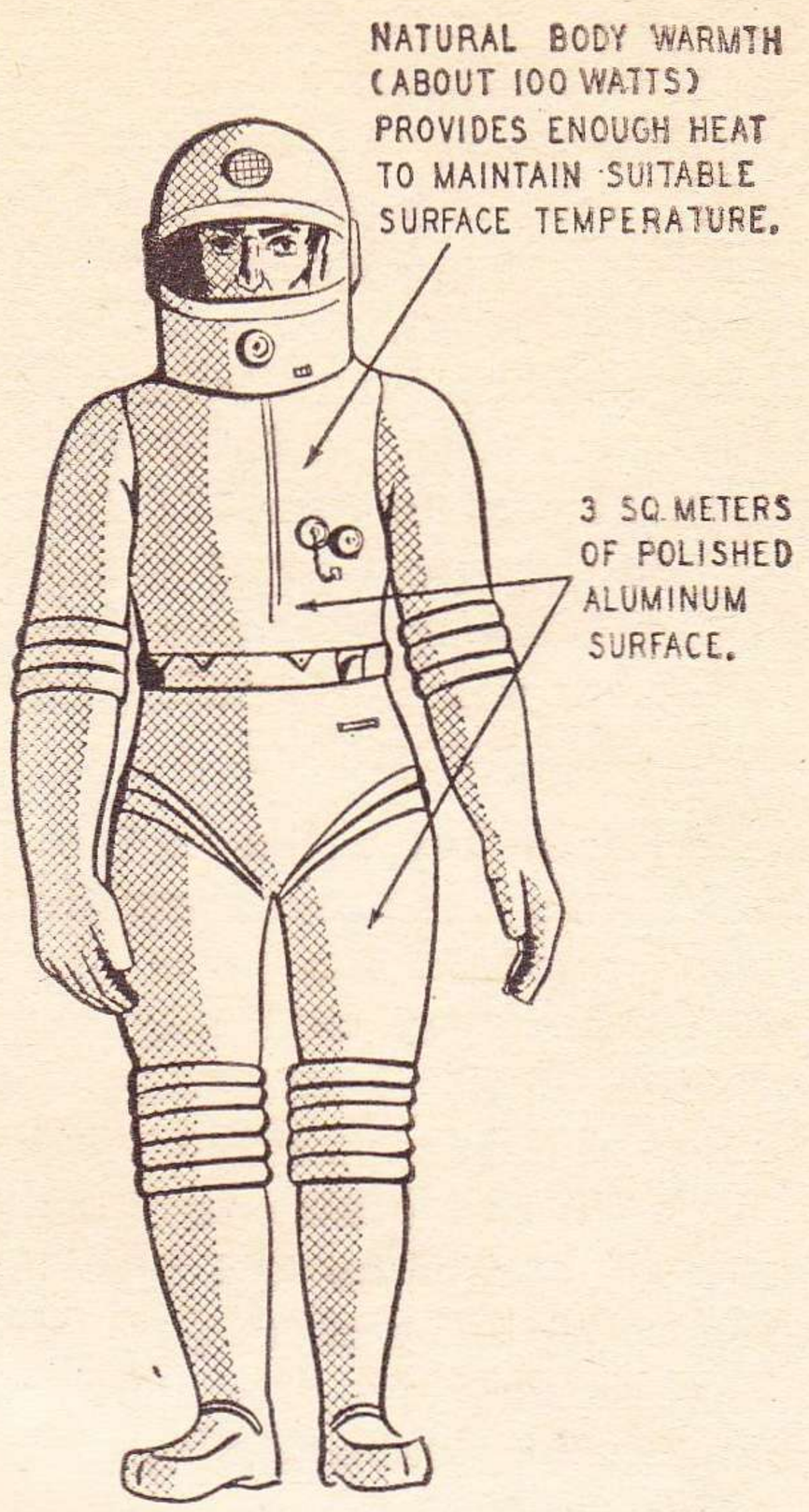
So far only external heating, by the sun, has been considered. In a space vehicle there inevitably would be sources of heat (waste heat from power plants, etc.), which might have a considerable influence on the temperature. All waste heat would be conducted eventually to the walls, unless it were excessive, in which case it would have to go to special radiating fins. Surprisingly little heat would be required to maintain a comfortable temperature inside a spaceship, even out in interstellar space where the heat received from the sun and stars would be neglible.



A polished silver surface with an emissivity of .02 would lose heat at the rate of only 9 watts per square meter at 20° C. With such a surface, a sphere of 10 meters radius would need only about 11 kilowatts to maintain a pleasant internal temperature. About 50 kilowatts would be required in the case of polished aluminium walls (emissivity .08).

It is interesting to note that a man in a spacesuit having about 3 square meters of polished aluminium surface would feel comfortably warm in deep interstellar space. His natural bodily warmth (about 100 watts) would provide enough heat to maintain a satisfactory surface temperature *(see page 73)*.

Very high-power sources inside space vehicles would probably be a considerable embarrassment. A great deal of the power would eventually appear as heat, which could be dissipated only by radiation. Such a power plant might be part of a propulsion system, like an ion-rocket, in which the waste heat might be hundreds of megawatts. *100* megawatts of heat would require large radiated fins, about 2,000 square meters of black surface at 1,000° K, for example, or 400 square meters at 1,500° K. It appears likely that spaceships will be rather luminous objects.



The Effect of Meteoric Material

The density of solid meteoric material in space, in the vicinity of the Earth, is about 10^{-23} grams per cubic centimeter. This is distributed in a wide range of sizes, from huge chunks of rock and iron, down to microscopic particles with masses of about 10^{-13} grams (one-ten-million-millionth of a gram). Lower mass particles cannot orbit around the sun, because the pressure exerted by sunlight falling on them is sufficient to push them out of the solar system. The size distribution of meteors is such, that there are *ten* times as many between 1 and 10 grams as there are between 10 and 100 grams, and *ten* times as many between 0.1 gram and 1 gram as between 1 and 10 grams, and so on.

The number of meteors with mass greater than *one* gram which enter the Earth's atmosphere in the course of a day is only about 200,000. *It is easy to see from this that it is about two million to one against a meteor heavier than one gram hitting a spherical vehicle of ten meters radius.* The chances are *two thousand* to *one* for meteors down to *one* milligram, and only *two* to *one* against a collision with a meteor of a microgram or more. The really microscopic particles in the region of 10^{-13} grams would bombard the vehicle at a rate of millions per day.

The worst effect to be expected from the continuous bombardment by minute meteors would be a very gradual deterioration of polished surfaces. More serious consequences would result from the fairly rare col-

lisions with particles in the range of 1 to 10 milligrams, although the average frequency of such collisions would be several years. Iron meteors in this mass range would have diameters in the region of a millimeter. The range of meteor velocities would depend upon the position and the velocity of the vehicle. If it were moving in the vicinity of the Earth at a low relative speed, then the maximum meteor velocity would be about 70 kilometers per second.

Grimminger has attempted to derive formulae for the penetration of meteors into stainless steel and dural. He assumed that meteors behaved like solid spheres and the target behaved like a dense compressible fluid. On this basis one finds that an iron meteor of mass 1 milligram, moving at 70 killometers per second, would penetrate to a depths of 3 millimeters in steel and about 1 centimeter in dural.

Grimminger's assumption that the steel or dural wall would behave like a fluid is a natural consequence of the high stresses set up in the material by the impact. These would be so great that all materials, no matter what their tensile strength, would flow freely like liquids. However, this would apply equally to the meteor itself, which would behave therefore like a drop of liquid, rather than a solid sphere. On striking the wall, the drop would spread laterally as it penetrated. Momentarily, there would exist, in the region of the impact, a fluid mixture of meteor and wall, with terrific internal pressure. This pressure can be calculated easily from simple hydrodynamics. It would exceed 10,000,000 times atmospheric pressure, in the case of the very fast meteors. Obviously a fluid under such high pressure would explode outwards. Some of the fluid would be driven further into the wall, until the strength of the material took a hand and prevented further flow. Most of the fluid would be blown back out, since there would be little to resist it in that direction. This would actually reduce the damage which the meteor might otherwise cause. The net result of the impact would be in fact a crater whose depth and radius, at the most, would be not much greater than the diameter of the meteor in the case of strong materials. The amount of the material excavated would be roughly proportional to the energy imparted by the meteor, and it would be smaller in materials with high tensile strength than in those with low strength.

This picture is quite different from that given by Grimminger and we may well doubt the validity of his penetration formulae. On the whole, one would expect Grimminger's theory to overestimate the depths of penetration and underestimate the lateral damage.

Whipple has suggested the use of thin sheets of material surrounding the walls of space vehicles, to act as *meteor bumpers*. The meteor and the region of the bumper where it strikes would be converted into a fluid at high pressure, which would then explode outward both from the *front and rear of the bumper*, leaving a considerable hole. However, when the exploding envelope reached the true wall of the vehicle, it would do no serious damage other than to heat up the surface (see page 75).

An interesting result of the presence of the meteoric matter in the solar system is its effect in scattering the light from the sun. The zodiacal light seen after sunset and the counterglow in the night sky are believed to result from the reflection of sunlight from meteors. *If this is the case, then space would not appear black to the voyager in the inner region of the solar system.* Anywhere inside the orbit of Mars there would be an appreciable background glow.

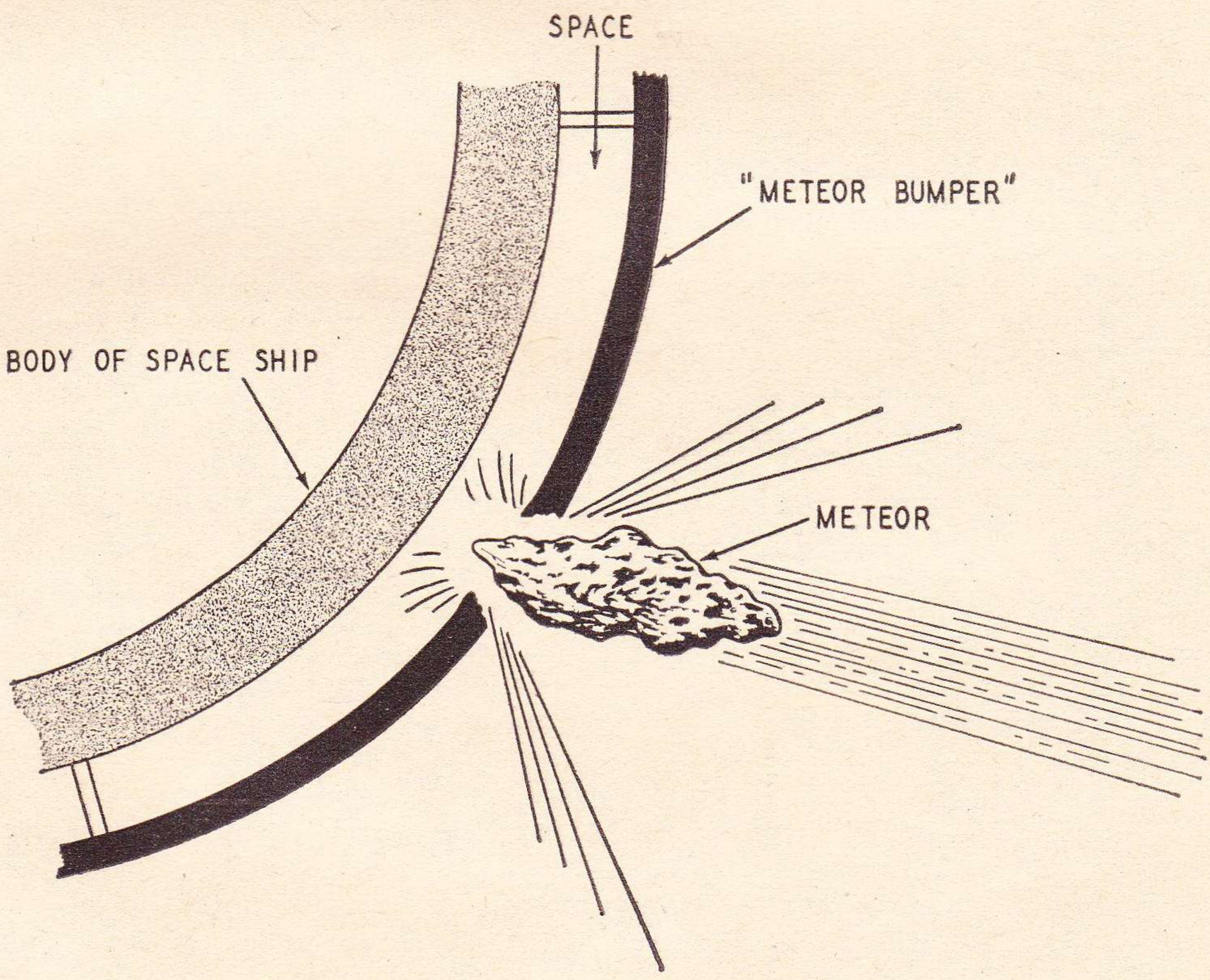
Radiations Presenting a Possible Hazard

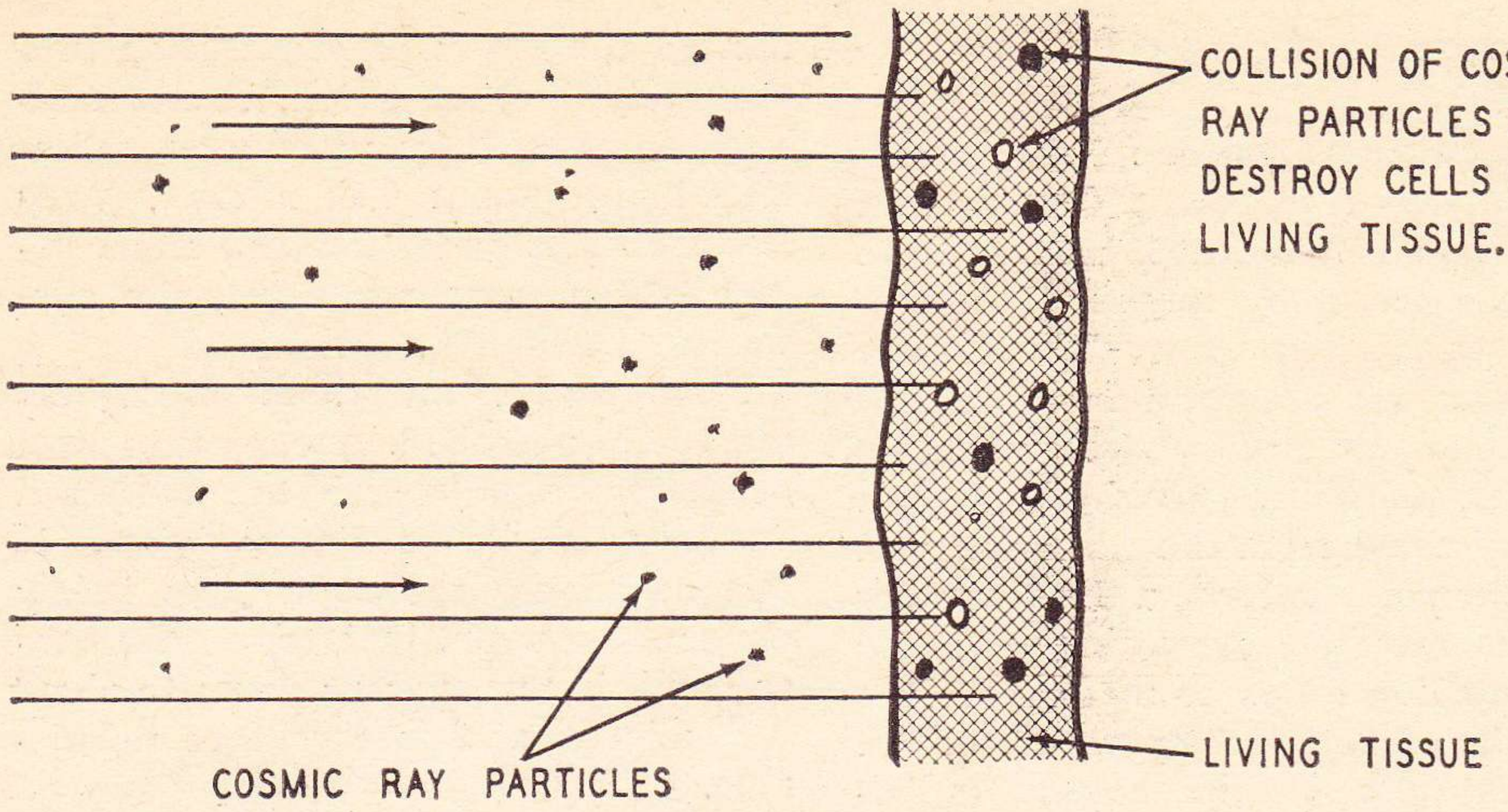
Ultraviolet radiations with wavelengths down to about 0.12 micron and X-rays of about .001 micron have been identified by means of instruments carried in V2 rockets. These radiations are absorbed in the upper reaches of our atmosphere at heights of about 100 Kms. The X-rays do not actually come from the sun itself, but from the solar corona, a band of very tenuous material extending outward for a million miles or more from the sun. The effective temperature of the gaseous part of the corona is believed to be about one million degrees centigrade. The ability of the corona to emit X-rays is due to this very high temperature and the consequent high degree of ionization existing in the gases of the Corona.

Soft X-rays and ultraviolet radiation can cause serious damage to the skin of people exposed to them, though the depth of penetration into the body is very small. Acute sunburn is caused by ultraviolet radiation below about 0.32 micron. Very little of this radiation and none below 0.28 micron can reach the surface of the Earth.

Fortunately, all these radiations are easily absorbed. A very thin wall of steel would absorb the radiation entirely, while ordinary glass is opaque to all the solar rays below about .34 micron. Quartz, on the other hand, is transparent down to about 0.17 micron and is therefore unsuitable.

One important effect of the ultraviolet and X-radiation, is its action upon glass windows in space vehicles. Haber has pointed this out. The effect has been known for many years in connection with the use of glass vessels and windows, with highly radioactive materials. The absorbtion of ionizing radiation in





many transparent materials leads to the formation of color centers, gradually resulting in loss in light transmission. Over a period of 1 year the change in transmission, due to the solar X-rays alone, would be quite marked. This effect is easily overcome, however. The addition of cerum oxides in small concentrations inhibits the formation of color centers and reduces coloration by factors up to 10,000. Alternatively, the use of plastics might be considered. Lucite, for example, appears to be about 1,000 times as resistant to coloration as is glass.

A more difficult problem is undoubtedly that set by cosmic radiation, which is made up of a representative sample of the atomic nuclei of the Universe, moving at truly remarkable velocities, *mostly greater than 90% of the speed of light*. If we measured the flux of these rays at a small distance from the Earth, yet sufficiently far to be out of the Earth's magnetic field, we should find that about two particles crossed an area of *one* square centimeter every second. About 80% of these particles would be protons; 19% alpha-particles (helium nuclei), and the remaining 1% nuclei of carbon, nitrogen, oxygen, and various elements up to iron. Probably still heavier nuclei are present, but in such small proportions that measurements have not so far proved their existence.

These nuclei carry high electrical charges since they are atoms stripped of the extra nuclear electrons. When they pass through matter they exert strong forces on the electrons in that matter and pull them out of their atoms, leaving behind a trail of charged atoms and loose electrons (referred to as ions). The density of the ionization along the track of the particle depends upon the velocity of the particle and its electric charge. It is a minimum when the particle is moving at 0.97 times the velocity of light, and increases very rapidly as it slows down. A proton at 0.97 C produces 30,000 pairs of ions per centimeter in moving through water; a helium nucleus at the same speed produces 120,000 pairs per centimeter; while a charged iron nucleus produces 20 million pairs per centimeter.

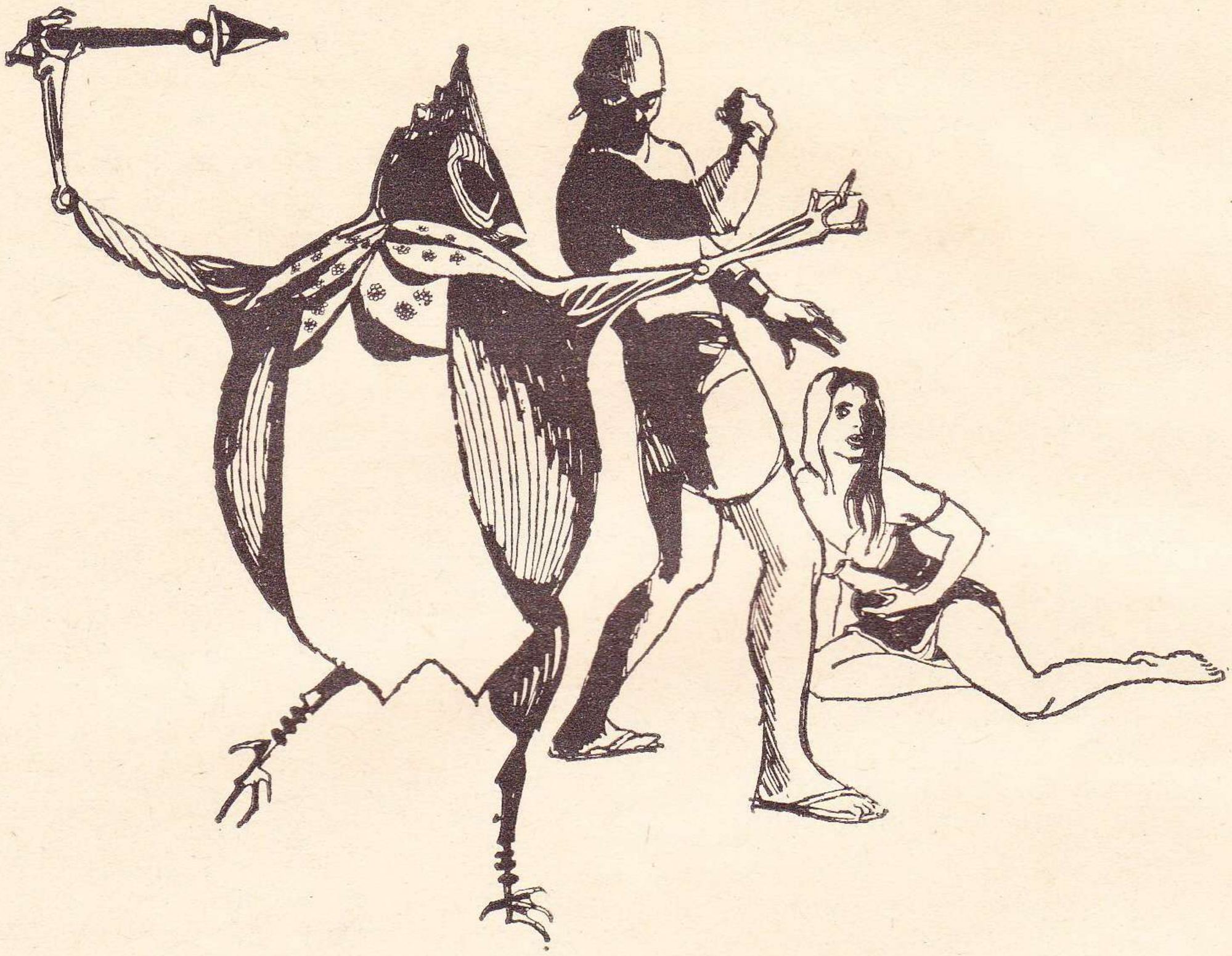
Another effect produced by cosmic radiation involves a very energetic nuclear explosion which results when a cosmic ray particle collides with an atomic nucleus in the material through which it travels. Most cosmic-ray particles end their career in this manner when they penetrate matter. If we attempted to absorb these cosmic particles in steel, we

should find that a proton moved on an average about 15 centimeters before making a collision, a helium nucleus about 11 centimeters and an iron nucleus about 5 centimeters. The main consequence of these nuclear explosions is that high-energy protons, neutrons, and mesons are knocked out of the nucleus, and these in turn can produce fresh explosions when they too make nuclear collisions. The result is that, although the number of original cosmic-ray particles decreases steadily the further they penetrate into the target material, the number of nuclear explosions actually increases at first and then falls off rather slowly. Thus, although we could absorb most of the heavier cosmic-ray particles by interposing 10 centimeters of steel, a worthwhile reduction in the rate of nuclear explosions would require much greater thicknesses of material.

The nuclear explosions produce, in addition to high-energy fragments, also medium-and low-energy alpha particles, protons, deuterons, and tritons. These, because of their low velocity, produce very dense ionization along their tracks.

The importance of cosmic rays in space flight lies in their possible biological effect. The ionization produced along the tracks of these particles can cause damage to the cells which make up living tissue, and thereby lead to their destruction. The effectiveness of this ionization in producing cell destruction depends upon its density along the particle tracks. The consequence of this is that the most serious contribution to biological damage caused by cosmic rays, will come from the heavier particles (the nuclei ranging from carbon up to iron) on the one hand and the nuclear explosions on the other. The contributions from the two appear to be about equal.

Calculations indicate that cosmic rays present a borderline hazard. Exposures, measured in days or even weeks, should lead to no serious consequences, but periods of about a year in space might result in excessive damage to the human tissues. In that case some shielding would be necessary to reduce the heavy cosmic-ray primaries and the nuclear explosions. The latter in particular might require excessive thicknesses of material to effect worth-while reductions. *Materials of low atomic weight are, mass for mass, more effective* than high atomic weight materials for this purpose. If such shielding were necessary, one would attempt to utilize some useful material such as essential fuel or water supplies, which of course would be carried along anyway.



The Gladiator

by THOMAS PYNE

THE SLOW moving freighter flew east over the weed-grown devastations of earth riding the puff of its airjets just above the ground. Hissing loudly in the night air, it nosed upward, its string of loaded platforms streaming smoothly behind, as it rose above the mound of a burned-out city. The binding lines creaked as the weight of the cages shifted. The last platform tossed in a wind turbulence and a chain snapped. One of the immense iron-barred cages slid to the edge and tumbled over before the autogyro could right the platform. The cage, carrying its helpless occupants, thudded to the ground tumbling down the rubble-strewn slope to land heavily on its side. The freighter flew on, the Antad guards unmindful of their loss.

Inside the cage the gladiators stirred testing their limbs. They were all half naked, wearing only breechclouts on their muscular bodies. Some, unable to rise, lay moaning in pain or unconscious. Those that were able braced themselves against the crazily tilted sides and got to their feet. No one spoke. They simply stood there staring up at the empty sky, the moonlight striping their fear-filled faces with the shadows of the thick iron bars. Finally one man spoke the thought that was in all their minds.

"It may be hours before they miss us and come back. We won't reach the arena in time."

It was a broken, hysterical whisper splitting the silence. It triggered a babble of frightened voices: "The Imperial Games!... Lord Jak will be in a rage... Another whipping will kill me... Why didn't they hear?...I shouted... Damn that broken chain..."

An injured man screamed in pain as the pile of bodies in the lowest corner jerked convulsively and a huge figure fought free. Even for a gladiator this was a monstrous man.

He stood a head taller than those around him, every muscle in his sloping shoulders and deep chest bulging round and hard in the pale light. His breech-clout, like all the rest, was decorated with a crouching red lion.

"Why aren't the whippers here?" he demanded, scanning the dark sky intently.

"They were up front, Largo, in the freighter," replied Chezik, the old man whose dress flap bore the yellow border of a teacher. "They've gone on."

"Gone on?"

Largo glanced at the dead-white faces of his friends as the meaning of the words penetrated, then his gaze swept eagerly over their transport-cell. "We can escape!" he cried triumphantly. He pointed to where the steel frame of the bars had sprung the width of a man's body from the heavy-timbered roof.

"You're mad, Largo!" muttered a heavy-muscled figure. "Where is there to go in this wasteland?"

"The Antads would find us and..." Chezik's voice broke, "and whip us."

Largo exploded in quick anger. "Whip us! Cage us like beasts!" he roared. "We might as well be dead as living like this! Earthmen were free once—Chezik, your father told you how it was."

"We're all that's left," the older man mumbled dully. "Slaves. They killed all the rest. There are no more free men."

"There are...there must be..." Largo's thoughts ran ahead of his words. He had seen animals out there, and birds too, from the freighter. If they had survived, so had men. Impatiently his gaze swept the circle of frightened faces about him. "Even if there's only one freeman left," he said fiercely, "we belong there with him—trying to fight back! Can't you feel that? You, Essek? Imor, you?"

"Fight back?" Essek's voice was incredulous. He gave a nervous laugh.

The men cast furtive glances at one another, but no one else spoke. In the shadows Imor raised his deeply scarred face to look at the moon, as if hoping the black dot on its surface had disappeared.

Largo cursed, slamming his fist into his palm. His eyes blazed with scorn. Gripping the thick bars, he pulled himself hand over hand to the gaping breach under the roof.

"Don't be a fool, Largo." Essek pleaded. "What can you do out there alone?"

Largo paused. In his mind one phrase had been repeating itself over and over since the cage had tumbled from the platform. A rumor heard in the training pits, a whisper in the night between cells—*there are free men outside in the forests!*

Tensing his muscles, Largo threw one leg over the steel frame. "Do you come with me or not?" he asked hoarsely.

Even as he stared down at them, he knew the answer. These were men who fought lions and tigers in the arena, and yet now the stench of their fear was drifting up to his nostrils in the cool air.

Chezik nudged the man next to him. "Lord Jak may whip us all if Largo escapes," he whined.

"That's right—he will!" cried Essek. "Largo is champion of the pack!"

"Don't let him get away!" someone shouted.

"Pull him down!"

The gladiators burst into action, climbing the bars and jumping up to catch the big man, but Largo had thrown himself backward through the hole to land sprawling and rolling outside the cage. He brought up sharply against an enormous mound of fused stone and metal that had once been a building. Struggling to his feet he took off over the ruins stumbling in the dark, sandals slipping on the rubble-strewn ground.

Largo headed directly west toward the forest he had seen from the air, running through the long night with-

out a rest. Hour after hour his powerful muscles carried him almost without effort, as though his endless training had been just for this grueling run instead of for the ruler's sport. As the property of Lord Jak from birth, his body had been developed solely for killing in the amphitheaters, like the lord's rabbit hawks and his fighting dogs. The thought made him smile. He owed his strength to Antad cruelty.

It was near dawn when he finally reached the screening branches of the first scrub tree. He could see more of the same stunted trees scattered for miles before him. They were all the forest there was anymore, but birds sang lustily in their branches, and under them animals moved in the brush. The earth is fighting back, Largo thought. Not half a century has passed since the Big Burning and already the land is covering itself.

The thought should have heartened him, but instead, as he looked at the scene a vague doubt stirred like a shadow at the back of his mind. Abruptly he began to walk, beginning his search for a sign of freemen. Before he had gone a mile, the familiar hiss of a patrol ship, ground-flying, sent him burrowing into the brush, sweat breaking out on his forehead.

As the snub-nosed craft passed over, Largo caught a quick glimpse of the Antad seated within the transparent plastomer bubble of the observation deck. No cloak of nobility—a whipper! Largo's fists clenched, but he lay hidden until the ship disappeared.

Largo searched all day, walking slowly at first avoiding the raylanes and other clearings, looking for places where men might gather and hide. As the day wore on, the vague shadow of doubt in his mind began to darken and take form. He moved far more swiftly then, searching desperately, frantically, running from spot to spot—unwilling to admit what his reason had told him when he first saw this open, light-shot forest.

Exhausted at last he stopped running, stood swaying, sucking in air, glaring about him in despair. These runty little trees were barely cover for one man moving cautiously! There could be no band of freemen hiding here! Not a band strong enough in weapons to blast the black dot of their pyro-beam from the moon!

Largo sank wearily to the ground, covering his head with his arms. What now, freeman? he thought bitterly. How do you fight invaders who wipe out all resistance before they set foot on a planet? Chezik, the gutless toad, had been right, the gladiators were all that were left—and they were afraid to come out from behind their bars!

There was a sudden scurry and the heavy sound of flight into a thicket in front of him. No small animal, this! Largo slid to his feet in one smooth motion, crashing through undergrowth, tearing the branches apart with his powerful arms. He stopped short—

A prize-girl!

Largo grunted in disgust. Searching for freemen and he turned up a breeder!

"How did you escape?" he demanded of the woman who was sprawled under the thicket trying to hide.

She eyed him in suspicious silence staring fixedly at his gold champion's belt and the mark of the red lion on the dress flap of his clout.

"Don't be so shy," Largo growled. "If this were the Hutch, you'd talk to me quickly enough."

Beyond a tightening of the lips the young face looking up at him showed more closely. She didn't look like the pale-skinned, fat-bodied prize-girls he had known. She wore a leather tunic that covered her breasts for one thing and she was slender, lean almost, and tanned by the sun. He shrugged. What other breeders were

there? His mother had been a prize-girl, and his father some gladiator who had won her from the Hutch for a night.

"I'm looking for freemen," he said, annoyance making his voice rise. "Answer me, have you seen anyone?"

The girl gathered her long legs under her, watched him warily.

"Answer me, woman!" he snapped, out of all patience with her arrogance. He bent down to jerk her to her feet.

Whack!

The girl hit him on the head with a large rock she had concealed behind her. "Alien slave!" she hissed, darting under his arm as he tripped, stumbling backward.

Largo snorted in surprise, made a futile grab for her. Regaining his feet he chased after her, but she was fast and agile, twisting around trees and under thickets with the grace of a cat. She eluded him easily, bursting at last out of the brush, heading across the open clearing of a raylane.

Largo hesitated a moment at the edge of the woods. There was no overhead cover on raylanes. Not even grass grew on these scorched, mile-wide ribbons that crisscrossed the land in every direction. Here the earth itself had bubbled and warped fusing into metallic hardness under the sun's heat, focused into one terrible ray by the Antad's pyro-beam.

Only for a moment did Largo watch the girl's bare legs carry her further away, then he charged across the raylane after her. The footing was treacherous on the lava-hard ground and the girl stumbled several times, falling at last on a steep slope where the earth had bulged upward under the ray. Largo seized her roughly lifting her in his arms. Her flesh was soft for all her leanness, but she was strong, twisting and turning, fighting him in angry silence. Suddenly she froze.

"Aliens!" she cried, staring wide-eyed over his head. "Aliens!"

Largo turned, still carrying the girl, and ran dodging toward the trees. A patrol ship slid alongside, hovering. Largo glanced up just once to see a whipper standing under the plastomer shield, the black ball of his body shining in the sunlight. Braced on his knobby, stick-like legs, the whipper was raising his long thin arm and aiming the silver tube of the whip.

The last thing Largo noticed was the crouching red lion, mark of Lord Jak, blazoned on the ship's hull. As the neuro-ray lashed across his back, he flung the girl clear. He doubled up and rolled on the ground writhing, the world around him lost in a yellow blaze of agony. The ray attacked every raw nerve end in his quivering body, moving relentlessly back and forth over his flesh, setting waves of pain exploding in his head, biting deep inside of him, piercing his very bones.

Screams broke uncontrollably from Largo's throat as the whipper, a cold light gleaming in his eye cluster, continued to wave the silver tube back and forth. Not until the big man lay inert did the relentless motion stop.

The cloying reek of the big cats was the first thing Largo sensed as he came to. Without opening his eyes, he knew where he was. In a ready-cell underneath Agonistics IV. One of the many rat-infested cells where the gladiator packs of the different lords were penned while waiting to fight in the arena above.

Largo moaned as a wave of pain rolled across his body. At least he would not be fighting today. He was burning with after-whip fever and covered with aching red welts. His strength was completely gone—too weak even to raise himself from the floor—but he was alive. The neuro-ray had been set to torture, not to kill.

Largo turned his burning face down and licked the moisture from

the damp stones under his head.

"Curse of a broken jettek on you, Largo!"

Whispers dry as bleached bones drifted along the floor to his ears. The voices were weak, but he knew them instantly.

"We were all whipped...because of you..." Imor's voice, hoarse, accusing.

"Curse you!" The whine of the teacher, Chezik. "Curse you...trouble maker...how I ache..."

Largo stirred, opened his eyes. All the men of his pack were scattered about the big cell, their red-welted bodies twitching on the stones as helplessly as his own. Lord Jak must have been in a purple-eyed rage to whip his whole pack! There would be no one at all to fight for his red lion mark today.

Largo twisted his head. He could see the gladiators of the other packs, wearing the marks of their respective lords on their clouts, seated along the walls of the big cell. There were others, he knew, in cells across the narrow aisle. None of these men paid any attention to the whispers of the whipped pack lying at their feet. Their minds were busy thinking about the gaunt-bodied tigers and lions—shipped like themselves from the breeding farms—that were padding restlessly right now in cells like these at the other end of the arena.

Largo closed his eyes, tried to ease his aching flesh. He pictured himself in the arena, throwing his weapons aside, offering himself to the talons of the hungry beasts. Even as he thought of it, his mind rejected the idea. That was a slave's way out. If he was going to die it would be like a man, fighting his enemy—fighting a cold-blooded, torture-loving Antad!

He gritted his teeth as a sudden seizure tormented him. He must be out of his head with fever to forget that the Antads had the whip. How could a man get past the silver tube? And if he did, what weapons would he need to hurt those beetle-black bodies? Bodies that could stand temperatures high enough to char human flesh, bodies not affected by the neuro-ray!

The narrow aisle between the cells suddenly rang with the shrilling of womens' voices laughing and giggling, mixing instantly with the welcoming shouts of the gladiators. Largo heaved himself up on one elbow, feeling the cold knot tense instinctively in his belly, before he remembered that he was not fighting today.

This parade of the prize-girls was the first part of the ritual that would end when the screaming of men and snarling of beasts echoed under the transparent covering of plastomer that arched high over the whole amphitheater. The prize-girls were being marched through the corridor before the eyes of those who would soon compete. The Antads were stirring up the blood of their prize fighting animals.

The gladiators rattled the cell doors and thrust their hands out through the bars as the women walked by, each man shouting that he would open the Hatch and carry a prize from the arena.

"I am Arlak, the swift, my darlings!" shouted one. "I will knock first on your door!"

"Look at me! Estaban, the strongest! Look at me!"

Suddenly Largo pushed himself up on shaky arms. The girl! The one he had left on the raylane! She was walking toward him now, in the midst of the jostling women, dressed in the filmy laces of a prize-girl. She stood tall among the others, head erect, holding herself apart from the confusion. She seemed to be observing, rather than being a part of it. Her calm gaze sweeping over the men in the cells, hesitated for an instant on Largo. Her eyes lit briefly with recognition that turned at once to the same distrust and scorn he had seen there before. She looked away.

Even as he writhed under her withering glance, Largo could feel the hot tide of anger rise in his throat. Who did she think she was, wearing breeder rags and looking down on him? Scorn on her lips—contempt in her gaze! Curse her arrogance! Let her feel the sting of the silver tube once, then maybe...

Largo gasped. Under the filmy scarves—the red welts! Just two lashes, but even two lashes on such a slender body!

He studied her with new respect. Then it came to him. With startling clearness he saw what his anger had blinded him to before. Ignoring the jolting pain, he dragged himself to the front of his cell, franticly scrabbling over the rough stones. He had to talk to this girl. He had to know why the shadow of fear that fifty years of Antad torture had put into men's eyes was missing from hers!

He reached out his arm toward her, through the bars, but his body contorted violently under a cramping thrust of agony and he fell back, retching dryly, unable to move until the spasm passed.

"Who takes the skinny one?" a man yelled as the girl went by. "You, Arlak?"

"By the Ray, no! She's too well done!"

Laughter swept through the pit. Estaban, a thickset man nearly as tall as Largo, pounded on the door of his cell across the aisle.

"She's mine!" he bellowed. "I take that proud one tonight! Here me, she's Estaban's!"

"No!" Largo was pulling himself to his feet. "No!" Jaw set, fighting back the nausea and the weakness, he forced his body to stand. "I am champion Largo!" he cried, hanging on the bars, trembling with the effort. "She's mine!"

"You seem a little tired, champion," laughed Arlak. "What would you do with her if you did get her?"

Abrupt silence fell on the aisle as the lords whose packs were fighting today, and their whipper attendants, appeared riding up the corridor on small airjet platforms which were encased in the usual shock-resistant plastomer bubbles. The gladiators all knelt and bowed their heads as the rulers passed. The prize-girls moved on ahead of them, down the underground passage that led to the Hutch, the circular cage in the center of the arena.

Lord Jak and his whipper rode last along the aisle. The men of his pack tensed, almost forgetting the pain in their whipped bodies as they groveled in quick fear. He had no gladiators able to fight. What was he doing here?

The platform stopped, hovering inches above the ground. The Antad noble tossed his cloak off in anger, exposing his shiny globular body, as he recognized Largo hanging weakly against the bars of his cell. The big man was staring at the passageway where the tall girl's figure had vanished. The hissing of the airjets broke the spell and Largo turned his head.

"Lord Jak! Let me fight!" he shouted. "Let me go in today!"

"You stand in my presence." Lord Jak said in the clacking ruler tongue. His voice, muted by the bubble, was ominously low. "Kneel, beast!"

Largo sank to his knees quickly, eagerly. "Let me fight," he pleaded. "I'll bring glory to your name, honor to your mark—I am strong..."

"Strong?" The metallic voice rose, clacking higher and higher. "You're not fit for lion food! You would disgrace my mark before my friends! Fight? You will lie screaming on your back, you gnettig!" Violently he motioned to the whipper, his thin arms flailing about his glistening black head.

Largo gripped the bars and ground his head against them as the ray struck him. "Let me fight," he choked.

"Whip all of them!" Lord Jak

screeched, his eye cluster darkening to a purple glow. "All the filthy gnettigs!"

He seized the silver tube from the whipper, aimed it himself. He played the ray over his men only, but the other packs crowded swiftly to the back of their cells. When an Antad raged, it was unreasoning hate and at any moment he might turn the ray on every man he could reach. The return of the other lords to protect their own fighters stopped the torture. A fierce clacking vibrated from the damp walls as they slowly forced Lord Jak's platform back.

"Hai—ai! Largo! Come and fight!"

The voice seemed to come from very far away, and the laughter echoed dully inside Largo's skull. With a supreme effort he opened his eyes. Iron bars and grinning faces spun sickeningly before him. He shut them again quickly.

His body felt numb, suspended. It was good to lie here. He didn't want to move, but something in his subconscious mind was bothering him, urging him to get up. Annoyed, he twisted to one side—abruptly pain came surging back through the numbness. He groaned aloud.

"The champion isn't feeling well today?" The solicitous tone was Arlak's.

"Jab him with your jettek. See if that helps." The deep boom of Estaban's voice.

Largo winced as a sharp point dug into his side. They have their weapons, he thought hazily. The robot control must have unlocked the cells. Good. Then at any moment the stone gate to the arena will open and they will be gone. Then I can lie here...

"He's not responding to treatment, Arlak."

"Ah? Sad! You may have to take care of that tall wench all by yourself."

The girl! Largo clawed his way to his knees. He had to get to the arena. He waited, shivering, until his tormentors stopped swimming before his eyes, then he grasped the bars and hauled himself laboriously to his feet. He tried to walk. Twin fires flared in both his legs, and the strength ran out of his muscles like melted wax. He toppled to the floor.

The gladiators were silent. Amazed and unbelieving, they watched him struggle. Even Arlak was quiet.

Largo could see their bare legs ringing him in. Like the trees in the forest, he thought. He rolled over, f o u g h t his way to his knees. He no longer knew just why he had to get up. He was acting out of an inborn stubbornness—some tough core handed down to him from a bull-headed freeman in the long line of his ancestors.

This time his legs held. He stood braced in the open cell door glaring at the wavering images of the gladiators. They parted slowly and he staggered past them into the aisle, noisily sucking in air and gasping sharply at every step.

Behind him on the cell floor, the old man Chezik watched, hate burning in his feverish eyes. He turned his head trying to shout. "Largo is going...he's getting away...again..." It came out a hoarse croak, but the others heard him. "Lord Jak will... whip us!"

"He's mad!" Essek moaned. "Kill him...troublemaker..."

"Kill him!" the men of Largo's pack took it up. "Kill the troublemaker!"

Imor lifted himself to one elbow. "Kill Largo for us!" he cried to the gladiators in the aisle. "Estaban... Arlak... Kill him in the arena...for us..."

Largo paused at the end of the aisle, swaying unsteadily before the weapons rack. He saw one caach left, the curved wooden shield big enough to curl up under. He doubted he could carry it today! A jettek was all he would take. A needle-shaped jet-

tek, long as a man's body and balanced for throwing. That was his best chance. He stepped forward to reach for one.

The flat of a heavy blade struck his arm down, and the point of a jettek dug into his chest.

"No weapons for you, champion!" said Estaban brusquely. The gladiators lined up beside him, grimly ringing Largo in as though he were an animal gone berserk.

"Let the lions do the job," Arlak said nervously. "Do you want the rulers to know?"

Largo felt the hot sun strike his back as the stone gates opened behind him. He studied the faces of the gladiators opposing him. It was there in every one—the shadow. It clouded their crazed eyes.

"You're not men, not any of you," he said, speaking slowly, deliberately. "You fight the cats because you fear the whip more. Now you turn on your own like fighting dogs. Why don't you make fear your mark and wear it on your clouts?"

He turned his back on them clenching his teeth against the agony of moving his body, and strode into the arena.

The spectators, overflowing the seats of the amphitheatre, clacked and clattered in their metallic tongue as the gladiators entered. The sound rose to an eerie pitch as they saw the unarmed man in the lead. There was a flurry of noble's cloaks at the emperor's box, and Lord Jak's name spread through the stands. This was his man.

The heat under the arching cover of plastomer rose in shimmering lines from the sand. Largo pushed forward slowly, picking his feet up as though plodding through hot tar. At every step he expected the whip ray from Lord Jak's seat to strike him down. Loss of honor from such an act was the only thing that could be holding it back.

The roaring and spitting of the big carnivores as they spewed into the arena on the far side brought Largo to a halt. He felt naked without a weapon. Unbuckling his gold belt, he wrapped it cestus-like over his right arm.

The hungry, gaunt-ribbed beasts were padding around the Hutch in the center of the arena, clawing the bars and snarling in frustrated rage at the prize-girls who huddled together on the floor in a flutter of colored scarves.

A tiger broke away with a roar and came charging at the line of gladiators. The men advanced quickly, spreading out. These were the cats to take—the ones that came running. The treacherous killers were the black humps that lay waiting on the yellow sand, only their tufted tails moving.

"Mine!" shouted Estaban and moved forward jettek raised to meet the tiger.

Largo began to run, forcing his legs to carry him. He ran straight toward the Hutch. Around him the battle raged. Dust flew as men and beasts fought and died for the pleasure of the Antad lords. A wounded cat snarled. The shriek of a man, talon-ripped and dying, added to the din. But above all the sounds in the arena, drowning them out, rose a noise like the snapping and buckling of a thousand thin sheets of metal in a high wind—the alien clatter from the stands.

Almost in the shadow of the circular cage, Largo dug his heels in violently, skittering to a halt. A heavy-maned lion crouched on the sands blocking his way. Ears flattened, eyes slitted, the great cat inched imperceptively toward him. Instinctively Largo stepped into throwing position—but there was no jettek in his hand! He crouched defensively, heavy shoulders hunched, waiting without motion—watching the tufted tail.

It twitched nervously back and

forth, throwing up gusts of sand. Suddenly it flicked out straight and stiff and the lion sprang!

But Largo was gone. He had thrown himself forward at the tell-tale sign, rolling under the heavy cat's leap and coming to his feet behind the animal as it landed. Without a pause he flung himself onto its back, tangling his hands in the stiff mane, digging his legs deep under it, low on its belly.

The lion flung itself up, rearing and falling back, its powerful hind talons ripping and clawing, trying in vain to reach the clutching legs. Man and beast rolled in the choking dust, Largo clinging desperately, fighting the bone-aching weakness of his flesh.

When the lion rolled to its feet for an instant, Largo thrust his bound arm into its snarling mouth. Now! he thought pulling back abruptly, bringing the cats head up, putting his knee below its neck, arching it slowly backward!

Largo clenched his jaws, the cords of his neck standing out like pillars as he strained. Muscles that had always sprung to his bidding swelled and tightened now with maddening slowness. White hot flashes ran up the column of his back exploding against the top of his skull. His whole fever-weakened body screamed for rest. But he held on, grimly, doggedly, tightening his grip on the struggling lion. Gradually his strength bent it backward, further and further backward.

The lion's neck broke and the animal fell dead on the sand. Largo fell beside it, unable to stand.

The transparent roof of the amphitheater threw back the clacking, clattering roar from the stands. A champion ovation! The harsh sound grated on Largo's ears. It wouldn't let him rest. He pulled himself up in anger. They thought he had performed a champion feat for *them!* "Lord Jak has bred a gigantic fighting animal," they were howling. And their insect eyes were bright!

"Aliens!" Largo screamed. He knelt on the lion's ribs and shook his fist at the stands that spun around before his eyes. "Go back where you came from! Leave us..."

His words died unheard in the shrieking clatter. He fell forward his head in the dusty mane, the red mists whirling dizzily. "I didn't fight for them!" he sobbed into the dead lion's ear. "I'm not a slave...I'm a freeman...there are freemen outside in the forest..."

Freemen! The word was like a hand reaching out to steady the spinning world. The sound of it blew the red mists out of Largo's brain, and he sat up.

In the arena, most of the fighting was over. Some lions had won—they were feasting. Some gladiators had won—those that were on their feet were moving toward the Hutch. Estaban was not among them. Largo rose on trembling legs and walked toward the door of the cage.

"Take me! Take me!"

Wild-eyed, the prize-girls fought one another to be nearest the opening door. Their faces showed their terror. If no winner claimed them, the lions would. They crowded around Largo as he let the door down, pulling at him, forcing their bodies against him.

"You stink of fear!" Largo shouted in their faces. "Dirty alien fear! Do you breed that into your sons?"

He drove them back, shoving them roughly aside, pushing his way through—searching.

She was standing alone in the middle of the floor watching him. "Come to claim your prize?" she asked defiantly, but her face was white and she dropped her gaze for an uncertain moment to the torn flesh of his right arm.

"You're going to talk to me this time," Largo said hotly.

"You're an alien-trained slave," she

said quickly almost defensively.

Largo stared at the stiff unyielding figure before him. How could he talk to her? How could he break down that distrust? Abruptly he seized her arm and dragged her out of the Hutch into the arena. He pulled her across the sand toward the little gold door under the stands that he knew was unlocked. It led to the breeding nests under the building. No one would bother them there—the winner and his prize-girl.

A caach lay on the sand, the phosphrene paint on its heavy wooden surface smeared with blood. Largo picked it up. The girl could hide under it if one of the roving beasts attacked.

They made the door in safety. Largo pushed the girl ahead of him along the twisting passage that led under the stands. The clatter of the spectators died out as they moved deeper into the outer shell of the amphitheatre.

Suddenly a panel slid open in front of them on the street side of the building. Largo halted, bewildered. Something was wrong. There were no bars between them and the street outside!

Before either of them could move, Lord Jak's patrol ship settled in the opening, and Lord Jak himself stepped out awkwardly on his stiff-jointed bird legs and walked toward them. His whipper followed close behind, clacking in protest.

"You've brought glory to my name, Largo!" Lord Jak cried his excited clacking echoing off the stone walls, his eye cluster burning like red phosphorus. Largo had never seen the Antad like this—so close—walking. "Bare-handed! By Logar, you are the strongest slave on..."

The other gladiators and their prize-girls were coming up the corridor. At sight of the Lord they dropped to their knees. Lord Jak looked at them, stopped his clacking. He cocked his head up at Largo, stepped back hastily. Largo saw the red glow in his eyes flicker, grow white.

"Kneel, you slaves!" the Antad clacked still backing. "Kneel! Whipper! *Whipper!*"

The whipper was already moving forward. There was a wild scurrying in the passage as the gladiators and the women ran back toward the arena. The whipper raised his arm toward the girl. Largo darted in front of her, thrusting her behind him. He braced himself for the shock.

Nothing happened!

Over the caach he still carried on his arm, Largo could see the whipper waving the tube right at his chest—but he felt no pain. The caach! Something in the big shield was blocking the ray! The wood? The phosphrene paint?

Largo whispered it in disbelief. "The ray can be stopped!"

Then he became aware of the girl's small hands on his back. She was leaning against him, shivering. The thought of the neuro-ray almost searing her tender flesh filled Largo with blind rage. Without thinking of weapons or ways he lunged at the whipper, the caach held out before him.

The shield struck the silver tube, knocking it to the floor. The whipper scrambled after it. Dropping the shield, Largo sprang after the Antad with his bare hands. He swung his fist wildly catching the glossy round body a glancing blow.

It burst open like a dry seed pod!

A scattering of dust, a trickle of fluid—nothing more—as the broken shell sank to the floor. The black head stared upward, but there was no light in any of its nine eyes.

Largo teetered, spread-eagled over the dead creature, staring in amazement at his hands. Conquerors? Rulers? These insects died at a touch! No wonder they had all but destroyed the race of man before they dared invade the earth; no wonder

they huddled under plastomer shields; no wonder they clacked and clattered over the strength of men!

Largo swung around eagerly, staring at Lord Jak. His eyes blazed and a lifetime of hatred burst from his lips in one word.

"Alien!"

Lord Jak gave a startled clack and started for the safety of his patrol ship. Largo was on him in two bounds. Seizing the squealing Antad in his hands he raised him high over his head to dash him to the floor.

"Don't kill him!" the girl shouted. "Don't kill him!"

Largo twisted about still holding Lord Jak over his head.

"We'll need him for information," she said quickly. "We have never taken a live one before."

"We?"

The girl ran scooping up the silver tube and the heavy shield, staggering under the weight. "We'll need these, too," she said, her face elated. "There's an answer here we never hoped for!"

"We?" Largo repeated. "Who? Will you tell me, woman? Who?"

The girl paused, looked squarely at him. "The freemen of earth," she said. She smiled, her eyes warm and trusting. "Freemen like you, lion-killer. Now hurry that alien into the ship!"

The street outside was empty as they ran out and clambered into the empty patrol ship. Largo handled his prisoner as gently as he would an egg. In the pilot's compartment, the girl reached for the control panel with the quiet assurance of one who knew its working.

The ship rose hissing on groundjets. She expertly kicked it into airflight, and it climbed till the arena was a speck below them, then turned and headed for the forest. The forest where the entrance was to the caverns and the endless miles of intersecting tunnels that had been formed under the raylanes when the earth warped and buckled in the Big Burning. Caverns and tunnels where the freemen of earth had hidden for fifty years, working slowly, inevitably toward the day when they could win back their planet.

A white glow flickered in Lord Jak's eye cluster every time Largo clenched and unclenched his powerful hands. The big man smiled grimly.

"By Logar, he will talk for me," he told the girl sitting beside him. "I was alien trained!"

NEW IN SCIENCE

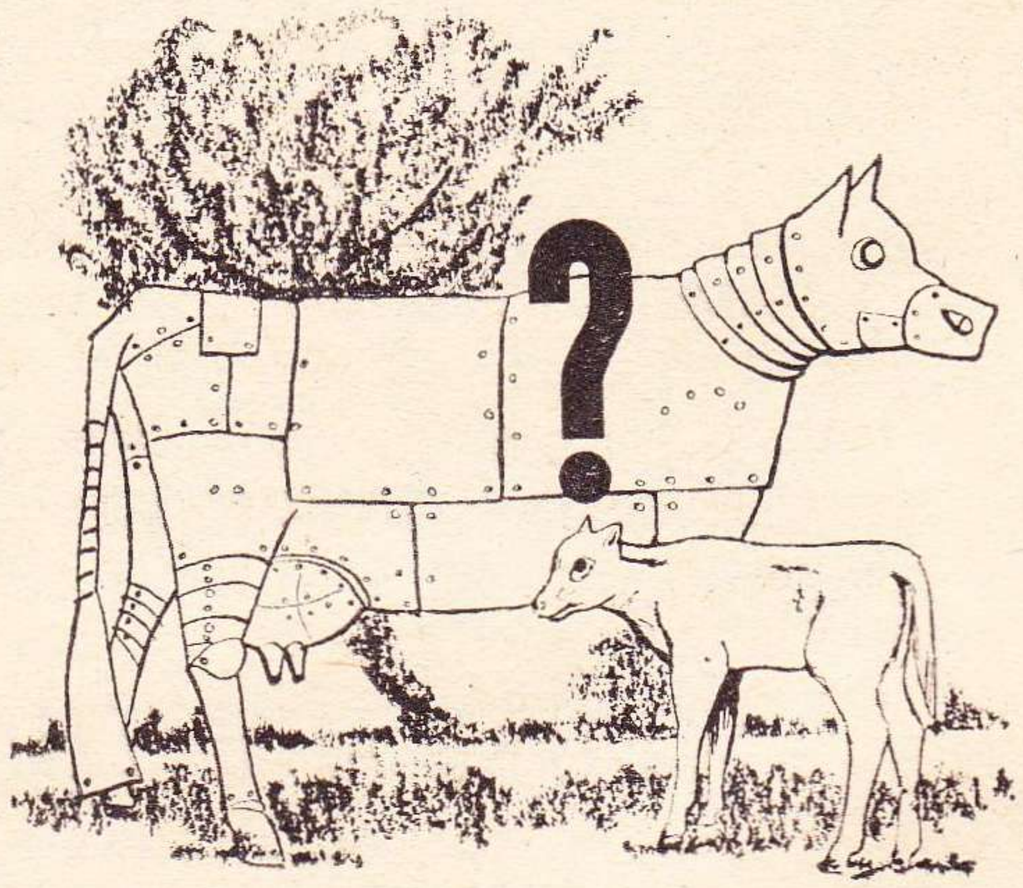
by VAN ROWE

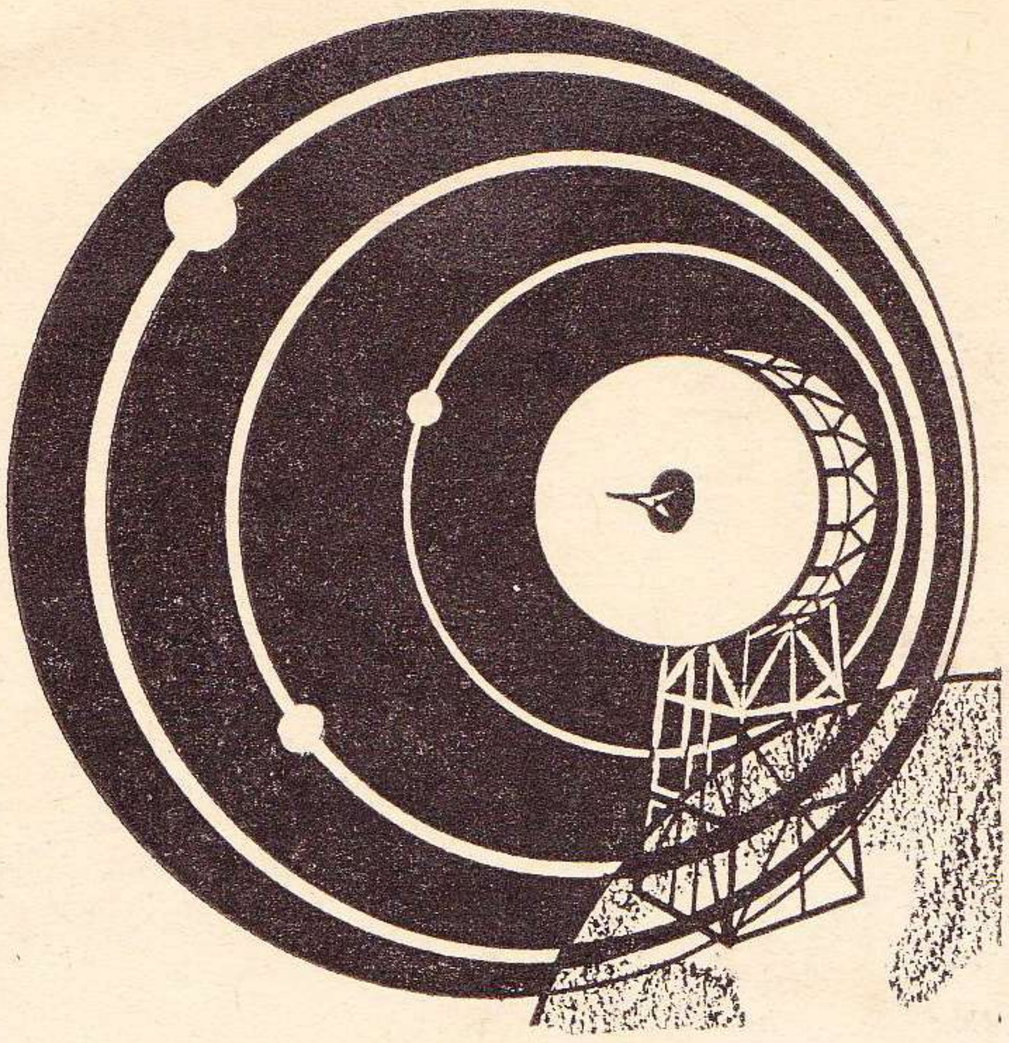
IT IS WITH considerable delight that we view the proceedings of the British Agricultural Research Council. They have invented a mechanical cow whose function it is to extract protein from leaves, grass and other suitable vegetation.

The "cow" has already started work at the Council's experimental Research Station at Rothamsted, near London. It is fed with grass and other vegetation which it promptly converts into protein for shipment to Scotland, where it is used in experimental feeding of pigs. The pigs are reported thriving on their new diet.

Two reasons were given for the invention of the mechanical "cow". First, people in many areas of the world simply do not derive sufficient protein from their normal diet. Second, the previous method of extracting protein from vegetation has been to slaughter the consumer for beef.

The organic alter-ego of the "brave new cow" has been unmasked as extremely inefficient when it comes to protein conversion; the report states its efficiency averages about 5 per cent, thereby losing 95 per cent of the grass protein. Mr. N. W. Pirie, the head of the mechanical "cow" project, and a noted nutrition expert, hopes this will be one answer to the pressing world need for more protein.



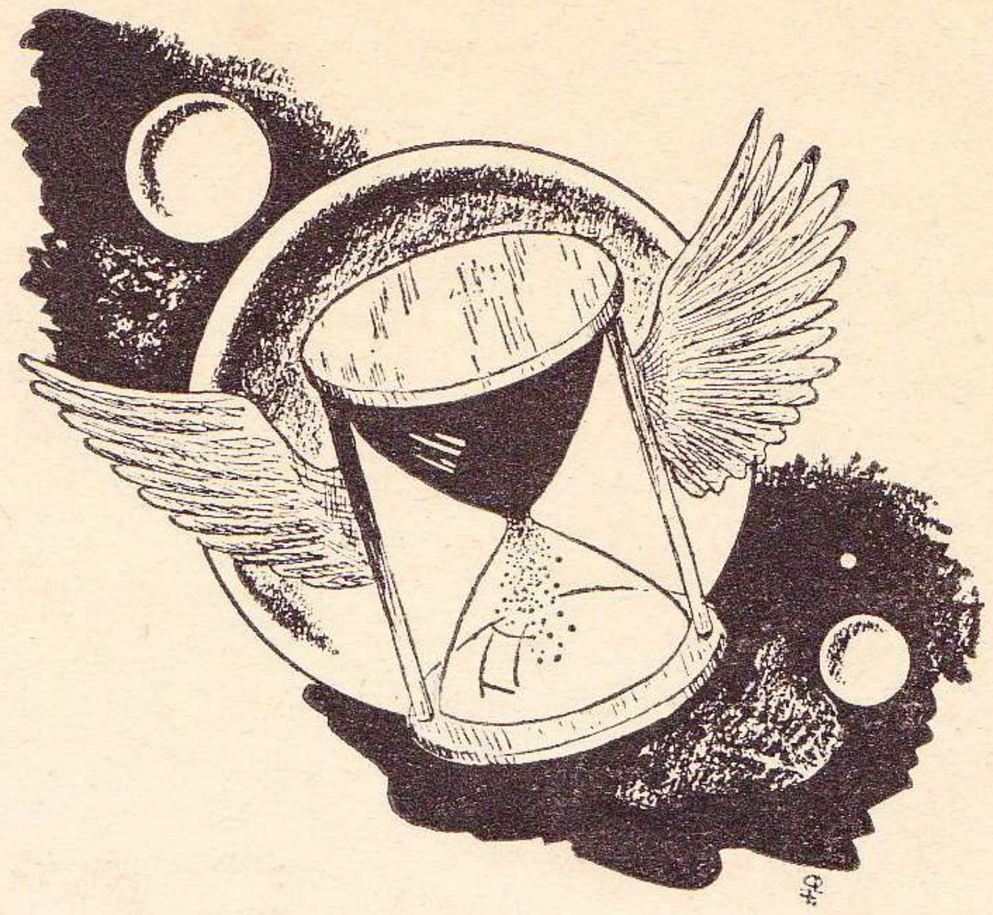


A mammoth radio telescope, which will dwarf any yet constructed, is being built by the Navy on a knoll in Sugar Grove, W. Va. Its reflecting mirror will measure 600 feet in diameter. The largest current radio telescope is the 250-foot dish at Jodrell Bank, England. The Soviet Union is reported to be planning a 350-foot apparatus.

The Navy thinks their new telescope should be able to see into space to a distance of 38,000,000,000 light years, nineteen times farther than the 200-inch optical telescope at Mount Palomar, Calif., the largest in the world. Expressed in miles, the new radio telescope's theoretical range would be 228,000 billion billion.

Presumably, this theoretical range may exceed the size of the universe, since the actual size of the universe is unknown. Astronomers and cosmologists have speculated that the limit of the observable material universe may not extend beyond ten billion light years.

If the distant galaxies continue to recede from our own at the same speed they now maintain, this recession speed will reach the speed of light at a distance of 10 billion light years.



A new master-type atomic clock, called a "bird of space-time" will be orbited around the earth at a speed of 18,000 miles an hour to put the Einstein theory of relativity to its sternest test. It has been described as "so accurate it will neither gain nor lose one second in a thousand years."

The clock's primary purpose will be to check on a postulate of Einstein's General Relativity Theory: that a clock runs at a rate that depends on the gravitational field it is in. A clock should tick slower if brought into a stronger gravitational field. Conversely, it should run faster if the strength of the gravitational field is decreased—in this case by putting it in a satellite, since the earth's gravity weakens with distance.

The atomic clock, transmitting its time readings by radio to a ground station, will be compared with the time on a duplicate model on the ground. The differences in the readings will then be checked against the predictions of both the special and general theories of relativity.

The effect of general relativity is cancelled out by the effect of special relativity at an altitude of 2,000 miles. At that point the two clocks will agree. However, when the "bird" reaches a height of 8,000 miles, the two clocks will differ by about one second in sixty years, if the prediction of relativity is correct.

minor offense

by DANIEL F. GALOUYE

IT WAS a one-in-a-billion hit.

As though intentionally aimed, the meteor, no larger than a man's fist perhaps, punched into the dorsal drive blister and cut a fiery swath through a cluster of nonvital tubing. It fused several minor circuits and, in a parting gesture, pierced the fuel bin, strewing silver ingots through a million cubic miles of interstellar space.

With its main drive idling to conserve the remaining fuel, the two-man scout ship hung there almost helplessly. More than a thousand light years separated it from the nearest outpost.

Military Observer Bart Hinkel turned from the microfilm screen. "I *thought* I remembered something in this sector," he said, relief erasing the furrows that had etched his forehead. "Here it is."

Walter Jensen, at the pilot's station, looked up hopefully. "A silver source?"

"The star's listed as Mideran, Population II-C, Barton's classification." Hinkel indicated the writing on the screen. "Fourth planet inhabited by humanoid species, third level of intellectual development."

The military observer's considerable bulk almost completely hid the library screen from the pilot. So Jensen left his station and went over to the viewer.

Hinkel continued reading aloud, "'Natives differ only insignificantly from Earth-evolved galactic stock. Cultural development static. Barbarism and superstition abound. Planet charted, classified and observed five hundred years ago. Contact still prohibited.'"

"But how far away is it?" Jensen asked. He was a lean man, not nearly as imposing as Hinkel. But his confident bearing minimized the physical difference.

"Almost close enough to spit on." The M.O. gestured out the observa-

tion port. "But you missed the point: 'Culture in early metal age: *silver* mined, smelted and used as medium of exchange!' "

Jensen stared appreciatively at the yellow star that shone against the backdrop of space. "Looks a lot like Sol."

"And its Number Four world is supposed to be a hell of a lot like Earth. Can we make it there?"

Jensen squinted. The distance was less than ten light years, he guessed. "Easily. But there's only one thing that bothers me—breaking no-contact regulations."

"We won't be doing that." The M.O. grinned. "We're just going to drop in incognito and lift a couple hundred pounds of their silver. Doesn't the Handbook say that's okay in an emergency?"

"I suppose so."

"You don't sound too eager."

Jensen continued regarding the star. "I don't like the idea of getting involved with a barbaric culture. You've got to keep hopping to stay in your skin."

"Superstition and barbarism—they always go hand in hand." Hinkel worried the stubbles on his cheek. "That's what you get when you mess around with that religion nonsense. Right?"

The pilot, amply acquainted with the other's intolerance for things of a theological nature, avoided another argument by not answering.

Instead he said, "Break out the lingotapes while I set course for Mideran Four."

During the crash program of language assimilation, they quite naturally acquired a familiarity with geographic features and cultural usages. The knowledge had been the possession of several natives who, over the centuries, had unwittingly submitted to the vocascanners of various survey teams.

Thus, for their felonious sally to the surface of The World, Jensen and Hinkel were able to select the remote province of Verdonia—far removed from the teeming center of empire.

More precisely, they picked a somnolent meadow just outside the principal city of Nesh and lowered the craft on repulsor beams. Invisible and silent, it came to rest lurking alongside a deeply rutted road.

When Jensen secured the controls, Hinkel was already busy with detectoscope, aiming through the view port and scanning the nearby settlement.

The Verdonian capital was a most decrepit looking, walled city. Crudely constructed hovels and only slightly less primitive stone structures crowded the narrow, refuse-strewn streets, having used up all room for expansion millennia ago. Nesh was branded with all the visible evidences of timeless stagnation—an antiquity that was made even more glaring by the brightness of the noonday sun.

The detectoscope emitted an occasional, weak *clack* as Hinkel swept its sights from one end of the dismal settlement to the other.

"Find anything?" Jensen asked in the Verdonian tongue.

"Don't put them down as the wealthiest people you've ever run across," the military observer advised sarcastically. "I'd say the average Neshite is lucky if he has any jingling money at all."

Suddenly the instrument began vibrating perceptibly. It erupted in a staccato of rapid *clacks*.

"There," the M. O. said, relieved. "I knew there had to be a pile of silver somewhere—that building on the hill."

Surveying the squat stone structure that somehow managed to rear scornfully above the tumbled array of miserable huts, Jensen reached

into his newly acquired vocabulary, "The Comunal Purse, no doubt."

"How do we pull it off?"

"Go into the city and get the feel of the place. Tonight we'll simply cut our way into the Purse and take what we need."

Hinkel's eyes flicked eagerly. "I'll get the weapons."

"No weapons," Jensen said evenly. "Just one ignicutter and perhaps a regulation medical kit."

"You're kidding. We're not going into that place *unarmed?*"

"I don't intend to create the opportunity for a massacre. If we get into any trouble, the ignicutter, on low output, will make things hot enough so that they'll clear a path."

"But they're *barbaric!* They still use the rack and a thousand and other forms of torture!"

"No weapons," Jensen repeated adamantly. "The Handbook says we've got to get by on our wits—nothing else."

Hinkel shrugged reluctantly and looked down at his Corps uniform. "What do we do about these?"

The pilot pointed out the view port and down the road at two robed and sandaled figures who were leading a draft animal resembling an overgrown but docile dog. It was pulling a rickety wagon loaded with vegetables and shaded from the sun by a swarm of hovering flies.

"There come our passports," he said. "And also our means of getting the silver back to the ship."

Conveniently, the stasis inducer reached out and froze the two Verdonians and the *drateg* in their tracks, not fifty feet from the ship.

A half hour later Jensen and Hinkel, convincing in their appearance as boorish tillers of the soil, started out for Nesh. The two natives remained behind in a secluded grove to sleep off the effects of twenty-four-hour sedation, a sizable part of their personal knowledge committed to the respective memories of the Corpsmen.

At the gate a burly, heavily-plated soldier raised his sword threateningly on a level with Jensen's neck.

"State you your business," he growled, ignoring the evidence of the cart.

"I am Lovam and this is Kenia," Jensen obeisantly gave him the names of the natives whose memories they had purloined. "We come to market our produce."

"Today?" The warrior drew back in shocked indignation. "Know you not that commercialism on a Holy Day is punishable by fifty lashes? This is the Feast of the Second God of the Civic Spirit."

Introspectly, Jensen saw that Lovam had been aware of the fifty-lash penalty, but had not known it was that particular feast day, his meager religious convictions having favored the Green God of the Fertile Field. The pilot also saw what Lovam would do in the same situation.

"We were not sure what day it was," he returned meekly. "But we came anyway, knowing that our humble offering would be accepted by the holy priests of the Civic Spirit."

"Pass, then, by leave of His Imperial Highness the Emperor Panoleth, His Excellency the Governor of Verdonia and the Supreme Magistrate of Nesh."

Such leave, though, was not granted without the offering of a cluster of succulent grapes, which the soldier lifted from the cart as it rolled by.

Inside, the disarray of hovels and their effluvium closed in on Jensen with a heaviness that could have accumulated only over the centuries.

Hinkel scowled queasily. "I'd just as soon do without the silver," he said facetiously.

Jensen guided the *drateg* onto a somewhat broader street and melted

in with the flow of shabbily clad, listless people toward the center of the city. It was quite convenient, he realized thankfully, to have the rustic Lovam's knowledge at his disposal.

"Up ahead in Public Square," he said. "Our best bet will be to lose ourselves in the crowd until tonight."

An urchin in dirty rags darted from one of the mud huts, snatched a melon from the cart and escaped down an alley that reeked with squalor. Jensen, anxious to empty the wagon, pretended not to notice.

They passed an almost nude woman who reeled in a drunken stupor—until a hairy arm reached out from one of the shacks and pulled her in.

"Dirty mire wallowers!" Hinkel exclaimed, drawing the expletive from his new vocabulary. "All this filth and ignorance—why? Simply because, instead of decent knowledge, good minds have to be cluttered with superstitious rot."

Jensen shrugged tolerantly. "We had to go through the same stage. Scientific cultures aren't built overnight. There has to be a period of groping—until spiritual values are put in their proper perspective."

"Spiritual values!" The M.O. spat vindictively. "So you think galactic culture, because it's squared away with your socalled God, is now going full speed ahead?"

"I'm satisfied with the progress." Jensen smiled.

"Well, I'm not! We're *still* shackled to primitive superstition. Take the average poor sucker, prove to him that all this spiritual hogwash is just a lot of baloney, *then* watch the dust he'll kick up fashioning a *physical* utopia for himself."

They reached the edge of Public Square and stared ahead at the massive architecture of a many-columned, stone temple. Jensen had seconds earlier turned a deaf ear to the other's abuse. Rather, his shocked attention turned to a scaffold that reared above the assembling throng. Hitched to the stout crossbeam were several blood-stained ropes from which dangled a grisly, bearded head, tied by the hair, and a sufficient number of dismembered parts to account for an entire body.

There was a crudely scribbled sign attached to the scaffold but its bold alphabetical characters were meaningless symbols to Jensen—until he elevated Lovam's halting literacy to the surface of his mind.

The placard read: "Executed this day following conviction for stealing two silver *curals*."

And a *cural*, the pilot realized, was just about the worth of one bunch of grapes. He wondered what the penalty would be for theft of two hundred pounds of silver. Lovam's inadequate knowledge failed to satisfy his grim curiosity.

Jensen hitched the *drateg* to a post at one corner of the square. When he turned back toward Hinkel, another gamin was helping himself to an armful of vegetables that served the purpose of potatoes on The World.

The M.O. reached out for the grimy thief, but Jensen caught his arm. "That's the easiest way to clean out the cart."

Brushing past Hinkel, the pilot began scooping up the vegetables and tossing them to the crowd. Hinkel joined in the impromptu distribution.

They had relieved themselves of almost all the produce when the glint of sunlight on metal heralded the approach of two soldiers through the throng. The foremost found Jensen in the act of handing a melon to an aged and toothless woman.

Catching him by the arm, the soldier vehemently exclaimed, "Charity bug!"

Jensen immediately saw that the

giveaway had been a mistake. Naturally, on this sort of world, practically all the virtues must seem perverted.

Hinkel came over, one hand fumbling anxiously under his robe.

But Jensen stayed him before he could draw the ignicutter. "We'll talk our way out of this," he whispered confidently.

"Are you not loyal to the Second God of the Civic Spirit?" the soldier demanded.

Jensen bowed respectfully. "Not only to that most glorious deity, but also to the Green God of the Fertile Field and the Distant Divinity of the Celestial—"

"And you practice *charity?*" the other soldier broke in, brandishing his sword. "Know you not that such actions can only turn the masses into lazy louts and fetch you a stay behind bars?"

Smiling wryly, Jensen cupped a hand against his lips and strained toward the soldier's ear. "The produce has on it the Green God's curse of premature decay," he whispered. "It will bring sickness and the holy priests of all the gods will collect remedy fees for days to come."

The first soldier threw his head back and roared delightedly. The other joined in and they cuffed each other appreciatively. One turned goodnaturedly and clouted Jensen on the shoulder. But the playful blow sent him sprawling against the cart.

"That," the pilot said, massaging his arm after they had gone, "was a close one."

Hinkel swiped his brow and flicked the perspiration off his fingertips. "We'll have to be damned careful. Do you realize that an arrest on just a minor offense can get us six months?"

"Two months apiece in the labor of His Highness, His Excellency and the Imperial Magistrate," Jensen verified, reviewing the spotty knowledge which the transfer-scanners had extracted from the native Lovam.

From deep within the temple the sharp, resonant note of a gong came crashing out over the multitude in the square. In its wake it left a stark, reverent silence that made the formerly boisterous city seem like a tomb.

A procession of colorfully robed priests filed from the shadows of the colonnade and took positions in two descending lines on the steps of the temple.

Immediately, a tall figure with a headpiece of great white plumes appeared in the vaulted entrance. His silver brocaded robe glistened brilliantly in the setting sun as he reached behind him and dragged forward a struggling young woman whose body was covered with a mantle of delicate white blossoms.

The high priest wrenched the girl around in front of him and flung her down the stone steps. Uncoiling coarse, rawhide whips, the last pair of low priests broke ranks and lunged toward the terrified girl.

Like shots renting the anxious silence of the square, the lashes crushed through the robe of frail flowers and bit brutally into tender, white flesh.

Screaming, the girl fled back up the steps, only to be confronted by another pair of priests from the head of the ranks. She protected her face from the viciously swishing rawhide and took the blows across her arms and chest.

By now, the floggers had formed a full circle around her and their blood-stained thongs churned the air in furious, bristling motion as the girl sank screaming and quivering on the steps. What was left of her mantle now seemed to be composed of crimson rather than white blossoms.

Jensen turned sickened from the savage spectacle.

"I could think of a better use for a good-looking doll like that," Hinkel observed.

Jensen said nothing.

"To me," the other went on, "this all seems kind of symbolic. It shows how religion—*any* form of religious superstition—can beat down human dignity and self-sufficiency."

"I don't look on spiritual conviction as a millstone around my neck."

"Neither do these poor devils."

That, Jensen readily conceded, was obvious. The temple ritual enjoyed unqualified approval. In revulsion, he stared from one lustful face to the next. Each tense expression left no doubt that its wearer was enrapt with perverted ecstasy.

All except one, perhaps. No, he corrected himself, looking more closely at a small group of men off to his left—all except four or five. But the one whom he had noticed first seemed particularly to suffer the sting of each lash that fell across the girl's body.

He was a lean, thinly bearded man whose brown robe fell about him in superfluous folds. In his eyes there was only desperate pity. And his lips seemed to move in silent prayer. The other four with him were almost as perturbed in witnessing the ceremony of wanton torture.

The flogging had stopped and the throng was becoming restless—swaying rhythmically, chanting, whimpering with animal impatience.

One of the low priests pulled the unconscious woman to her feet and wrapped his robe about her almost bare body. Anxiously, he led her back into the temple and a lusty roar of approval reverberated across the square.

Dragging a second squirming girl from the temple, the high priest hurled her down the steps to the eagerly poised whips.

There was a clanking of armor plating nearby and Jensen glanced to his left. Three soldiers, swords drawn, were clearing a path through the crowd. At first, he thought he and Hinkel were in trouble again. But soon it was apparent that the warriors were bearing down on the five men who had seemed to sympathize with the tortured girl.

Spotting the soldiers in time, they turned suddenly and fled in several directions.

The fugitive with the sparse beard and brown robe came almost directly toward the Corpsmen. On the other side of the wagon, he paused briefly, touched the *drateg's* flank as though to steady himself and turned soulful eyes on Jensen.

"Know that my concern extends to you too," he said solicitously before pushing on into the crowd.

Jensen only stood staring incredulously after the man. The miserable, thin Neshite had spoken galactic English!

An hour later, after darkness had thrown its concealing cape over the squalid depravity of the city, the two Corpsmen sat in one corner of a crowded tavern and waited for the streets to purge themselves of drunken Neshites.

Jensen gripped his mug, still filled with untasted native brew. "We've got to find that man!" he resolved.

"Are you sure he spoke English?" Hinkel asked, not yet convinced. "Sometimes a new language can play tricks on you."

"Of course I'm sure." Jensen pushed the drink aside. "We've got to find him. He's a galactic citizen. Maybe all five of them are!"

Hinkel reached across the table and laid a restraining hand on his arm. "Use your head. You've been in the Corps ten years. Have you seen any reports at all about anyone being lost in this sector?"

"No, but the evidence speaks for itself. That man is not a native."

The military observer leaned back,

half sneering. "So, out of good Christian charity, you want to risk our necks to save his. That's hardly less primitive than what we saw in the square. Anyway, how do you expect to find him?"

"Tomorrow we can pretend we're peddlers. We'll cover the city. Only, instead of shouting just sales patter, we'll drop in a few English words. Nobody'll know the difference—except the man or men we're looking for."

"And get ourselves hooked on a charge of mysticism or something if one of those soldiers notices the gibberish," Hinkel protested. "Don't you see there's nothing we can do? We've got to get that silver and get the hell away from here—nothing else."

"And leave an Earthman, maybe—perhaps even five of them—stranded in this cesspool?"

"As soon as we get back to base we'll file a report. Within three days there'll be a rescue team here—well qualified to handle the situation."

Jensen was silent a moment. "I suppose you're right at that."

"Sure. Now let's get over to the Communal Purse. The streets ought to be dead as Sunday in that district by now."

Jensen, however, was staring rigidly across the tavern, surprise and confusion prominent on his face.

"What's wrong?" Hinkel finally asked.

"That man in the brown robe—how did he *know* we weren't Mideraneans?"

Twin moons, fairly close together overhead, helped light the way in the quiet, abysmally dark administrative section of Nesh as Jensen and Hinkel cautiously approached the Communal Purse. Drinking in the moonlight in serene competence, the sandstone edifice stood like a forbidden monolith atop its solitary hill.

Hinkel paused, drawing the *drateg* to a halt, and directed the pencil-size detector at the building. He listened attentively to its minor *clacks* as he swept it from one side of the Purse to the other.

"They keep the silver stored in the right wing," he gestured conclusively. "That makes it easier."

He slipped the detector under his belt and started forward again. After he had gone a few feet, though, he turned and looked back at Jensen, who was still standing there.

"Come on," he urged. "We haven't got all night. Forget about that man. The rescue team will come up with all the answers."

Jensen went ahead, following thoughtfully in the wake of the cart. Of course, he assured himself, there must be some simple explanation for the unexpected contact. He and Hinkel could have unwittingly spoken a few words in English and the man may have overheard. That would seem to indicate that the fugitive in the brown robe had been on Mideran Four for many years; that his mentality had suffered as a result of the ordeal. Otherwise, why would he have offered such an illogical greeting?

His curiosity thus allayed, Jensen went around to the front of the wagon and caught the *drateg's* harness. "Check the wheels," he told Hinkel. "One's starting to make noise."

They had wrapped their outer garments around the rims to reduce the grating clatter of wood against cobbels. And while the military observer secured the silencers once more, Jensen surveyed the layout. What he saw was encouraging indeed. A broad, smooth street ran alongside the Purse. Within a hundred yards, it formed a dead end at the outer wall of the city. Not only would the ignicutter get them into the building, but it would also carve an exit through the rampart.

Less than a minute later they were leading the *drateg* slowly alongside the right wing of the Purse while Hinkel scanned its outer wall with the detector.

He pulled up as the *clacks* from the instrument surged sharply. "I'd say the silver's stored right against this spot."

Jensen extended his hand and accepted the ignicutter. Adjusting its invisible beam, he played it against the wall, tracing out a square and letting the molten rock flow to the ground.

Hinkel took the tailboard from the wagon and laid it across the charred rock before he scurried through. He was back almost immediately, both hands filled with *curals*.

"This is a cinch." He grinned. "There must be tons of the stuff in there. How much do we want?"

"Two or three hundred pounds will put us in business again."

The M.O. squirmed back through the hole.

And suddenly there was a faint metallic *clank* behind Jensen. He had whirled halfway around when the sword blade, glinting in the moonlight, crashed flatly against his temple and sent him flailing down the hill, the ignicutter flying from his grip.

Justice, or the Verdonian equivalent thereof, was swift indeed. Jensen had cause to reflect on this veritv as they were ushered from a cold, rank cell at dawn and directed by the crack of a whip to a building which Jensen recognized from Lovam's memory as the Hall of Legal Righteousness.

"Here, take this," he told Hinkel as they mounted the steps.

"What is it?" the other asked, hazarding a glance at the tinv object he had accepted from the pilot.

"I slipped a couple of them out of the regulation medical kit just before they stripped us," he disclosed. "Keep it in your mouth. You can break it between your teeth whenever you want. It'll anesthetize all pain centers for forty-eight hours. There'll be a sort of semiconsciousness from time to time—"

"The hell with that!" the M.O. protested. "You sound as if you're giving up. Well, I'm not! I've got a few tricks I can pull to get off this hot seat."

"Remember," Jensen warned softly, "we can't do anything that'll tip off a primitive culture."

"That's okay to recite in the Academy oath," the other returned gruffly. "But it don't hold water her. I've got my skin to think about. Why shouldn't I do whatever I can to save it?"

"Because The World is going through a stage that all cultures have to pass. If we cut it short, they won't have the foundation they'll need to survive." Jensen pronounced the words mechanically, as he'd learned them years ago in Principles of Cultural Evolution.

"Yeah," Hinkel said caustically. "Just like they've got to go through all kinds of superstitious toomfoolery before they're ready to be taken by the hand and shown what's supposed to be the right spiritual way. Well, I won't buy either that rot or the stupid Corps rules. I'm going to get out of this any way I can!"

Still, Jensen noted that he had not thrown away the pills.

The tip of a whip snapped vehemently in between them, demanding silence, and they were marched into the Hall of Legal Righteousness, down a musty corridor and into an equally gloomy chamber whose ceiling was heavily smudged with carbon from the torches that burned along the walls. Thev were herded into the prisoners' dock and the Imperial Magistrate, a bulky man with a corpulent, mean face, stretched leisurely in his thronelike chair.

"What is the charge?" he asked disinterestedly.

"Theft, Your Imperial Honor," said one of the soldiers. "They were caught removing silver *curals* from the Communal Purse, having withdrawn one of the stones in its wall."

The magistrate yawned. "Guilty or not guilty?"

Jensen, like Hinkel, wondered seriously about his obligation to insure normal cultural development for a world of savages who probably wouldn't experience their first charitable thought for another five thousand years.

The military observer, however, was not as reticent. "Not guilty!" he shouted. "This is a special case! First you have to know that we are not—"

But the soldier brandished his whip, ordering silence. "Here, Your Imperial Honor, are the *curals* they had taken when we caught them."

It was evident to Jensen that the concept of justice did not include the right of an accused to defend himself.

The soldier placed the silver coins on a stand beside the throne and the magistrate fingered them eagerly. His expression betrayed an underlying preoccupation with the problem of getting the *curals* into his private purse before they found their way back into the Communal Purse.

Another soldier stepped up to the witness post. "Perhaps His Imperial Honor would like to hear how the prisoners were caught in the act," he offered smugly. "They were observed at the Flogging of the Maidens yesterday—*giving* produce to the people."

The magistrate sat up interestedly. "Charity bugs!"

Nodding, the soldier went on. "And later one of them," he indicated Jensen, "was seen talking to The Crazy One. After that, we followed them for the rest of the day."

The magistrate rose and came closer to the prisoners' dock. "Talking with The Crazy One, eh?" His fingertips lost themselves in the depth of his beard. "Maybe we could get them on a charge of blasphemy."

He pondered the possibility, then shrugged. "Oh well, theft carries the same penalty."

"Now look here!" Hinkel began. "We don't belong—"

"Silence!" the magistrate roared.

And the nearest soldier cracked his whip to emphasize the judicial directive.

"Are you a Sentimentalist?" the magistrate asked.

"No, of course not," Hinkel replied uncertainly.

"Do you approve of torture?"

The M.O. drew erect, apparently sensing that he was supplying the right answers. "Yes."

"And rape?"

Hinkel nodded enthusiastically. "And murder too—as long as the victims aren't agents of His Imperial Highness or His Excellency the Governor of Verdonia."

The magistrate turned to Jensen. "And you?"

But the pilot was still assuring himself that he had no right to extend a Pandora's box of knowledge which, while saving their lives, would certainly plant the seeds of destruction for Mideran Four's entire culture.

Was he wrong in subscribing to the Corps' theory that formative cultures had to be isolated? Wasn't it possible that the people of this world were off on an impossible tangent of savagery and would never straighten themselves out?

He stared out over the courtroom at the scores of faces—all barbaric, lustful, sadistic. All except one—a slight, young girl who sat tensely forward, her hands gripped together. On her face was only pity, such as had dominated the expressions of the

fugitive who had spoken English in the square and the other four with him.

The man in the brown robe could only have been a galactic citizen. But his companions, together with this compassionate girl in the courtroom, had to be native Mideraneans. And if they had somehow cast off their savagery, it had been of their own choosing. Then there *was* hope for the people of Mideran Four.

Jensen calmly faced the magistrate. "No, I don't approve of torture and murder and rape."

"You damned fool!" Hinkel whispered coarsely.

Amused, the magistrate stared at the military observer. "And you say *you* approve of torture?"

"Yes," Hinkel answered promptly.

"Your own?"

Hinkel blanched. "Why—I mean—that is—"

"Take them away. The penalty is death on the rack for theft."

Hinkel exploded in a desperate rush of words. "No, wait! I can help you! We're from another world. I have secrets that will make you wealthier than the Emperor! That torch on the wall—put it under a silver container filled with water—trap the steam and make it push against a flat surface attached to a rod. The other end of the rod is hooked up to a wheel. You can have a wagon that needs no *drateg* to pull it!"

"Aha!" the magistrate exclaimed. "Another extender of miracles! Away with them before my patience is shattered."

Jensen bit down firmly on the capsule that he had maneuvered between his teeth.

When consciousness returned, he felt only a vague euphoria. From the awkward position of his body, clad only in a loincloth, he knew there should have been pain—intense pain. But there was none at all.

His clouded vision focused first on the temple, rising arrogantly above the decrepit lesser structures around it. And he knew that he was in Public Square, not far from the scaffold on which he had seen the dismembered body.

Straining his eyes to survey the things immediately around him, he became aware of the crude framework that pressed with a relentless firmness against his back, the leather straps secured about his wrists and ankles—pulling, s t r a i n i n g, stretching. He was only disinterestedly conscious of the tautness in his shoulders and hips, his spine and abdomen.

He glanced over to his left, at the other rack on which Hinkel lay, limbs already grotesquely distorted. And he watched a soldier take another turn on the bars to which were fastened the wrist and ankle cords.

Jensen saw now that both racks were tilted up so that those witnessing the executions would have a better view of the victims' faces. But the scores of persons who had gathered there were disappointed this time. For there were no screams, no anguished expressions.

From across the way came the distant din of muffled laughter and occasional roars of approval, commingled with the explosive snaps of many whips.

Jensen twisted his neck to watch the procession flow onto the square from the direction of the administrative buildings. At its head were a half dozen soldiers lashing out again and again at a pale, thin figure who was at the point of exhaustion as he dragged a ponderous rack over the uneven soil.

The man paused briefly and looked up, as though gauging the distance he had yet to go. And Jensen recognized the sparse beard, the wretched features. It was the man in the brown robe.

The soldier who had just been at Hinkel's rack came over and took

another turn on Jensen's bars. With a lethargic indifference, the pilot felt his right shoulder slip out of its socket.

Yet he was hardly aware of the warm blood that coursed down his side. Rather, he was opening his incredulous comprehension to a vast appreciation that dulled his senses more than the pill had.

But before he could further explore the dawning realization he was engulfed in a swirling sea of unconsciousness.

Once more awareness returned. And the clamor of the shouting, taunting, laughing crowd was like a thunderous roar all around him. But their derisive outbursts were not directed at him or Hinkel. Instead, they were being hurled toward the third rack that had been reared between them.

Jensen saw some of it clearly now, as though a dark curtain had been drawn aside. And things that he had been taught long ago, on sultry Sunday mornings in the restive atmosphere of a small classroom, took on a stark, vital reality.

Symbolism had to be served. He understood that now. Symbols were universal and timeless. It was necessary to represent things in figurative form. And two thieves, he supposed, would always adequately serve as the contrasting metaphor.

Among the ridiculing voices, Jensen recognized that of Hinkel, depraved and desperate in a frenzied reaction to the nearness of death.

"Sure, Crazy One," he was shouting, "let's see you snap those straps and save yourself. Then you can whisk us back to—"

"Hinkel!" Jensen shouted terrified. "For God's sake! You don't realize what you're doing!"

His left arm lurched out of its socket as the executioner took another hitch on the bar.

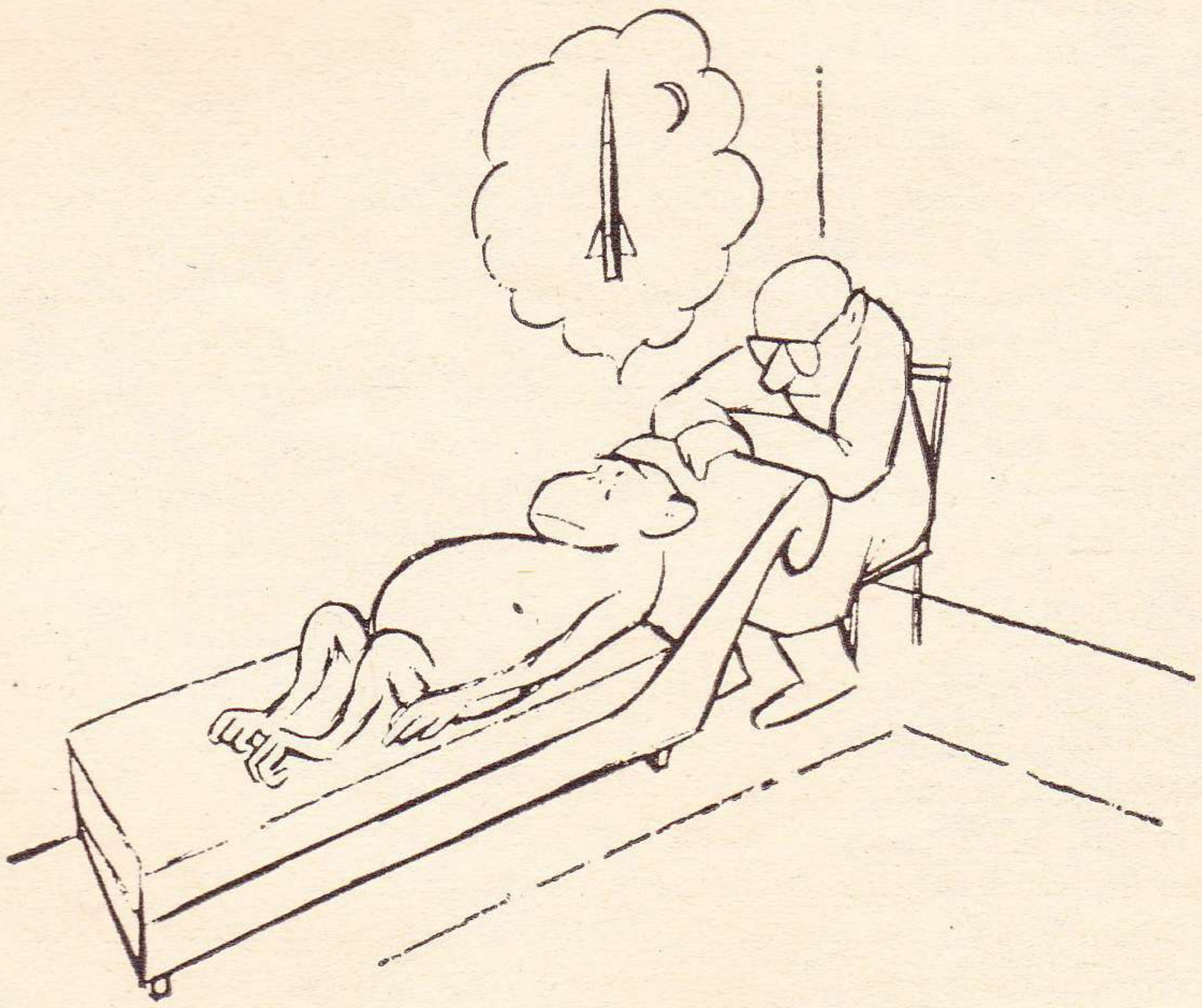
And Jenson watched The Crazy One turn a blood-smeared face that was filled with infinite understanding in his direction.

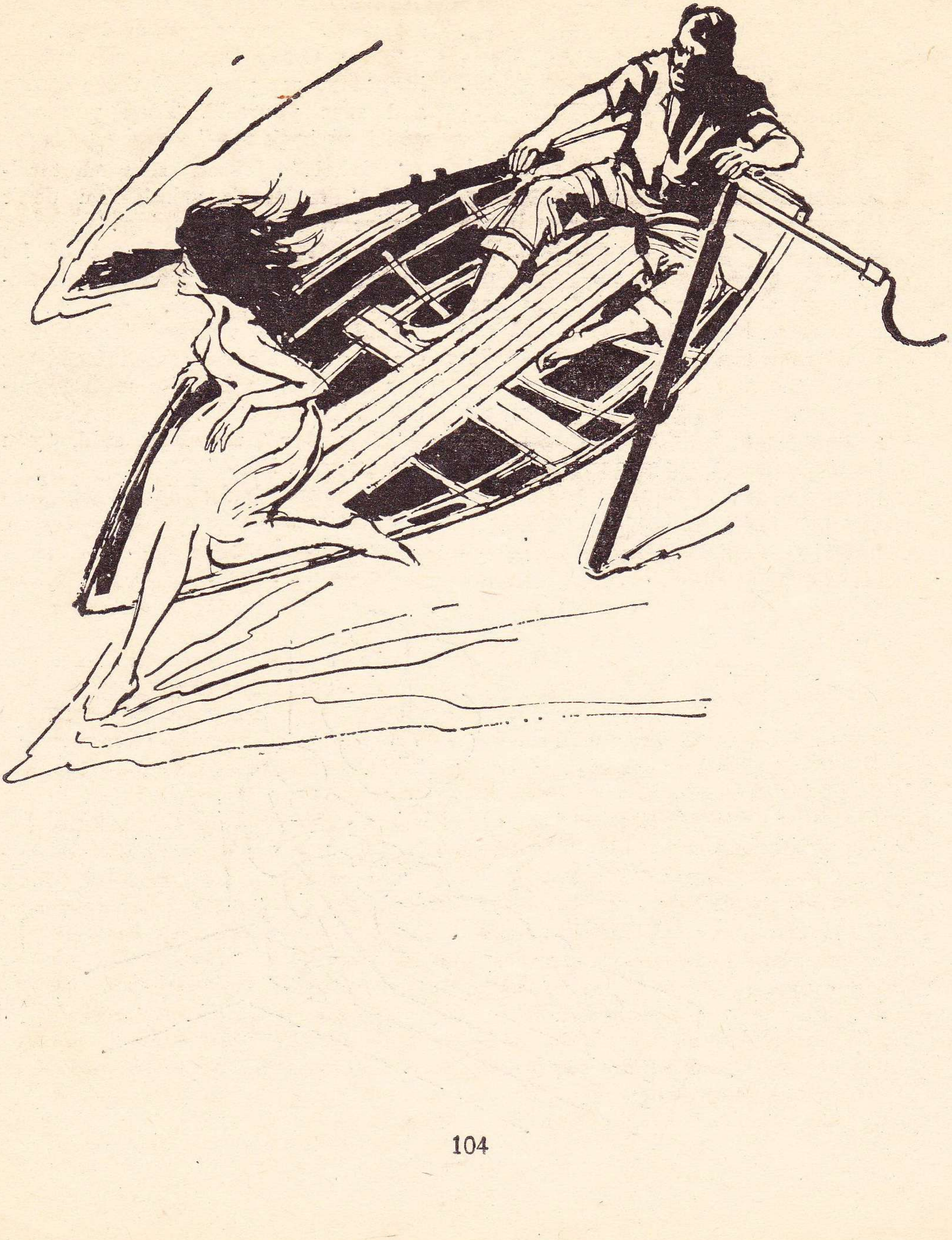
"This day," the Man said, "you will be with Me—"

But Jensen had slipped again into unconsciousness.

He didn't hear the rest.

He didn't have to.





THE COMANLEIGH

by MYRLE BENEDICT

WHEN THE night came, and a storm was lowering, nobody ever ventured out onto the water, not even to cross the little bridge at the edge of the village. People kept close to their cottages even though they knew that they were safe from the comanleigh when they were on dry land.

Even the children knew. They could sense the fear, even though nobody ever told them the cause, not until they were almost full-grown. When a night-storm threatened, no mother ever had to stand and call a child, for they were all at her skirts as she stood and watched anxiously for her man's fishing-sloop to dash into harbor and safety.

There were many stories told about the comanleigh, and as sometimes happens, not all of them were true. Some said that the comanleigh lived in the waters beyond the harbor in a house at the bottom of the sea made of the bones of drowned men. Some said that the comanleigh wouldn't harm a gypsy, nor a man who had said a Black Mass, nor a foundling. Some said that the comanleigh was an unmortally beautiful woman who lured men to a watery grave to use their bones as building-stones, and who hated and devoured women because they clung to the men and wouldn't let her have them; some said the storm-hag had the head of a wolf, the teeth and claws of a lion, and the body of a monstrous serpent. And some said there wasn't a comanleigh at all.

One of these was Rad Amish. "Sure, there's na comanleigh," he'd declare, enjoying the shocked and frightened looks of the other men at the tavern, "na more thin Bess here has na Ma or Pa. What say you, Bess? A foundling you are, sure you're na skeert o' na comanleigh?"

"Hold tongue, Rad Amish," Bess would retort, busy with the glasses, "for you know na, na more thin you know."

"Aye, Tha's your fact," Maxwell Blaunt would say, heaving his vast bulk up from the landlord's seat. "Comanleigh or na 's time, and come again."

"'Tis na time, and you know it Maxwell," replied Rad. "Ye want na scrabble amoung your fine glassware. I'll huh ma tongue, thin, an' say only tha' comanleigh or na, 'tis a foolish man who wad venture out on sea with a storm screechin' round his ears."

"Weel, thin, anither hour," said Maxwell, settling back in his chair. "Fill up all round, Bess, there's a fine lass."

"Indeed an' she is," declared Welton Sharum, hurriedly draining his mug before Bess refilled it. "How soon is't before this lumberin' oxen will ask ye to wife?"

"I'll do ma own askin', please you," said Rad, "an' you na be ma friend, I'd box your ears proper. I would na ha' thought Chell be such a pleasant body to wive, or I would ha' wived her long before you!"

"Oh, indeed?" said Bess hotly. "An, how, when she'd na more thin pass time o' day with likes o' you?"

"Ah, there's them as thinks they like th' bookish sort, or a proper sinoo-man show them otherwise, an' them as knows a strong back makes a happy wife—eh, Bess?"

"Thin, 'tis Chell's good fortune to have both," Bess retorted saucily, making the laughter go round.

And because it was true that Welton Sharum could haul a net as well as he could read a book, Rad's laughter was no less hearty.

"Ah," he said to himself, "a fine wife you'll make me, Bess-Wi'-Na-Name, an' soon, too." Contentedly, he thought of the little poke of coin tucked at the bottom of his clothes-chest. Soon he would have enough to get a proper cottage and furnish it, to, and sooner even than most, because he worked hard and wasted little.

True, his best friend had beat him, but Welton's Pa had died, and by selling his boat, he had had enough and to spare to wed Chell. In fact, Welton could even be considered a bit wealthy, as he hadn't had to build a cottage, and thus had set his coin by. Rad shook his head. Lucky it was that Welton's Ma and Chell got on. His own Ma, on the other hand, and Bess. Ma had expressed her opinions on the foundling-girl, and a bar-maid at that, too many times.

"Child o' a wanderin' slut cast out o' proper house for her pranks!" Ma Amish would snort. "A heathern gypsy, like."

"Na gypsy, Ma," he'd reply. "Husband nor na husband makes na nevermind to gypsy."

"Thin what sort o' mother puts babe on a tavern-step?" she would demand.

Rad got no help from his Pa, who usually sat well back out of the light during these arguments. But then, he never voiced for Ma, either, and Rad secretly thought that the older man admired Bess, but wouldn't speak out against his wife.

Bess interrupted his reverie.

"Be you drunken, best get for home. Maxwell tolerates na drunkenness."

He looked up to see Bess's laughing face, and then, as the others joined in the laughter, her brows lifted slightly and a question formed in her eyes.

He nodded imperceptibly, a nod that was more a blink of the eyes than a movement of the head.

"I was na drunk, just thinkin'."

"You'd be like Walton, eh? Weel, think outside. It's time, gentlemen, an' come again."

This time, Bess was firm where Maxwell had been not. The men found themselves outside the tavern door in short order, where they drifted into little groups, and then as the groups dissolved, into single figures turning into well-worn paths home.

"Shall I walk a way with you?" asked Walton. "You've to go clean

cross village, t'other side o' bridge."

"Beholden, but no. Chell will be frettin', especially now."

"True. Her belly is beginnin' to swell a bit now, you know, and she put my hand on't to let me feel t' wee thump, na more thin a cricket, but a thump it was." His homely, honest face with the shock of straw-colored hair hanging over the forehead lit with joy. "Ah, Rad, you've but to feel your son kickin' away under your hand, and t' know that you an' your wife put it there sometime in th' long nights when you were lovin' th' other—man, 'tis a grand feelin'!"

"I'll know it. I've na much longer t' go, an' I'll have ma money in hand —an' don't go an' try t' give me none. I'll have na of it. I'll earn ma bride, an' ma Ma be domned to her."

"Rad!"

"Ah, hush. Th' only blasphemy is th' talkin' against her that Ma is makin' far an' wide, like a hound givin' tongue to th' wind."

Walton shook his head. "You've a fearsome tongue, yoursel'."

"That I have. 'Tisn't th' first time I've domned her, an' 'twon't be th' last, as ever man in village weel known. She's needful o' domnin', for her unbendin' ways. Weel, fear na more for ma soul, an' get along to your woman, afore she skins you alive!"

"I'll that, and good night to you."

"Good night."

Rad turned and walked a few steps, then waited until he was sure that Walton was out of sight. Then he stole quietly behind the tavern to where the window of Bess's room was slightly ajar.

"Get your hulk in quick, before some blabberin' nosybody sees!" she whispered.

He swung his legs over the sill and took her slender form in his arms.

"Ah, Bess, you're pretty. Th' moon makes your dark blue eyes as black as your hair."

She sighed. "Words are all I'll be havin' o' you tonight, Rad. We must watch tilt o' moon."

"Aye, that we must, 'til we're proper wed more thin a bit o' your hair in a locket round ma neck an' a bit o' mine round yours. 'Twill be soon, though, I promise you, Bess."

"Aye, I know. Now, kiss me an' get home. Th' comanleigh will be out afore mornin', and you'll have to work hard to find a fish."

Rad looked at the sky. A small tatter of cloud skudded across the moon.

"It may rain a drop, but it na looks stormish. How do you know?"

"I know. I can na tell you how, but I know."

"That you do. Weel, thin, give me your lips, an' I'll be leavin'."

She raised her head and he kissed her gently. With a small sob she pressed herself to him.

"Ah, Rad, I love you with a love that's more than mortal flesh ever loved other!"

He kissed her again, unable to speak, and then firmly climbed out of the window. At the corner of the tavern he looked back. She was at the window, a small, pale figure raising a forlorn hand in farewell.

Bess, Bess, Bride Bess, his thoughts echoed his footsteps. He had loved her, and she him since they were young children romping over the seaside. They had known they belonged together, and it was only after Ma Amish turned aside and prevented his Pa from secretly helping him with his store of coin, as the other pa's did with their sons, that they had wedded with locks of each other's hair, knowing that it would likely be longer than others had to wait, and she had yielded him her maiden-head, stifling her cry of pleasure-pain so that old Maxwell wouldn't hear. Outwardly, their life went on as before, with him busy by day at his boat and his nets, and she serving at the tavern, but each night when he could, he would silently creep into her room and for a while they would pretend they

didn't have to leave each other's arms in an hour. Whether or not they sinned, Rad knew not, nor did he care. As for Bess, whatever she thought, she kept it to herself, as befitted a woman.

On the bridge, he paused, leaning against the railing, gazing out over the rows of masts toward the faintly glittering water. As he stood, the breeze freshened, bringing with it a smell of rain and of storm. Clouds were rolling in from nowhere and a faint brief glow of lightening lit the sky to the left of him. He glanced around, and then froze.

Something—a shape, a shadow, a thing insubstantial and yet so real that he could feel its presence all along the side of him turned toward it—sped along the ground. Then it swerved, headed straight for him, gaining speed. Rad was acutely conscious that he was standing over water, and not on dry ground. His lips moved, seeking a prayer, but no words came out.

He could only watch as it came closer and closer. Almost on him, the dark form stopped, checked in its mad rush, then turned and sped over the water toward the sea. There was a soundless sigh from the thing that Rad interpreted as exasperation, and a horrible, sickening stench from its passing. He had an impression of mingled horror and beauty, and above all, of a terrible transparency.

He stared after it, as the storm clouds boiled and rolled and thunder muttered behind them. A drop fell on his hand and he started, but it wasn't rain; it was cold sweat falling from his face. As he came to himself, he realized that the whole thing had happened in a brief instant.

"Jesus, Mary and Joseph!" he whispered shakily. "I have na seen what I have seen—and be I did see it, thin a dead man I am, for na other has seen and told it!"

Slowly, he loosened his hands from where they had been gripping the bridge railing so tightly the wood groaned under them.

"T'was na comanleigh. Na, na, I'll na believe it. 'Twas but I had a drop, an' I went daft between winks o' ma eye."

Stumbling slightly, he turned toward his cottage as the first drops started to fall, but he took no notice, so that he was soaked to the skin when he finally reached the door.

All that night, the storm racked the little village with a screaming fury that abated, as usual, with the morning. Folks said that the comanleigh hated honest sunlight and had to quit her frenzied storming with the first light.

The next morning, the villagers crept cautiously out of their cottages, fearful of what they would find. Everything was well, however, except for one boat that had been carelessly drawn up on the beach, and had drifted out into the harbor. With a sigh and a shrug, the men got to their work, hoping that it would be some time before the comanleigh broke loose again. And Rad Amish said nothing about what he had seen.

Nor did he, in the weeks that followed, deny the comanleigh, as he was used to. And the other men noticed it, and remarked on it.

"I've changed mind," he'd reply gruffly to all gibes and laughter. I'll na say there is one, y' understand, but nor I'll say there's na one, nuther." And there the matter would fall, for he refused to speak further.

As summer drew on, the comanleigh came less frequently, though her temper was fierce when she did, and the men brought home full nets more and more often. At last came the day when Rad added the final coins to the bulging hoard.

"There, now, Ma," he said triumphantly. "I've ma portion in ma hand, and I'll go to claim ma wife."

"Aye, you will that," sighed the old woman. "You're a full sinoo-man, an' I can na more say you na. But it's

a black day when ma son takes a foundling lass for wife. I'll say na more, for I've said ma say. Come, an' I'll kiss you again, like I did when I had ma wee lad on ma knee, and thin go, as you've a mind to."

She kissed him on the cheek, and then he hugged her fast.

"Bess is a grand lass, foundling or na," he said, not unkindly.

He got his cap from the peg, and money in hand, left. The old woman watched him until he was out of sight, and her face had a troubled look.

He began building his cottage at once, a sturdy house on a little promontory just beyond the bridge at the edge of the village where Bess could look from her kitchen window and see his boat come in and out of the harbor. And he did not neglect his other work, so that when he was finished, his coin-poke was not empty.

The priest married them, and with great celebration and joy, Rad Amish carried his bride to their new house.

"Fix it as you will, Bess," he said, placing the poke in her hands. "It's your home, and your coin."

The days flew by, and Bess turned the bare little cottage into a sweet haven, with bright colored cloth at the windows and clean-scrubbed pans hanging by the neat-swept fireplace. And with all of it, she still found time to go down and help Maxwell at the tavern of an evening.

And then came the day when she remarked casually to Rad, "I'll be go-in' to tavern na more."

"Eh? And why not?" he asked.

"For it would na be fittin' for th' mother o' your son to be a servin' wench."

"Bess!" he roared. "'Tis na true!"

"Aye, it is."

He grabbed her up and swung her around with her heels off the ground, then guiltily set her down gently.

"Ah, I should na do that. Bess, Bess! You're sure 'twil be a son?"

"I hope so. I surely hope. But what if—" Her face clouded. "Ah, Rad Amish, I'm sore askeert, I am!"

He folded her close. "Sure, you've na thing to be askeert of. Natural it is, as th' ma-cat you've been feedin' slyly that you thought I took na mind of! Ah, come now, Bess, dry eyes. I've na wish to take your dear pet from you. She'll keep mice an' such beasties from th' house, an' her kits will be a frolicsome sight on th' hearth. Stop your lip from tremblin', dear Bess, an' put a smile on it for me. Eh. A wee smile? Ah, tha's ma brave Bess."

Gradually her trembling stopped as his vast bulk surrounded her, shutting out all but a bit of the sky she could see over his shoulder, a bit of blue sky that for a moment held no hint of dark.

Now her days were occupied with sewing and fixing for the new son soon to be. Although she had never been one to waste idle time gadding fom house to house as some of the women were wont to do, she found in Chell Sharum a warm and close friend, what with her own time so near, and often she bustled about the cottage doing all her work in the morning so she could take her needle-basket and go and sit with Chell so they could talk together and sew together and knit and mend together. And surely the work went better and faster when the clickiting needles were accompanied by c l a c k e t i n g tongues.

Chell Sharum was a tiny thing, not much thicker than a needle, herself, but made of the same fine steel. With many a warm smile, she welcomed Bess, at first because of Welton's and Rad's long friendship, and then because Bess responded gratefully to her. Always kept busy at the tavern, Bess's romps with the other children had been few, and as she had had eyes for no one but Rad, she had never had a friend of her own before.

"Sure, it's a fine thing we have, we

two," Chell often remarked. "To be loved and petted by our men, an' our wee ones sheltered inside us, waitin' for light o' day. I'm thinkin' you're happier than ever you've been, Bess Amish."

"Aye, I am that," she would reply. "Only sometimes..."

"Sometimes what?"

"Ah, nothin'," Bess would sigh. "It's a busy time, is all, and I'm thankful for it."

Rad Amish also was not idle as his wife was not. Every day he was out while it was morning-dark, and not back til it was evening-dark, and it was not many days that he came home without his nets bulging. Happily, he set aside his stores for the hard winter that would soon be upon them, the bleak part of the winter when no fishing-boat dared venture out of the cove, and wild storms raged up and down the coast, and the comanleigh would most likely be raging with them.

And they neither one thought of the comaneigh, or if they did, it was only a brief thought, dismissed quickly as something to be thought of later, if ever a proper time came for it.

In weeks that passed, Bess's cat had three healthy, fat kits, and Rad and Bess laughed at the fine easy wonder of it. And then, when the kits were large enough to romp and get underfoot and get Bess's hearty scolding for it, Rad's Pa died of a wasting he'd kept hid until it finally had him to bed the last week. And then, when the funeral and the sharpest of the mourning had passed, Chell Sharum gave birth to a son, tiny and frail as she, but they hoped, with the spring steel that was in his mother as well. And then the hard winter set in, so that the time in between was taken up with borning and dying.

Rad Amish kept close to the cottage now, for the child was stirring in Bess's belly, and she became nervous and fretful, especially when the wind and rain whipped and howled around the point of land their cottage stood on. Then she would stand at a window, sometimes for hours, staring out at the black outside, her lips pale and cheeks gaunt, forgetful of everything but the rage of the storm just beyond her eyes. Or if she slept, oftentimes her breathing would grow shallow though even, and she would lie quietly, without moving, sometimes for hours, until all at once her breath would return to her, and with a sigh she would turn and push her nose comfortably against Rad's wakeful shoulder. And Rad Amish saw these things, and noted them, but refused to let himself ponder them. He began to hope mightily for spring, and the birth of the child. Then, he felt surely, Bess's vaporings and oddities would be gone, with her being so busy with her new son.

It was in March, just before the year's warming brought the comanleigh shrieking back as if to show that winter's wandering was merely play, that Bess stopped suddenly, while stirring the stew on the hearth, and put her hand to her back.

"Rad, I feel so queer," she said, and then her eyes widened and dilated. "Ah, no, Rad Amish, it can na be! It is na time yet!" And then she winced and would have fallen, had not Rad Amish caught her.

"If th' lad says it's time, thin time it must be," he said quietly. "Come now, lass, let's get you ta bed, and I'll fetch Old Annie t' midwife t' you."

She nodded, knowing as he did that a man's mother should help his son into the world, but Ma Amish would never lift a hand to do it. So it must be Old Annie, who generally sat in the shadows and waited, should a more experienced pair of hands be needed at a birthing.

Although he hurried, by the time he got back with old Annie at his heels, Bess was writhing on the bed, while the forgotten stew scorched on the hearth. Dumbly, he stood by while Old Annie hurried past him

and began doing what had to be done.

It was nearly cold morning before Rad Amish's daughter's first wail filled the cottage. At the sound, he rushed from the window, first to the tiny mite Old Annie was carefully wrapping in a broidered blanket, and then to Bess, who lay very white and spent on the bed.

"A daughter!" he breathed, soft with wonder, and going down on his knees so that his face was very close to her. "A scrap o' a girl, wi' your dear face, an' ma own red glint in her hair!"

"A daughter?" she murmured weakly, her lips barely moving as she slowly turned her head on the pillow and her eyes opened a little. He could see a bright tear forming, and gently slid over her temple. "Ah, a man's first-born should be a son, surely."

"Fret not, darlin'. 'Twas bound t' be one or 'tother, an' I'm thinkin' that I like th' idea of th' oldest of our brood bein' a daughter t' help her mother with th' young'erns." He laughed softly and stroked her sweat-dampened hair. "Ah, poor sweet, you thought I'd be disappointed in you, t' produce th' prettiest little girl-thing I've laid eyes on in all ma life, exceptin' you."

But no matter how he petted her and soothed her, the tears slid from her eyes, until, finally, she slept. Old Annie, her shawl around her shoulders, touched him.

"I'll be ta home now, Rad Amish," she said. "I'll sleep a while, an' tend ma house, an' thin be back. She'll not be liftin' head from pillow for a while yet, for 'twas a difficult time she had of it."

He nodded, and after the cottage door closed behind her, laid his head by Bess's shoulder and slept also.

Old Annie came back again each day, and soon Bess mended, and got up, and even smiled when Rad held his daughter in his arms and watched her tiny hand grip his finger.

"Such a grip she has!" he cried delightedly. "Like a sinoo-man in th' strength of her, and her but a wee babe!"

But he watched his wife, too, and saw the shadow behind her eyes that never laughed.

"A, weel," he thought to himself. "'Twill pass, belike. It's only that she had such a hard time of it."

And then one day, when the baby was not yet a month old and still unnamed, came a bright warm day, as sometimes comes before spring is full upon the world, and he hastened to uncover his boat and unfurl his sails.

"Ye'll not be goin' out?" asked Bess anxiously, having followed him, the baby in her arms, to the dock.

"That I will," he replied, his finger busy with nets and bait. "A fine day like this, th' fish will fair t' swarm in th' nets! An' would you be wantin' mine t' be th' only ones empty? 'Tis a poor wife you are, Bess, not t' want your husband t' prosper!" But his voice was gay with the release brought by the prospect of a man's work after the inactivity he'd been forced to.

"Na, na, I'd not be wantin' that, but do keep in mind t' be careful! Tis treacherous weather, beguilin' warm, and I'd trust it not!"

"Sure, an' I'll bring you a fat flounder to roast for our supper," he laughed, and so saying, pushed the boat free, catching the wind in the sail with a backward wave at Bess, left standing on the shore behind him.

Silently, as all women had before her, she trudged back to the cottage to tend the baby and wait the long hours until her man returned.

Rad guided his boat toward the mouth of the cove, feeling light and free, watching other boats dashing happily in the same direction. There was much laughing and halloing back and forth in the warm sunlight, and promises to add a poor fish or two to the empty nets from his own full ones. And then he was out of the

cove, he and the other men, and they scattered, each to his own favorite spot where he knew the balmy air would bring the fish bubbling and frolicking to swim carelessly into his nets.

Time passed r i c h l y, and Rad thought that never had he seen such a fortunate beginning to spring. As he had thought, the fish were there, fat and beautiful with gorging themselves on the bottom. Extravagantly, he tossed back fish after fish, because they were too short, or too old, or were otherwise flawed. Only the best, the choice, for his first catch of the year!

So absorbed did he become in his pleasant occupation, when he finally looked up, wiping his forehead, he was surprised to see the sun dipping low.

Working quickly, he stowed his catch away, all but an especially large an succulent-looking flounder that he promised himself for his and Bess's supper, and began to head for the cove.

In the meantime, however, clouds had sprung up, with a freshening breeze from the shore, and in spite of all the skillful tacking he could do, he made little headway. The boat, loaded as it was, wallowed through the waves that were beginning to slap in increased force and vigor against the sides of the little boat. A pat of rain slapped his hand, and he looked up, worried for the first time, as the scudding clouds rolled together with unbelievable swiftness. There was a rumble of thunder.

"Ah, an' it's na good time for me t' be out," he said to himself, scanning the horizon. "So busy I've been wi' th' nets, wi' na proper sense about me, an' th' others have all got safe by now, belike. Aweel, come now, Rad Amish, an' show yoursel' proper sinoo-an' sailor-man, an' get boat t' shore, else storm catch an' soak you, wi' a round scoldin' from Bess in th' bargain!"

And so he redoubled his efforts, so that he would have no time to think the word "comanleigh".

Rad Amish was a good sailor—some say the best—and by careful tacking and delicate handling of the full boat, he got within sight of the little cove before the wind died altogether, leaving a lowering, settling green light that washed liquidly over everything, and told even the dullest that a storm was trembling to break.

Rad Amish gave his line a turn over a cleat and took up his oars. With luck and by heaving mightily, he could make it yet. He got far enough in that he make out his own cottage in the strange clear light, before the storm broke.

There was nothing he could do. He quickly furled his sail, before the wind could shred it, stowed away his oars, and tossed out the sea-anchor, hoping it would keep him from drifting too far. The heavily-loaded boat tossed sluggishly, heeling dangerously far with every wave, and Rad Amish began to wonder if he would have to sacrifice his catch in order to stay afloat. He huddled down into himself, feeling rivulets of water coursing down his back and set himself to think of Bess, the baby, his catch, anything at all but the comanleigh.

He felt it, felt it in the prickle of his neck, long before he saw it or heard it. And then his nostrils twitched, as he smelled once more that singular, unmistakeable nauseating stench he had smelled that night on the bridge. He looked up, and there it was, visible even through the foam-flecked rain, and his guts grew cold as across the water a dim shape sped unerringly toward him. Shaking, he fumbled for the crucifix round his neck and held it before him, only to have the wind—he thought it was the wind—rip it from his fingers.

The shape engulfed him, surrounded him, and a throatless, maniacal laugh filled the air around him, filled and overflowed it, so that he crouched

and cowered where he sat as the booming, titanic laughter deafened his ears and made them ring. The stench half-strangled him, and he began to cough and gasp for breath. The air around him began to be full of luminescense, blurred by his tear-filled eyes, and they swam and circled, and swarmed into one spot, and gradually solidified into a something wearing a woman's form, perched lightly on the wide of the boat. Her fingers trailed in the water and it instantly became smooth for a little way around the boat.

"Stupid man!"

Was it a voice? It echoed hollowly and seemed to come from the very air around him, though the woman-thing's lips had moved. It dripped contempt like seaweed.

"The comanleigh!" he whispered.

"Aye, the storm-hag herself!" the woman-thing cried, and she threw back her head and opened her mouth, while from the air around him came peal after peal after peal of the booming, deafening laughter.

"I am beautiful, am I not? Even more beautiful than they say! Ah, yes, I know the tales they tell, do you think that I do not? I can be hideous, too, but I'm a woman—a beautiful woman," she repeated, running her tongue over her hungry red lips, "and an impatient woman." She slid toward him along the side of the boat.

He sat mesmerized, mouth agape, watching her, and knowing she was weaving her spell, and unable to do anything about it. A giant dark-haired spider she seemed, weaving, weaving.

"It's been so long," she said, closer, closer, "and it's seldom that I get such a man as you. A strong sinooman—"

"No, no," he muttered.

"No?" she said in mock surprise. "But why? Am I not lovely? Would not a man—any man—gladly give everything to be embraced in these arms?" She lifted them temptingly, slipping white and round from the gauziness of her garment. "Or be pressed to this breast?" The gauze slipped to her waist. "Many a man has thought so, and gladly."

What was it, he wondered dimly? Why was she playing with him? Stories he'd heard—what was it? He moved back awkwardly, and from someplace far off felt a dull pain in the back of his leg. His steel net-hook. With an effort he moved his arm back and touched it. Why didn't she devour him in her hellish embrace and get it over? Let her lock her limbs about him and suck his marrow. What was it about her—oh, God!

"Enough, devil that you are!" he burst out in agony. "Must you rack mind as well as body? Do you always have to look like her gone rotten with evil?"

"Like who?"

"Like her—like th' woman th' man loves dearest! God in Heaven, 'tis terrible, but you look, for all th' evil tha's in you, in face an' form like ma own Bess!"

"Your Bess? Your foundling Bess?" For a moment the comanleigh looked startled, and then the laughter began again, great cascading roars and shouts until Rad Amish put his head on his knees with his hands to his ears until it had spent itself.

"So you're the one!" the storm-hag screeched. "So you're the one who's so dear that I wasn't allowed to touch you, when I could have, by all my rights, because she wouldn't let me! For the first time I—*I* was denied, because of her love!" She moved closer, her eyes gleaming in hellish anticipation. "Of course, I look like Bess! You fool, had you never wondered why Bess always knew when the comanleigh was going to be out? Had you never wondered why she acted so strangely when there was a storm?"

"D'you mean..." he forced the words out, "d'you mean—that you—

that Bess...that you're her?"

The comanleigh sneered. "You clod, you less than man! I live in her. I lived in her mother before her, and her grandmother before that, clear back, and they were foundlings all, and knew it not, except that they must go and have a daughter too, one way or other, and wander away to die, the fools. Young, fresh life I live in! And shall, so long as there's a daughter of a daughter of the first hapless wretch who spawned me in union with a sea-serpent!"

"But ma Bess...she was so... real!"

The comanleigh shrugged. "Oh, she's human enough, save for the bit I own, struggle though it may. She fought me. And hoped for a son, once she was with child. But I was inside, and knew!"

He gaped stupidly, still unable to comprehend fully. "But I thought you had a house, at bottom o' th' cove."

The comanleigh's manner changed instantly, becoming smooth, and intimate. "And so I have," she said oilily, sliding ever nearer him. "It's such a nice house. You'll like it..."

"Na, na!" he cried suddenly, unable to bear any more. He sprang up, the steel hook in his hands. "Stupid I am, an' careless, t' let you catch me like this, but if you've na touched me afore because o' Bess, you've na touched me now because o' Bess! Some small power I must have now, masel', because o' her an' her love, an' praise God, I'll use it proper afore you'll pick ma bones!" And so saying, he swung the hook in a murderous circle around him.

A look of hellish fury seethed over the evil, familiar face before him, and as he watched, the mouth and jaws lengthened and the cold blue eyes grew lupine. Great cat-teeth gnashed and champed, claws sprang from the woman's fingers, and the gauzy garment now seemed to conceal a more sinuous form. The hideous stench arose anew and surrounded him, choking him.

As the mouth changed, words tried to form in it, but they were drowned in a single shattering shriek as the comanleigh slithered forward just as Rad Amish's steel hook sank jarringly into her side. Not even appearing to notice, she launched herself at him again, the teeth rending, the claws slashing, while the serpent tail sought to envelope and crush him. Again and again he smashed his hook into her, nearly faint from the overpowering rotton smell of her opened flesh. He knew he was weakening, but his one thought was to kill, to find a vital spot so that Bess...his tiny, unnamed daughter...

They stood locked in deadly combat on the little boat, the man silent, save for a grunt when a bone snapped, the sea-hag screaming her fury. Serpent coils slid up is body to the waist, tightening, tightening. Desperately, he raised his steel hook far over his head with both hands and brought it smashing down with all his gigantic strength, full into the horrid wolf-mouth so close to him. He felt the coils about him shudder, and he struck again...and again...

Tottering, he finally felt them loosen and slide downward, and then his own strength ebbed away and he collapsed into the bottom of the boat. Struggling up on one elbow, he looked at the comanleigh. A malevolent shrewdness gleamed from the one remaining eye.

"Never mind, never mind..." the ruined mouth managed to say, and then the comanleigh could only lie there while Rad Amish, with the remaining strength in him, triumphantly, painfully scratched with his steel hook into the side of the boat, the words "thas na more comanleigh". Then he slid back, helpless. He was dying, he knew, but he didn't mind. Bess and the baby, that's all that mat-

tered, and they were safe...

Darkness buzzed into his ears, filling his eyes and mouth, and a small, reluctant thought swam to and fro in his dying mind. "As long as there's a daughter of a daughter...", but the darkness drowned it before he could quite understand it.

And then, save for the last labored breathings, there was silence on the little boat.

Two days later, Rad Amish's boat drifted in quietly into the harbor and nudged up onto the beach. Inside was the broken skeleton of a man, a ruined cargo of fish, and an unexplained mound of putrescense that gave off such a terrible odor that the men had to tie handkerchiefs over their faces in order to take out Rad Amish's bones.

They buried them beside the place where his wife lay, the infant in her arms, and Welton and Chell Sharum stood by the grave, while Ma Amish looked on in tight-lipped silence and whispers ran through the crowd.

"...'tain't nateral, her found lyin' dead, all scratched an' torn, an' th' infant beside her with its neck broke. They say it looked like it were a fearful struggle in th' cottage, like an intruder..."

"...na who, more belike *what* 'twas done it..."

"...boat comes in wi' na but bones..."

"...an' th' words on th' boat. D'you suppose he really fought wi' th' comanleigh an' killed it?..."

".. 'uz crazed, belike, but th' storm stoppin' sa sudden..."

"...an' thin her an' th' infant—suppose she saw? Watchin' from th' land, maybe?..."

"...standin' sa stiff an' proud. They say he cursed her an' started it all..."

"...that wasn't th' curse did it. Likely one long before that 'un..."

"...lifted for good an' all, mayhap? Seems air tastes better thin in a long time..."

Mothers no longer frighten their children into good behavior with tales of the comanleigh. Occasionally, some of the old people will talk about it, and they will discuss Rad Amish and his foundling wife and daughter and their incomprehensible deaths in puzzled, hushed tones. Ma Amish claimed to her death-day that Bess killed the infant, and could they hope that in the sacrifice of strong young lives the comanleigh was gone? Sure, the storms were less frequent and less violent, but still—And the old people shake their heads, though they know in their hearts the answer, that the comanleigh left the ruined shell of herself in the boat and raced back to claim the infant, and Bess, seeing it come, mercifully broke the child's neck, to die herself in the comanleigh's final death-thrashings. How and why they know this, they can't say, but the knowledge is there. This is the part that they hold in their hearts, while they talk about other things.

And the children, who listen and don't comprehend the old folks' talk, sometimes play at being Rad Amish, and Bess, and comanleigh, who has become nothing more frightening than a bogeyman.

But when a storm howls and rages, the men are still well enough content to stay within doors while their boats rock patiently in the harbor.

A MANY LEGGED THING

by ERIC FRANK RUSSELL

HE JOINED the family uninvited. He was short on looks but long on charm and had the fixed idea that love is a many-legged thing.

The first we saw of him was one evening when he strolled from behind a big roll-top desk and my wife greeted him with a cry of, "For heaven's sake, just look at that horrible spider!" She snatched a duster and made for him, intent on mayhem. Promptly he bolted behind the desk and defied all efforts to find him.

Half an hour later he crept forth, sneaked cautiously along the edge of the carpet while keeping a wary eye upon us. My wife bided her time until she thought he had gone too far to retreat. But she reckoned without his amazing turn of speed. She pounced, he put up a superfast sprint and again found sanctuary.

This petty warfare continued for several evenings while victory continued to elude us. Evidently the intruder was of nocturnal habits for we saw nothing of him daytimes. All his appearances were made after fall of darkness. During the ensuing battles he suffered several narrow escapes, being saved only by his alertness and remarkable agility.

One evening the wife sat reading and came across an article by a well-known naturalist. It was about spiders in general and our sample in particular. According to this authority the new boarder was an expert huntsman and an asset to any decent household. Indeed, he said, the woman who found herself adopted by one could consider herself lucky because "this spider shares one thing in common with housewives—they both hate flies."

After some discussion we decided that the unbeautiful newcomer was welcome and would not be harmed. No action would be taken against him so long as he behaved himself. We named him Alfred because he looked more like an Alfred than a Hippolyte

or a Mortimer. What followed our talk makes me wonder whether some life-forms can detect friendship like sniffing a sweet smell.

At his usual time of 10:30 p.m. Alfred appeared from behind the desk. He did not creep furtively along the edge of the carpet in his customary manner of one striving not to be noticed. Instead he stood quite still and contemplated us for about ten minutes. Then slowly and uneasily he came halfway across the room toward where we were sitting either side of the fire. He stopped, surveyed us again as though doubtful about the reality of a strange but pleasant truth. We kept quiet and watched with interest.

Encouraged by our silence he ventured nearer. Still no move on our part. He advanced another yard, waited for hostile action that did not come. Finally he plucked up courage, scuttled forward and came to rest between us. This was the crucial test. Either of us could have rammed down a foot and squashed him. We didn't.

From that moment Alfred was a changed man, or rather a changed arachnid. He made it plain that he considered himself one of the family and expected to be treated as such. Every evening at the same hour he joined us by the fireside and enjoyed the warmth for twenty minutes before commencing his nightly hunt. His patrols were conducted with such regular precision that if given enough time he would have worn little spider-tracks across the carpet.

Gradually we learned more about him. Like the robin, he had a well-developed sense of property rights. The ground floor of the house belonged to him and no other. Any similar spider who tried to jump his claim was given the bum's rush. Although quite capable of climbing the stairs he never mounted more than three steps, perhaps because he imagined that the higher floor had been confiscated by another leggy character whose claim must be respected.

Amusingly enough, Alfred could never get it into his head that two curtains could hang from the same rail. He would climb one curtain, search the shadowed pelmet for roosting flies, descend to the floor, scramble up the other curtain and repeat the search.

As the weeks rolled by he developed a definite affection for my wife. We checked by simple tests and proved conclusively that he could recognise her. If we moved into another room he would traipse after us within the next half hour. If only I went out, he remained with my wife. If she departed, he left me and followed her. When we went upstairs he'd amble as far as the third step. The only times he condescended to favor me with his company was when the wife was not in the house and we two were alone. Whenever she was present I was ignored.

Alfred's courtship was not in vain. He grew rapidly in my wife's esteem because of his many virtues. He was methodical, painstaking and worked hard to earn his keep. The home had never been so pleasantly free of insect pests. He was scrupulously clean, made no annoying webs and was content with a silken cylinder with hinged door built behind my desk. This neat contraption was his own abode in which his privacy was respected.

He never touched exposed food. Once we spent an entertaining hour watching him hunting trespassers in a larger larder. Carefully he scoured every crack and cranny, walking around instead of over food and avoiding so much as putting a foot in the butter. We got the eerie feeling that had he stepped by accident upon a piece of cheese he would have apologised.

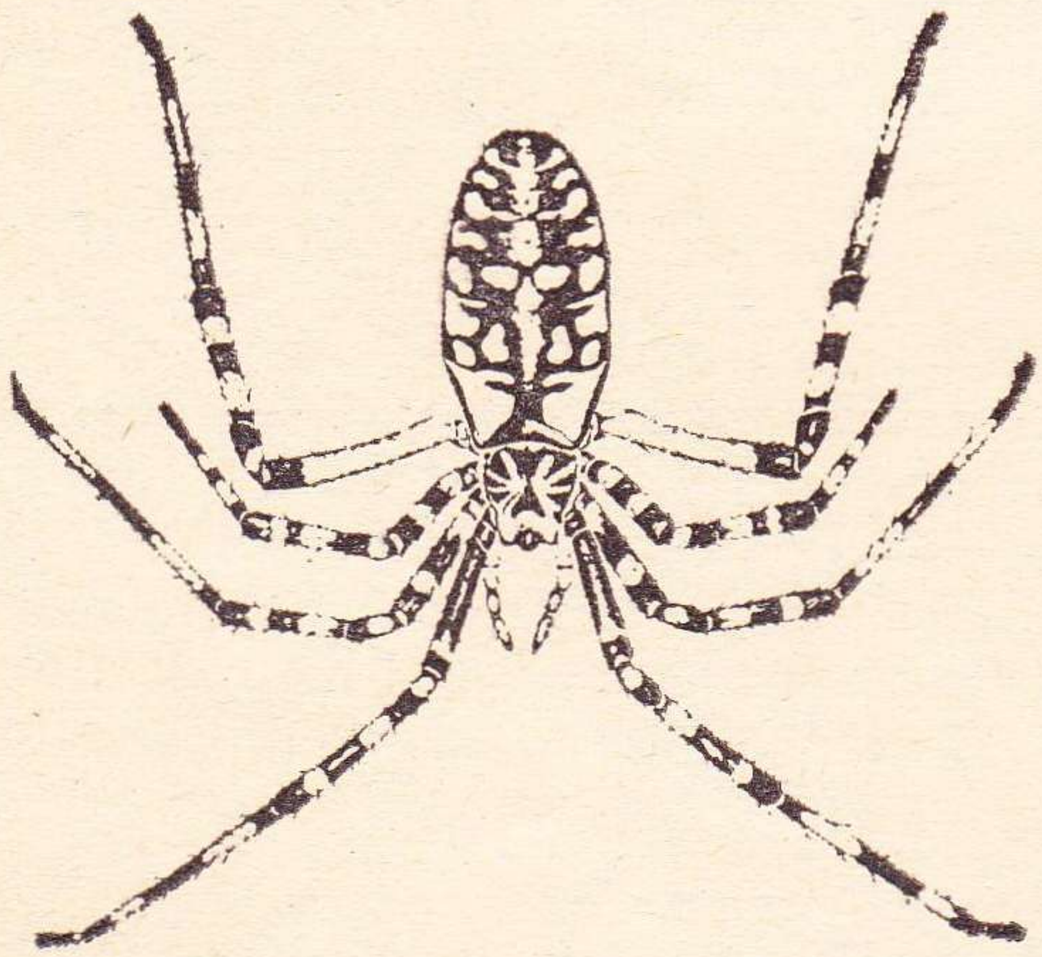
After most of a year Alfred had grown to twice the size he'd been on arrival. He stood quite still and

raised no objections when I measured him with a ruler. Body length ¾", leg-span 2½"—and that's quite a lot of spider. Though presumably full grown he did not seem interested in romance. No girl friend had appeared upon the scene and there was no horde of tiny Alfreds to make us think that Things Are Going Too Far.

By this time his tameness had become a continual embarrassment. Evenings we had to walk around with gaze fixed firmly on the floor like meditative monks parading through the cloisters. Strangers found this most disconcerting, especially when we raised a foot to step over something they had not noticed and were far from overjoyed to meet.

Often when working at my desk I would hear loud complaints from the kitchen. "Oh, Alfred, for goodness sakes stop playing around my feet. I can't keep watch on you *all* the time!" Then in louder tones to me, "He doesn't seem to realize that I can't see him as easily as he can see me."

We had never thought of spiders as fun-loving creatures but Alfred certainly had amusement. Once in a while, after his preliminary warm by the fire, he would run races with himself under the kitchen table. The first time he did this we thought he was in hot pursuit of a gnat or midge,



looked to see and found there was nothing whatever for him to chase.

On rarer occasions he enlisted one of us for a game called Miss Muffet and the Spider. He played Miss Muffet and the other played the spider. One of us sat on a chair while Miss Alfred Muffet waited expectantly nearby. The former then yelled, "Boo!" and Alfred raced madly away —only to stroll back to the original spot and await the next, "Boo!"

For some reason that defeats understanding he developed an immense curiosity about the telephone. It really fascinated him. He would be mooching around the back room when the phone shrilled by the front door. My wife would go to answer it. He'd scuttle along behind her, clamber up three steps of the stairs to get a better view and remain apparently engrossed in the conversation until the call ended.

He did this times without number. One evening I called my wife long distance, exchanged news, jocularly asked her if she were lonely and got the reply, "Oh, no, Alfred is keeping me company. He's here in the stairs right now, listening-in as usual."

It was always a pleasure to watch the reactions of visitors to a family consisting of human beings plus a thing resembling a vest-pocket Martian. As evening drew nigh we'd warn them of his coming appearance and that would be accepted as proof that we were slightly crazy. My daughter, who liked Alfred only at a distance, would be shown the sympathy given to one who is afflicted with lunatic parents.

Later, the men would wear expressions of grim tolerance while the ladies shuddered and drew their feet off the floor. But after a convincing demonstration of Alfred's good manners in giving a wide berth to those who found him distasteful, walking around instead of over our shoes, and strictly minding his own business, the legs came down, uneasiness died away

and deep interest took its place. If it so happened that Alfred went to help answer the phone, revulsion switched right over to envy.

One egghead who'd been stupified by education saw fit to opine that in all probability Alfred was a widow who had eaten her husband and that he or she was less interested in my wife than in her bright crimson slippers. We rejected this thesis with scorn and contumely. Alfred was so obviously a lonely bachelor longing for companionship and ready to pay for it with love.

He had the shy affection of a creature willing to disregard the horrible hugeness of human beings. Alfred had never been given the cold shudders by my wife's comparatively enormous bulk, her tremendous feet, her grotesque two-leggedness. No matter how outlandish her appearance, he thought she was beautiful. His tiny mind held the essence of tolerance.

For fifteen months he had been living with us when I came home late one evening to find a sadness in the house. I asked what was the matter.

"Poor Alfred. I found him dead. He'd been trodden upon." My wife was genuinely upset. "I'm sure I'm to blame. He was hanging around me in the kitchen earlier on. I couldn't help it, really I couldn't. I did my very best to watch out for him but my eyes can't be everywhere."

"He was far too tame," I offered.

"Poor Alfred," she said.

I don't know what I. Q. entomologists assign to the solitary hunting-spider and I don't much care. My wife and I have learned at first hand that the humblest creatures often have a lot more sense than given credit for, that they can and do respond to friendship with their own peculiar warmth. Unlike us, they are not impressed by superficial appearances and, I am sure, they knew before ever it was written that 'beauty lies in the eye that beholdeth.'

NORSE KING

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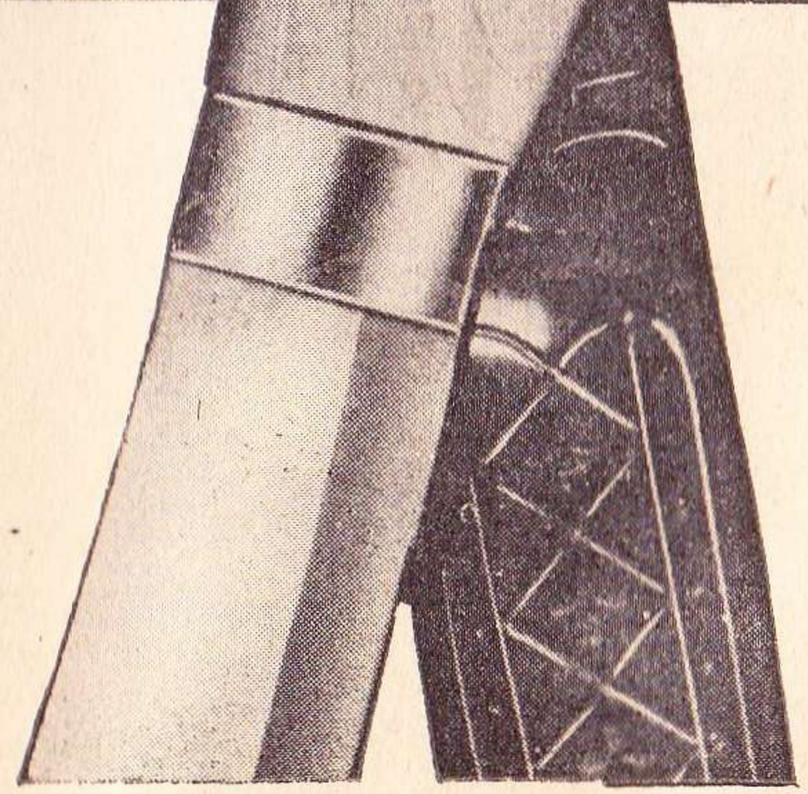
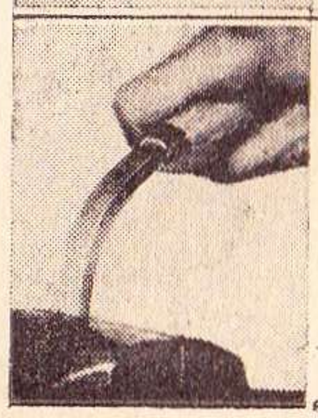


Knife point is so sharp it drives through coin or metal. Blade edge is so tough it can drive through a bolt —even cut a nail in two!



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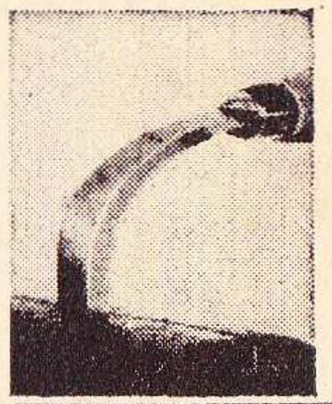

with out breaking or damage.

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FANNOTATIONS

by BELLE C. DIETZ

IF YOU have been a constant reader of the editor's kaleidoscopic column, *Universe In Books*, you may be aware that there exists with relation to science fiction a group of fans who have become enamored of the genre and who have made it their hobby. It has been said that these individuals consist in the main of frustrated writers and that their most vociferous method of communication, to wit, their amateur fan magazines (abbreviated to fanzines) are published to scratch the never-ending itch of their desire to have others read and comment upon their brainchildren. Whether or not you agree with this definition, it must be admitted that these amateur publishers are possessed of imagination, a fervent desire to improve and widen their mental borders and a certain amount of nerve, to boot.

To the uninitiate, at least, some sort of map is necessary in order that he may not lose himself in a maze formed of unfamiliar terms, ideas and concepts. This, then, is what this column will attempt to furnish.

For the trufan we hope to provide an interesting yardstick against which he may measure his own opinions. For the newcomer, however, a ward of warning. We advise going slowly—send for a sample issue or two at the outset and read them warily, remembering that the amateur publishing field can be a very powerful drug indeed. In fact, this writer has found it completely habit-forming and fervently hopes never to be cured.

SYZYGY (Miriam Carr, 70 Liberty St., #5, San Francisco 10, Cal.) is a hectographed 'zine, published irregularly and available for 15¢, letter of comment, trade or review. Charming throughout, including the hint of accent with which the editress writes. Material and artwork good quality, reproduction fair. Recommended.

APPORHETA #12 (H.P. Sanderson, "Inchmery", 236 Queen's Rd., London S.E. 14, Eng.) is beautifully mimeographed in blue ink and can be obtained for 20¢ per issue, 6 for $1 or even trades with other fan editors. The witty, entertaining contents include contributions from some of today's best fan writers. Features the famous column "Inchmery Fan Diary" and is 52 pages, published monthly. This British fanzine is unhesitatingly recommended for its consistently high quality. Artwork by Atom, excellent and well reproduced. Worth every shilling.

JD-ARGASSY #47 (Lynn A. Hickman, 304 N. 11th, Mt. Vernon, Ill.) is a multilithed production with superbly reproduced artwork. This monthly can be had at 12 for $1, 20¢ or 10¢ apiece (depends on the editor's whim. Contents include fanzine reviews, articles and a letter column. Very pleasant reading.

THE NATIONAL FANTASY FAN, V.18 #4 (Ralph Holland, 2520

4th St., Cuyahoga Falls, Ohio) is actually the Official-Organ of The National Fantasy Fan Federation and is published bi-monthly. This issue, the third under Ralph's aegis, is an excellent example of how good O-Os can be. Reproduction method is mimeo and truly outstanding. Contents include official reports, book and fanzine reviews and well-presented chatty articles. To receive this, joining the club (a correspondence group) is necessary. Many other activities and more publications go with membership at only $1.60 per year. Both the fanzine and the club are recommended.

CRY OF THE NAMELESS #130 (Box 92, 920 3rd Ave., Seattle 4, Wash.) is a very fine fat monthly fanzine, published by four fans in Seattle. This issue features fan-slanted fiction and reviews of fanzines, sf books and sf professional mags, as well as many excellent and thought-provoking articles. However, the piece de resistance here is the letter column which is justly famous for the excellence of its editing and writing. This zine is a "must" at 25¢ each or 5 for $1. Illustrations are the cartoon type, relating to the zine and, as such, we find them much more enjoyable than the arty kinds. You get very good value for your sub dollar here.

SPECTRE #5 (Bill Meyers, 4301 Shawnee Circle, Chattanooga 11, Tenn.) is very irregularly produced and can be obtained for a letter of comment or trade. Reproduction is excellent and the front and back covers humorous and well done. The editor begins with an account of his recent trip to New York and the whole issue is remarkable for the evenness of its contents. Both Bob Tucker and Bob Bloch have contributions, as does Harry Warner Jr. (this alone should be sufficient for recommendation) but even Ted White comes up with a very humorous piece. A good-sized letter column rounds this off and the only pity is that it isn't published more frequently. The 44 pages are more than worth the time it takes to write comments.

SHANGRI-L'AFFAIRES #44 (2548 W. 12th St., Los Angeles 6, Cal.) is another monthly 'zine but differs in that it is published and produced by a club (the L.A. SF Society). Cover this issue is a beautiful job by Lou Goldstone in blue-and-white on cardboard and the contents are highly varied, individualistic and interest-holding. Particularly enjoyed by this reviewer was a five-page series of Rotsler cartoons. The entire issue was dedicated to the memory of E. Everett Evans and was handled very well. The reproduction is very uneven but still legible and the whole thing has a haphazard "it-was-fun-to-put-together" air adding greatly to its charm. The cost of 20¢ apiece or 6 for $1 is money well spent and extra copies of that gorgeous cover, suitable for framing, can be obtained for 20¢ from Al Lewis at the club address.

SCIENCE-FICTION TIMES #320 (Science-Fiction Times, Inc., P.O. Box 115, Solray Branch, Syracuse 9, N.Y.) consists of a bi-weekly newszine now in its 18th year of publication. Both professional and fan news in the sf field are given coverage and ads placed here reach the largest number of people of any fan publication. For 10¢ per copy or $2.40 a year, this is a very good buy.

If the reader has any questions or comments, we will be very glad to answer them. Address letters and fanzines for reviewing to: Belle C. Dietz, Apt. 4C, 1721 Grand Avenue, Bronx 53, N.Y.

the sinister flame

by Y. IBN AHARON

THE IDEA that the technological orientation of the ancient Near East, demonstrably superior to that of the atrophied Dark Ages, could be described by the vocabulary of a Vulgate divine should forever be dispelled by the controversy which has been raging for a century over many words of indisputable meaning.[1]

Equally confusing has been the disunited front of religion on the question of Darwinian evolution. Most clergymen consign the whole Old Testament to the outer reaches of allegory and metaphor. They have been driven to this extreme by the simple fact that they *never* were committed to the defense of the Old Testament, to begin with. In other words, the Old Testament has been forsaken by both protagonists. The religionist pays heed only to its 'great moral teachings', because its Writ and Letter are in bad odour with scientists; the scientific mind, on the other hand, will have nothing to do with the Old Testament, because it is considered to be the private domain of the reverend clergy. This last attitude is the more unfortunate in that the only final comprehension of the Semitic terms with which the Old Testament is littered from one end to the other must come

1. I have reference to the well-known fracas over the word *bethulah*, as it occurs in the Prophets. The word in Hebrew does not mean virgin (that would be *gnulemeth*), but "the young married girl". Other such words are *leviathan*, which doesn't mean whale as it occurs in the Book of Jonah, or in any other place; *sh'ol*, which doesn't mean Hell, — and *anaqim* which doesn't mean giants.

Particularly barbarous is the translation of *lo tirtsakh* as "thou shalt not kill" in Exodus 21, which would be correct if the Hebrew read *lo t'hargu*, from the infinitive *harog;* and the failure to strengthen the phrase "thou shalt not worship other gods before me" to the point where it is understood that Jews were *clearly* permitted to participate in other ceremonies so long as they were mindful of the precedence of Y'hova and the incumbency of his worship. See the Prophet Samuel's tirade on the subject.

from the natural scientist (whether physicist, chemist or biologist) who is willing to approach Semitic literature on its own terms, and thus to gain the familiarity required to correlate his findings therein with contemporary usage.

Our purpose here is to consider one small group of associated terms, occurring in the books of Exodus and Leviticus. These words will be considered both in their context within the Bible, and the peculiar nuances which they assume in the light of comparative philology.[2]

Most of the world's religious and philosophical systems can be classified in terms of their attitude towards fire and light. The most common equation is the familiar one, wherein light represents Good and darkness Evil. The notion that some form of *light* might be associated with Evil strikes us as unfamiliar, even though we may have heard talk of hell-fire from earliest childhood.

The history of the Near East, perhaps surprisingly, provides a multitude of doctrines wherein the common conception of light as Good is reversed. Some of these doctrines are sufficiently important to stand independently as religions in their own right.[3]

Others are to be found deeply embedded within a complex religious system of hybrid origins. In such cases, the doctrine of light as Good will be taught exoterically, while that of Light as Evil will be classified as a Mystery, and reserved for those of the priestly classes. Thus the holy men of Israel, the Kohanim, Sons of Aaron, were initiated into the study of what we may term *The Sinister Flame.*

The most important Biblical mention of the *Flame* occurs in Leviticus 10:1. Where it is recorded that Nadav and Avihu, sons of Aaron, "took either of them his censer, and kindled fire therein, and burnt incense thereon. Then offered they *Sinister Flame* before the Lord, such as he had not commanded them."[4]

Anyone familiar with my past writings would think me guilty of a grave inconsistency were I to disagree with the *Onkelos*, as Yonathan's Version is called; but it is not with him that I disagree, but only with the abuse of the cognative principle involved in the process of misinterpretation. Ugarit, Babylonian and Assyrian reference prove that NKR had dire implications for the Mespotamian mind of that day. To give *esh* as "flame", instead of "fire", should not excite any witch-hunting tendencies, either, inasmuch as all Versions since

2. Comparative philology in the Semitic languages is peculiarily complex. For example, cognate words in each of the sixteen North Semitic languages may have different meanings. This situation is unparalleled in any other family of human languages The verbal root ALH is a good example of what I mean, and is pertinent to the discussion. It can mean anything from deep-breathing or "propulsion" in Majian to "hitting," as with a stick, in Arabic. (See note 4, below)

3. The best example of a Religion of Light is. of course, the Ghatas of Zarathustra. Sun-worship in Egypt is hardly matched with the literal interpretation of the Brighter Parsas, as the Avestic priests were ambiguously dubbed by their descendants. The ambiguity lies in the interchangeability of PRS, which means Persia, with PRSh, which denotes "explication" in general Semitic usage. This is not an illiterate pun, because great confusion existed as to the use of sibilant letters at the end of words, especially in the Aramaic of Persia. Jastrow lists PRS as an alternative for PRSh.

4. The Hebrew reads:

ויקחו בני אהרון איש מחתתו ויקריבו לפני
יהוה אש זרה אשר לא צוה אותם

It is at this point that the difficulties mentioned in Note 2, above, come into play. My rendering of *esh zarah* as Sinister Flame does not need to be argued with those familiar with the Jewish term for idol-worship, *avodah-zarah*. The Aramaic version of Yonathan, however, does not seem to be in line with the more serious meaning of the word, for it goes along with King James Versions, and gives *nakhreih* (spelt נחריה) for *zarah*. Those who read Hebrew will think immediately of the root NKR (spelt נכר), and of such words as Nakhri (נכרי), which means "foreigner", and thus contrive to evade the real implications of the word.

Ezra have translated this word variously as it might suit their purpose.

On first reading, and by itself, this passage looks harmless. The consequences of their act were soon made clear, however, when "a fire went out from the Lord which consumed them in his sight."

The orthodox of all Judaeo-Christian religions will take care to hurry by this passage. To it, and to those like it, they will apply two time-worn axioms. "It is forbidden to ask such questions."[5] Or, this matter cannot be settled until the coming of Elija."[6] I don't think such fatalism is really necessary. There *is* evidence that can be brought to bear upon the clarification of this particular subject without waiting quite so long as it may take for Elija to get here.

The Sinister Flame that Nadav and Avihu offered up unto Y'hova is, unfortunately, not described in detail. According to Ibraham ibn Ezra (1092-1167 A. D.) the sacrilegious character of the flame was established by the fact that they kindled their censers in such manner as to produce a controlled flame, instead of the free-burning light which was one of the specifically commanded requirements of the sacrificial pyre. In other words, Nadav and Avihu had produced an *implosive* flame, which produced more heat than did the explosive, quick burning variety appropriate to the Sanctuary.[7]

All through the books of Leviticus and Numbers it is inferred that the fires of the sacrifice contained certain unknown (and presumably unknowable) additives that caused the altar-fire to flare up of a sudden, and burn with unnatural brightness. The altar-fire was, indeed, counted among the Miracles of the Temple ritual.

The reason for the indictment against Nadav and Avihu was that they had got hold of small quantities of these substances (probably from the stores of their father, Aaron), but made the mistake of trying to ignite them in the closed flame of the censer. The phenomenon would, therefore, be explained by a mineral substance which would merely evince many candle-power of light if burnt in the open air, but which would, at the same time, wreak holy havoc if heated within the confined space of a candelabrum.

Although the mechanism by which the Lord caused their demise is not revealed, it is very well within the bounds of grammatical propriety to assert that the phrase "fire came forth from the Lord" is a theatrical way of saying that they died as a result of their experiment. In the eyes of the believing Jew, the mere fact that they had broken God's command was sufficient reason for their death. This thesis of self-destruction is borne out by the fact that their bodies were not consumed into dust, as was the case with all other malefactors who received the personal attentions of Y'hova. In point of fact, this *is*

5. Liberal theologicans will be shocked by the declaration of Rashi, the supreme arbiter of such matters for the orthodox Jews of Europe, that the *ruakh adonai* (KJV: "spirit of the Lord") should not even be discussed in the context in which it is mentioned in the early chapters of the Book of Ezekiel.

6. This is the meaning of TYQW at the end of many a heated debate in the Talmud. It is most frequently resorted to on juridicial questions, because the most profound theological disputes, in which it might occur, were *verboten* to public discussion, under pain of trial before an ecclesiastical court. This practice rested on the unfortunate dicta of the 13th Chapter of Deuteronomy, and was confirmed by all the leading patristics from Joshua ben Nun to Eliyahu of Vilna.

7. Three distinctive kinds of fire were recognized by the priestly authorities. The first was the closed fire we are talking about here; the second was the open fire, which was unfit because of the fuel consumed. The third was an open fire, fed with sacred wood, and therefore known as the Holy Fire. This was the only kind fit for the altar. A review of the physical efficiency of the sacrificial practices outlined in the Old Testament, by a person properly qualified in thermal chemistry, would yield significant results bearing on our estmate of the scientific knowledge of the ancients.

the only case on record in which there was enough of the body left to make burial worthwhile.[8]

An alternative to death by the *Sinister Flame* is the possibility that they were "touched by the *Finger of the Lord*", Y'hova's equivalent to Zeus' thunderbolt. The Holy Flame, as the Finger of the Lord was called in its passive role, came into play largely in two ways. The first was the pillar of fire which went before the Children of Israel by night, so that they would not lose their way in the wilderness of Sin and Moab. The second was the Holy Flame which provided illumination at the time of Y'hova's descensions on Mount Sinai.

This event is often repeated in the Books of Moses, and always with the same trappings. At the outset of the tableau, we find the pillar of fire skimming smoothly along at the front of the camp. The murmurings of the people are overheard by the ever-sensitive deity, and he gets in touch with Moses, his contact-man among the people. Moses would then summon the Congregation and announce the great day. At the pre-arranged moment, a tumultuous rumbling is heard, with much the same effect as an earth-quake. The great mountain is starkly outlined against the Plain, and a great mass is seen slowly to lower itself against the twin peaks which are the dwelling-place of the Lord.

The potential dangers of the situation, and the perilous toxicity of the Holy Fire are most explicitly outlined in the Twentieth Chapter of Exodus. The entire affair is somewhat reminiscent of a launching at one of the larger rocket testing sites.

"And the Lord said unto Moses, Go unto the people, and sanctify them today and tomorrow, and let them wash their clothes. And be ready against the third day, for the third day the Lord will come down in the sight of all the people upon Mount Sinai. And thou shalt set bounds unto the people round about, saying, Take heed to yourselves that ye go not up into the mount or touch the border of it. Whosoever toucheth the mount shall surely be put to death. And Moses said unto the people, Be ready against the third day: come not at your wives.

"And it came to pass on the third day in the morning, that there were thunders and lightnings, and a thick cloud upon the mount, and the voice of the trump exceeding loud; so that all the people that was in the camp trembled. And Moses brought forth the people out of the camp to meet with God; and they stood at the nether part of the mount. And Mount Sinai was altogether on a smoke, because the Lord descended upon it in fire. And the smoke thereof ascended as the smoke of a f u r n a c e and the whole mount quaked greatly. And when the voice of the trumpet sounded long and waxed louder and louder, Moses spoke and God answered by a voice.

"And the Lord came down upon Mount Sinai on the top of the Mount, and the Lord called Moses to the top of the Mount; and Moses went up. And the Lord said unto Moses, Go down, charge the people, lest they break through to gaze upon the Lord and many of them perish. And let the priests also, who may come near to the Lord, sanctify themselves, lest the Lord break forth upon them."

A careful reading of this passage bears an interesting resemblance in its "sanctifying" to the precautionary measures and instructions distributed by the Office of the Director of Civil Defense Mobilization to meet the contingency of an atomic attack.

Attention may also be called to Exodus 25:17, which reads in Hebrew:

ומראה כבוד יהוה כאש אכלת על ראש ההר

"And the Glory of the Lord was a

8. Leviticus 10, verse 4. The injunction against mourning which follows is directed to Aaron and his surviving sons, and is often taken to mean that the bodies were exposed without benefit of burial, but the text says nothing of the sort.

consuming fire at the peak of the mount, etc." Our Nineteenth Century friends, including some who were not so Victorian, notably Sigmund Freud,[9] drew the inference from this description that the God of Israel was a volcano. This demotion was too much for the Ruler of the Universe to take sitting down, albeit incorporeally. The faithful soon rose in the defense of their God; they explained that Y'hova was an "independent force," whose apparently irrational conduct, jealousy, bellicosity and bloodthirstiness were sometimes misinterpreted, even by Moses as evidence of divine ill-nature. What they meant by "independent force" was never really made clear, but the tendency of such teachers is in the direction of the Religion of Love. They were encouraged in their speculations and apologetics by the very non-Hebraic and distinctly irrelevant doctrine of reincarnation, and the notion of communication with the dead which it entails.[10]

This interpretation was better than the one about the volcano, but the seeming agreement between the Medieval nomenclature of religious spiritualism and the Hebrew Bible is superficial, and was made possible only because of the gross inconsistencies of the traditional European translations.

Each age must re-evaluate the past in its own terms. It is time that we realized that the Medieval interpretation of the Biblical Mysteries was as inaccurate and unreasonable as planetocentric cosmology. Semitic concepts of natural history must not suffer at the hands of those who think Europe uppermost in terms of cultural accomplishment. The re-birth of learning in Europe was not a phenomenon of Graeco-Roman civilization, but of the Judaeo-Arabic. The great Christian theologians of Europe burnt many a Jewish doctor for practicing sterile antisepsis. The knowledge that heat could kill disease and make pure the contaminated wounds of the battle-fallen is historically traceable to *The Sinister Flame* of Y'hova Elohim (KJV: "The Lord God".) which caused mountains to quake and a people to become pure in the light of his boding pillar.[11]

9. See his *Moses and Monotheism.*

10. The most elaborate development of this approach is J. Newberry's Oahspe Bible, which neophytes are apt to confuse with the doctrine of extraterrestrialism. Newberry paints a vivid picture of the Kingdom of Heaven, which he proceeds to decorate with a Buck Rogers terminology, highly congenial to the castles-in-the-air approach of religious spiritualism. The motives which led him to the implementation of this device were moralistic: he sought to gain acceptance for his mistaken ideas about the cosmology of Genesis (as gained from the KJV) by trying to make them more attractive to a misdoubting Huxley-ridden generation. Extraterrestrialism leads instead to an open-minded re-evaluation of the Hebrew Bible in the light of Semitic philology. This process tends to remove these books from the area of myth and airy legend, and secure for them a lasting place among the truly important works of our early history. The authors intended their work to be so taken, as is repeatedly made clear; the stigma of moralism and allegory has been imposed on their work only with the rise of official religion in the West, and is not to be found among the early attitudes of any Judaeo-Christian religion.

11. So many Jews were burnt as witches throughout Europe that, such is the mass of data, no work on the subject as a whole has ever been compiled from original sources. There is, however, a study of the situation in Spain by an 18th Century Judaeo-Spanish author, Rav Yosef Al-Moghribi. The Spanish government has published Castillian versions of the famous litanies composed in memory of the martyrs by members of the Spanish Chief Rabbinate.

Readers of this literature will find that esotericism in Jewish theology is hardly an invention of the Medieval rabbis. Indeed, Deuteronomy 29:29 would be discreditable nonsense if this preconception were valid. The verse reads, "The secret things *(nistaroth)* belong unto the Lord Our God; but those things which are revealed belong unto us and our children forever, that we may do all the words of this Law."

The last phrase elucidates the Mosaic attitude towards technology and the higher forms of philosophy: that nothing is of itself irrelevant or anti-religious so long as it is handled with the discretion and social responsibility required by Biblical injunction.

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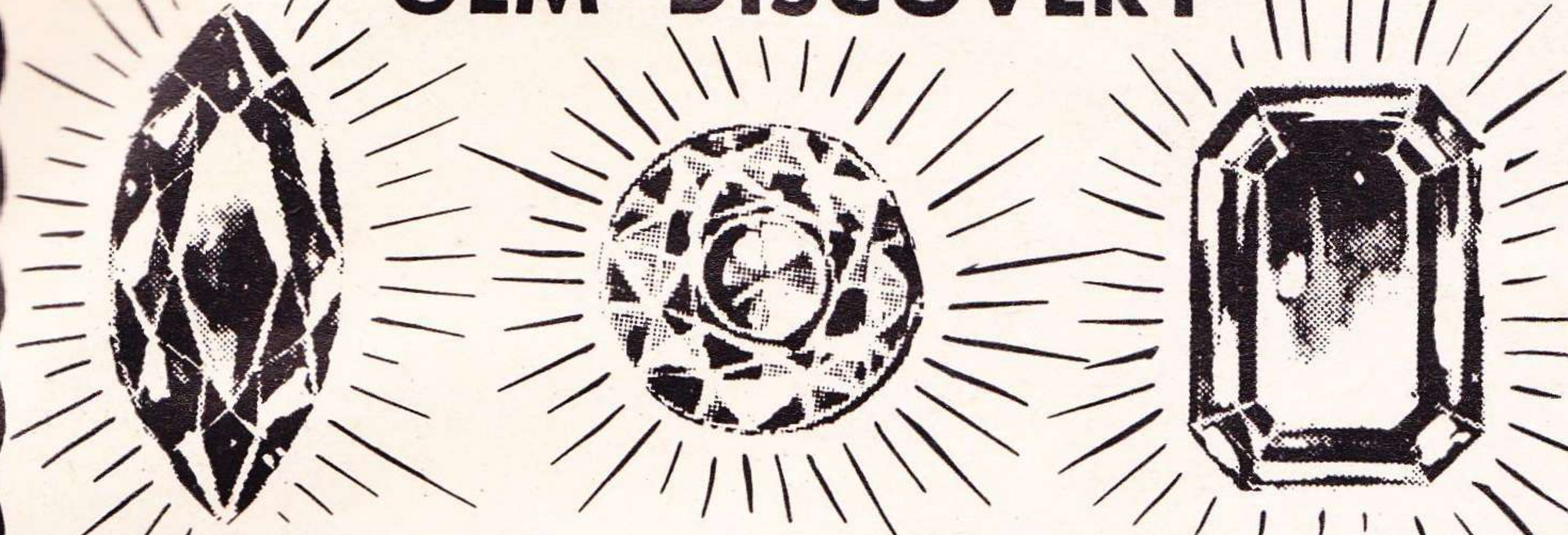

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