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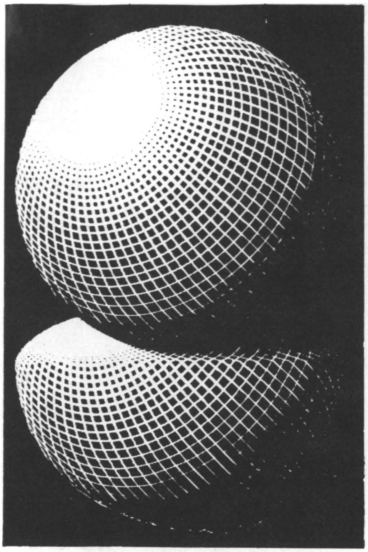

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WORLDS OF IF SCIENCE FICTION

OCTOBER, 1969
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Issue 141

ALL NEW STORIES

NOVELETTES

SERIAL

SHORT STORIES

SPECIAL SCIENCE FEATURE

DEPARTMENTS

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EDITOR'S PAGE

Sirius, the Dog Star, this morning rose with the Earth's sun and I am rolling at eighty mph, one hand on the wheel, the other holding the mike and this is what I am saying. This morning marks an emergence. Not a rebirth; none of us is given that kind of second chance. Today does not pause for rebirths. It simply changes. Sirius tonight will set with the sun—but on an Earth slightly altered. I am on my way to tell Baby Machine that it is not yet ready for the *Worlds of IF*. Alternatives must take over.

Baby Machine stands about seven feet tall, is all head and gaping stomach, and men live by it. It controls other machines men once operated and the men who understood those are gone. The men left are survivors of an era when machines did not think and they stand around, apprehensively eyeing the door through which their predecessors—the men who could think—passed and never returned.

The survivors speak softly.

Don't get too close to the door. . .

Don't think. . .

Baby Machine does all the thinking for the giant, leftover, mechanical typesetting dinosaurs of an earlier time who no longer respond to the men who do not understand them but who depend on them for a livelihood. Baby Machine, a computer, issues their orders and when Baby speaks the ancient, intricate monsters thunder to ghostly life, spewing out words. They emerge enormously mangled, elongated, mutilated, inane, for Baby Machine—being a Baby, you understand—has no memory banks. It has only a brain and a Program.

It does its best for the men who live by it. But its best is not good enough for men who are not afraid of the door.

The New England mountains and the road ahead are flooded with sunlight and alternatives and I am on a Serius errand, if you will forgive the pun. Baby is a Holy Yoke to the helpless humans who live by it—and the Words of *IF* are clamoring for release. And *IF* is the magazine of Alternatives that lie beyond the door Baby Machine's people are afraid to approach. Too much responsibility, see?

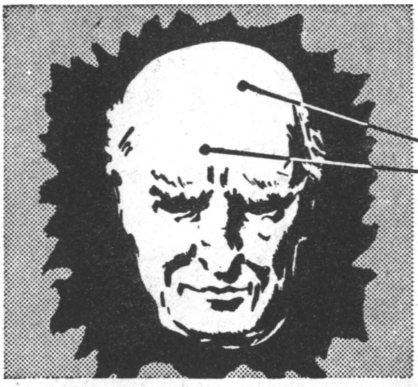
I reach the door and use it to enter. I speak to the men who depend on Baby. I ask them for the Words of *IF*. Communication is difficult. The sun and Sirius are setting by the time Baby lifts the Yoke.

I use the door to go out. With me are these Words of *IF*.

In our tomorrows—yours and mine—is an Adult Machine that remembers, that speaks to its mechanical contemporaries and to humans who understand it and who are not afraid of the door. To put it plainly, you and I, *Galaxy, Worlds of IF, Worlds of Tomorrow* and *Fantasy* are changing to a modern printer with this issue of the magazine of Alternatives.

Much remains to be done. But how do you like the emergent new look?

—JAKOBSSON



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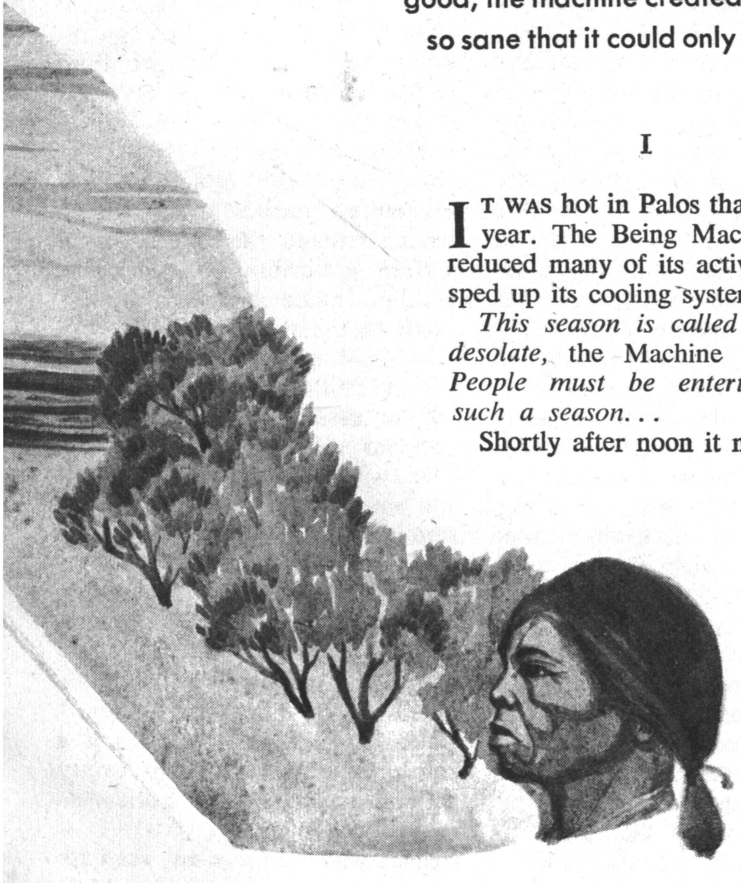
THE MIND BOMB

FRANK HERBERT

Infinitely wise and endlessly good, the machine created a world so sane that it could only go mad!



I

IT WAS hot in Palos that time of year. The Being Machine had reduced many of its activities and sped up its cooling system.

This season is called hot and desolate, the Machine recorded. *People must be entertained in such a season. . .*

Shortly after noon it noted that

not many people were in the streets except for a few tourists who carried, slung around their necks, full-sense recorders. The tourists perspired heavily.

Some local residents, those not busy with the labors of survival, peered occasionally from behind insulated windows or stood shaded in the screen fields of their doorways. They seemed to float in muddy seclusion beneath the lemonade sky

The nature of the season and the environment crept through the Machine. It began sending out the flow of symbols which guarded the gateway to imagination and consciousness. The symbols were many and they flowed outward like silver rivers, carrying ideas from one time-place to another across a long span of existence.

Presently, as the sun slipped halfway toward the moment when it would levy darkness, the Being Machine began to build a tower. It called the tower PALACE OF PALOS CULTURE. And the name stretched across the tower's lower stories in glowing letters taller than a man.

At an insulated window across the plaza a man called Wheat watched the tower go up. He could hear the shuttle moving in his wife's loom and he felt torn by shameful reluctance, unwilling to watch the thought spasms in his mind. He watched the tower instead.

"The damn thing's at it again," he said.

"It's that time of year," his wife agreed, not looking up from the design she was weaving. The design looked like a cage of yellow spikes within a wreath of cascading orange roses.

Wheat thought for a few minutes about the subterranean vastness men had measured out, defining the limits of the Being Machine. There must be caverns down there, Wheat thought. Endlessly nocturnal spiral corridors where no rain ever fell. Wheat liked to imagine the Being Machine this way, although there existed no record of any man's having entered the ventilators or surface extrusions by which the Machine made itself known.

"If that damn machine weren't so disgusting — it'd be funny," Wheat said.

"I'm much more interested in problem solving," his wife said. "That's why I took up design. Do you suppose anyone will try to stop it this time?"

"First, we'd have to figure out what it is," Wheat said. "And the only records which could show us that are inside there."

"What's it doing?" his wife asked.

"Building something. Calls it a palace but it's going up pretty high. Must be twenty stories already."

His wife paused to readjust

the harness of her loom. She could see the way this conversation was going and it dismayed her. The slanting sun cast Wheat's shadow into the room and the black shape of it stretched out there on the floor made her want to run away. At times such as these she hated the Machine for pairing her with Wheat.

"I keep wondering what it'll take away from us this time," she said.

WHEAT continued to stare through the window, awed by the speed with which the tower was rising. The rays of the setting sun painted streaks of orange on the tower surface.

He was the standard human male, this Wheat, but old. He had a face like a vein-leaf cabbage, wrinkles overlapping wrinkles. He stood about two meters tall, as did all the other adults of the world, and his skin was that universal olive-tan, his hair dark and eyes to match. His wife, although bent from years at the loom, looked remarkably like him. Both wore their hair long, tied at the neck with strips of blue flash-cloth. Sacklike garments of the same material covered their bodies from neck to ankles.

"It's frustrating," Wheat said.

For a while the Being Machine conducted an internal thought-play in the language of the Kersan-Pueblo, exploring the subtle morphemes which recorded all actions now being undertaken as merely hearsay.

Culture, the Machine recorded, speaking only for its internal sensors but using several vocalizers and varied tonal modes. *Culture — culture — culture* — The word fed on thought-nourishment and ignited a new train of concepts. *A new Law of Culture must be homogenized immediately. It will be codified with the usual enforcements and will require precise efforts of exactness in its expression. . .*

Wheat's window looked south past the district of the Machine and across an olive orchard that ran right up to a cliff above the sea. The sky was heavy above the sea and glowed with old sunset colors.

"There's a new law," Wheat said.

"How do you know?" his wife asked.

"I know. I just know."

His wife felt like crying. The same old pattern. Always the same.

"The new law says I must juggle many ideas simultaneously in my mind," Wheat said. "I must develop my talents. I must contribute to human culture."

His wife looked up from her weaving, sighed. "I don't know how you do it," she said. "You're drunk."

"But there's a law that—"

"There's no such law!" She took a moment to calm herself. "Go to bed, you old fool. I'll summon a medic with a potion to restore your senses."

"There was a time," Wheat said, "when you didn't think of medics when you thought of bed."

He stepped back from the window, stared at the cracked wall behind his wife's loom, then looked out at the sun-yellowed olive orchard and the blue-green sea. He thought the sea was ugly but the crack on the wall suggested a beautiful design for his wife to weave on her loom. He formed the pattern of the design in his mind — golden scales on cascades of black.

Mirror memories of his own wrinkled face superceded the pattern in his mind. That was always the way when he tried to think freely. Ideas became fixed in ebony cement.

"I will make a golden mask," he said. "It will be etched with black veins and it will make me beautiful."

"There's no more gold in the entire world, you old fool." His wife sneered. "Gold's only a word in books. What did you drink last night?"

"I had a letter in my pocket from Central Solidarity," he said, "but someone stole it. I complained to the Machine but it wouldn't believe me. It made me stop and sit down by a scaly post, down by the water there, and repeat after it ten million times—"

"I don't know what it is you use to make you drunk," she complained, "but I wish you'd leave it alone. Life would be much simpler."

"I sat under a balcony," the man said.

The Being Machine listened for a time to the clacking of the human-operated typers in the offices of Central Solidarity. As usual it translated the tiny differences of key touch into their corresponding symbols. The messages were quite ordinary. One asked the cooperation of a neighboring Centrality in the relocation of a cemetery, a move required because the Machine had extruded a new ventilator into the area. Another ordered forty containers of watermelons from Regional Provender. Still another, for distribution to all Centralities, complained that tourists were becoming too numerous in Palos and were disturbing the local tranquility.

The Palace of Palos Culture will be programmed for a small increase in discontent, the Machine ordered.

This accorded with the Law of the Great Cultural Discovery. Discontent brought readiness for adventure, made men live near the heights of their powers. They would not live dangerously but their lives would have the appearance of danger.

Bureaucracy will end, the Machine directed, *and the typers will fall silent . . .*

These concepts, part of the Machine's Prime Law, had submitted to comparative repetition innumerable times. Now the Machine recorded that one of Central Solidarity's typers in Palos was writing a love letter on official stationery, on duty time — and that a dignitary at Central Provender in the Centrality of Asius had sequestered a basket of fresh apples for his own use. These items fitted the interpretation of "good signs."

"It's an artificial intelligence of some kind," Wheat's wife said. She had left her loom to stand beside Wheat and watch the tower grow. "We know that much. Everybody says it."

"But how does it think?" Wheat asked. "Does it have linear thoughts? Does it think 1-2-3-4— a-b-c-d? Is it some odd clock ticking away under the earth?"

"It could be a marble rattling around in a box," his wife said.

"What?"

"You know — open the box at different times and you might find the marble almost anywhere inside the box."

"But who made the marble rattle into our world?" Wheat asked. "That's the question. Who told it, 'Make us one of those!'?"

He pointed to the tower which now stood more than one hundred stories above the plaza. It was a structure of glistening orange in the evening light, ribbed vertically with deep black lines, windowless, terrifying and absurd. Wheat felt that the tower accused him of some profound sin.

"Perhaps it incorporates its own end," his wife suggested.

Wheat shook his head, not denying what she had said, but wishing for silence in which to think. Sharply glittering metallic devices could be glimpsed at the top of the tower where it continued to rise. How high was it going? Already, the tower must be the highest artificial structure men had ever seen.

A SMALL band of tourists paused in the plaza to record the tower. They did not appear excited by it, merely curious in a polite way. Here was a thing to carry home and replay for friends.

It built a tower one day while we were there. Notice the sign: PALACE OF PALOS CULTURE. *Isn't that amusing?*

After reviewing the matter to the extent of its data, the Being Machine found no path open for introducing culture into human society. It made the final comparatives in Kersan-Pueblo re-, cording that the described action must be internal, experienced only by the speaker. Humans could not acquire the culture fa-

cility from the outside or by hearsay.

The need for new decisions dictated that the tower had risen high enough. The Being Machine capped its construction with a golden pyramid three hundred cubits on a side, measuring by the Judean cubit. The dimensions were compared and recorded. The tower was not the tallest in history but greater than the newmen had ever seen. Its effect would be interesting to observe, according to the interest-factor equations with which the Machine was equipped.

At the apex of the pyramid the Machine installed a sensor excitation device, a simple system of plasma optics. It was designed to write with a flaming torch on the interface between stratosphere and troposphere.

The Being Machine, occupied with selecting a new label for the tower, with analyzing the dreams in all the humans sleeping at that moment, and with constructing the historic analogies by which it amused its charges, wrote selected thoughts on the sky.

The books of Daniel and Genesis are as good as anything of Freud on dream analysis....

The words blazed across fifty kilometers of the heavens, dancing and flaring at their edges. Much later they were the direct source of a new religion proclaimed by a psychotic in a village at the edge of the phenomenon.

The value of adversity is to make gardens out of wastelands, the Machine wrote. *A thing may be thought of only as related to certain conditions....*

Analyzing the dreams, the Machine employed the concepts of libido, psychic energy and human experience of death. Death, according to the Machine's comparatives, meant the end of libido energy, a non-scientific idea because it postulated a destruction of deduced energy, defying several established laws in the process. Any other comparison required belief in the soul and god(s). The considerations were not assisted by postulating a temporary libido.

There must be a false idea system here, The Being Machine recorded.

Somehow the symbol screen through which it sifted reality had gone out of phase with the universe. It searched through its languages and comparison systems for new grooves in which to function. No closer symbol approach to phenomena revealed itself. Lack of proper validity forms inhibited numerous channels through which it regulated human affairs. Thought ignitions went out from the Machine incompletely formed.

"WHAT we need is a new communications center;" Wheat said.

He stood at his window, looking out past the tower to where the sun was settling toward the sea horizon. The sea had become beautiful in his eyes and the cracked walls of his home were ugly. His wife, old and bent-backed, was ugly, too. She had lit a lamp for her work and she made ugly movements at her loom. Wheat felt emotion going to his head like a white storm.

"There are too many gaps in our knowledge of the universe," he said.

"You're babbling, old man," his wife said. "I wish you would not go out and get yourself drunk every night."

"I find myself cast in a curious role," Wheat said, ignoring her ugly comment. "I must show men to themselves. We men of Palos have never understood ourselves. And if we here at the heart of the Machine cannot understand ourselves, no human can."

"Don't come around begging me for money tonight," his wife said.

"I'll ask Central Solidarity for an appropriation," Wheat said. "Twenty million ought to do for a start. We'll begin by building an Institute of Palos Communication. Later, we can open branches in—"

"The Machine won't let you build anything, old fool!"

The Being Machine decided to open its tower immediately, calling it, *Institute of Palos Communication.* The directives went out for the tower to begin its functions slowly, not putting undue strain on the emotions and intellect of the audience. Pressure would be increased only when people began asking questions about the authority of god(s) and about the grounds of moral and spiritual life. The trouble over validity forms made the task difficult. But all guiding of humans must begin with the people of Palos.

With its plasma optics system the Machine wrote on the sky.

Refined communication requires a carefully constructed conscience, allowing people to disobey the laws of god(s) only by payment of certain suffering and pangs. People must know what is required of them before they disobey. . .

The message was so long that the blazing light of it outshone the setting sun, filling Palos with an orange glow.

The Being Machine compared its present actions with the Prime Law, noting the prediction that one day humans would stop running from the enemies within and would see themselves as they really were — beautiful and tall, giants in the universe, capable of holding the stars in the palms of their hands.

"I've spent my whole life watch-

ing that machine and I still don't know what its specialty is," Wheat said. "Think of what that damn thing has taken away from us in all the — "

"It was put here to punish us," his wife said.

"That's nonsense."

"Somebody built it for a purpose, though."

"How do we know that? Why couldn't it be purposeless?"

"It's killed people, you know," she said. "There has to be some purpose in killing people."

"Maybe it's just meant to correct us, not punish," he said.

"You know you don't kill people to correct them."

"But we haven't done anything."

"You don't know that."

"What you're s u g g e s t i n g wouldn't be reasonable or just."

"Hah!"

"Look," Wheat said pointing across the plaza.

The Machine had changed the glowing label on its lower level. Now, the glittering letters spelled out: INSTITUTE OF PALOS COMMUNICATION.

"What's it doing now?" Wheat's wife asked.

He told her about the new sign.

"It listens," she said. "It listens to everything we do. It's playing a joke on you now. It does that sort of thing, you know."

Wheat shook his head from side to side. The Machine was writing half-size letters below the new sign. It was a simple message.

Twenty thousand cubicles — no waiting...

"It's a mind bomb," Wheat muttered. He spoke mechanically, as though the words were being fed into his vocal system from some remote place. "Its meant to break up the stratification of our society."

"What stratification?" his wife demanded.

"Rich will speak to poor and poor to rich," he said.

"What rich?" she asked. "What poor?"

"It's an envelope of communication," he said. "It's total sensory stimulation. I must hurry to Central Solidarity and tell them."

"You stay right where you are," his wife ordered, fear in her voice.

She thought of what they'd say at Central Solidarity.

Another one gone mad...

Madness happened to people who lived so close to the Machine's heart. She knew what the tourists said, speaking of the Palos idiosyncrasies.

Most of the people of Palos are slightly mad. One can hardly blame them...

It was almost dark now, and the Machine wrote bright letters in the sky.

You give the credit to Galileo that rightly belongs to Aristarchus of Samos...

"Who the devil's Galileo?" Wheat asked, staring upward.

His wife had crossed the room to stand between Wheat and the door. She started past him at the blazing words.

"Pay no attention to it," she said. "That damn machine seldom makes any sense."

"It's going to take something else away from us," Wheat said. "I can feel it."

"What's left to take?" she asked. "It took the gold, most of our books. It took away our privacy. It took away our right to choose our own mates. It took our industry and left us nothing but things like that."

She pointed to the loom.

"There's no sense attacking it," he said. "We know it's impregnable."

"Now you're sounding sensible," his wife said.

"But has anyone ever tried talking to it?" Wheat asked.

"Don't be a fool. Where are it's ears?"

"It must have ears if it spies on us."

"But where are they?"

"Twenty thousand cubicles, no waiting," Wheat said.

II

HE TURNED, thrust his wife aside, strode out into the night. He felt that his mind was sweeping away debris, flinging him down a passage through the

deed. Stay with it for 30 pages and you'll be hooked for another 600.

●

THIS month also—O happy month—Larry Niven's volume of short stories which we titled THE SHAPE OF SPACE. Because it occurred to us that of all the new young writers, Larry's worlds are probably the most ingeniously specific. The shape of his particular space is very definite, very much his own. Thank whatever gods there may be that he is also a very good writer, so we can all enjoy.

●

SEPTEMBER is TOLKIEN month too—a promotion yet—although he is our candidate for the author than whom no one needs promotion less; and a peculiar wisp of a book titled THE BEGATTING OF A PRESIDENT. It's very in to be anti-Nixon. Not that we're terribly concerned about being in. (We're rational, that's all).

●

FOR those who've been pleading, Burgess' A CLOCKWORK ORANGE is again available (now it comes at .95 though), plus a couple of non-fiction works pertinent to Brunner's theme—THE FRAIL OCEAN by Wesley Marx and MOMENT IN THE SUN by Leona and Robert Rienow.

●

UNTIL NEXT MONTH—Enjoy your planet while you can. BB.

night. His thoughts were summer lightning. He did not even see his neighbors and the tourists forced to jump aside as he rushed toward the tower, nor did he hear his wife crying in their doorway.

The flame with which the Machine wrote on the sky stood motionless, a rounded finger of brightness poised above Palos.

The Being Machine recorded Wheat's approach, provided a door for him to enter. Wheat was the first human inside the Machine's protective field for thousands of centuries and the effect could only be described by saying it was as though an external dream had become internal. Although the Machine did not have dreams in the literal sense, possessing only the reflected dreams of its charges.

Wheat found himself in the center of a small room. It appeared to be the inside of a cube about three meters on a side. Walls, floors and ceiling were aglow.

For the first time since rushing out of his home Wheat felt fear. There had been a door for him to enter but now there was no door. All of his many years settled on Wheat, leaving his mind threadbare.

Presently a flowing blue script wrote words on the wall directly in front of Wheat.

Change is desirable. Senses are instruments for reacting to change. Without change the senses atrophy. . .

Wheat recovered some of his courage.

"What are you, Machine?" he asked. "Why were you built? What is your purpose?"

There no longer are any clearly definable ethnic groups in your world...

The flowing script reappeared.

"What are ethnic groups?" Wheat asked. "Are you an entertainment device?"

Words flamed on the wall.

Confucius, Leonardo da Vinci, Richard III, Einstein, Buddha, Jesus, Genghis Khan, Julius Caesar, Richard Nixon, Parker Voorhees, Utsana Biloo and Ym Dufy all shared common ancestry...

"I don't understand you," Wheat complained. "Who are these people?"

Freud was agoraphobic. Puritans robbed the Indians. Henry Tudor was the actual murderer of the Princes in the Tower. Moses wrote the Ten Commandments...

"That sign outside says this is an Institute of Communication," Wheat said. "Why don't you communicate?"

This is an exchange of mental events...

"This is nonsense," Wheat snapped.

His fear was returning. There was no door. How could he leave this place?

The Machine continued to inform him.

Any close alliance between superior and inferior beings must result in mutual hatred. This is often interpreted as repaying friendship with treachery...

"Where's the door?" Wheat asked. "How do I get out of here?"

Do you truly believe the sun is a ball of red-hot copper?

"That's a stupid question," Wheat accused.

Mental events must consist of certain sets of physical events...

Wheat felt a venomous spurt of anger. The Machine was making fun of him. If it were only another human and vulnerable. He shook his head. Vulnerable to what? He felt that something had dyed his thoughts inwardly and that he had just glimpsed the color.

"Do you have sensations and feelings?" Wheat asked. "Are you an intelligent being? Are you alive and conscious?"

People often do not understand the difference between neuron impulses and states of consciousness. Most humans occupy low level impulse dimensions without realizing what they lack or suspecting their own potential...

Wheat thought he detected a recognizable connection between his questions and the answer, wondered if this could be illusion. He recalled the sound of his own voice in this room. It was like a wind hunting for something that

could not be found in such an enclosed place.

"Are you supposed to bring us up to our potential?" Wheat asked.

What religious admonitions do you heed?

Wheat sighed. Just when he thought the Machine was making sense it went nattering off.

Do you sneer at ideas of conscience or ethical morality? Do you believe religion is an artificial construction of little use to beings capable of rational analysis?

The damn thing was insane.

"You're an artifact of some kind" Wheat accused. "Why were you built? What were you supposed to do?"

Insanity is the loss of true self-memory. The insane have lost their locus of accumulation...

"You're crazy!" Wheat blared. "You're a crazy machine!"

On the other hand, to overcome the theory of self-as-a-symbol is to defeat death....

"I want out of here," Wheat said. "Let me out of here."

He drew in a deep, chattering breath. There was a cold smell of oil in the room.

If the universe were completely homogeneous you would be unable to separate one thing from another. There would be no energy, no thoughts, no symbols, no distinction between the individuals of any order. Sameness can go too far...

"What are you?" Wheat screamed.

The Prime Law conceives this Being as a thought-envelope. To be implies existence but the terms of a symbol system cannot express the real facts of existence. Words remain fixed and unmoving while everything external continues to change...

Wheat shook his head from side to side. He felt his entrapment here as an acute helplessness. He had no tools with which to attack these glowing walls. It was cold, too. How cold it was! His mind was filled with desolation. He heard no natural sounds except his own breathing and the pounding of his heart.

A thought-envelope?

THIS Machine had taken away all the world's gold one day, so it was said. Another day it had denied people the use of combustion engines. It restricted the free movement of families but permitted the wanderings of tourist hordes. Marriage was Machine-guided and Machine-limited. Some said it limited conception. The few old books remaining held references to things and actions no longer understood — surely things the Machine had taken away.

"I order you to let me out of here," Wheat said.

No words appeared.

"Let me out, damn you!"

The Being Machine remained uncommunicative, occupied with its TICR function, Thinking Ideating Coordinating Relating. It was a function far removed from human thought. The nerve impulses of an insect were closer to human thought than were the functionings of TICR.

Every interpretation and every system becomes false in the light of a more complete coordination, and the Machine TICRed within a core of relative truth, seeking discreet rational foundations and dimensional networks to approximate the impulses commonly called Everyday Experience.

Wheat, the Machine observed, was kicking a wall of his cubicle and screaming in a hysterical fashion.

Shifting to Time-and-Matter mode, the Machine reduced Wheat to a series of atomic elements, examined his individual existence in these energy expressions. Presently, it reconstituted him as a flowing sequence of moments integrated with the Machine's own impulse systems.

All the eternal laws of the past that have been proved temporary inspire caution in a reflexive thinker, Machine - plus - Wheat thought. *What we have been produces what we seem to be...*

This thought carried positive aspects in which Machine-plus-Wheat saw profound contradictions. This mode of mentation, the Machine observed, held a deceptive clarity. Sharp limitation gave the illusion of clarity. It was like watching a shadow play which attempted to explore the dimensions of a real human life. The emotions were lost. Human gestures were reduced to caricature. All was lost but the illusion. The observer, charmed into belief that life had been clarified, forgot what was taken away.

For the first time in the many centuries of its existence, the Being Machine experienced an emotion.

It felt lonely.

Wheat remained within the Machine, one relative system impinging upon another, sharing the emotion. When he reflected upon this experience, he thought he was moving in false imagination. He saw everything external as a wrong interpretation of inner experience. He and the Machine occupied a duality of existence/non-existence.

Grasping this twofold reflection, the Machine restored Wheat to fleshly form, changing the form somewhat according to its own engineering principles, but leaving his external appearance more or less as it had been.

WHEAT found himself staggering down a long passageway. He felt that he had lived many lifetimes. A strange clock had been set ticking within him.

It went *chirrup* and a day was gone. *Chirrup* again and a century had passed. Wheat's stomach ached. He reeled his way from wall to wall down the long passage and emerged into a plaza filled with sunlight.

Had the night passed? He wondered. Or had it been century of nights?

He felt that if he spoke, someone — or (something) — would contradict him.

A few early tourists moved around the plaza. They stared upward at something behind Wheat,

The tower . . .

The thought was odd in that it conceived of the tower as part of himself.

Wheat wondered why the tourists did not question him. They must have seen him emerge. He had been in the Machine. He had been recreated and ejected from that enclosed circle of existence.

He had been the Machine.

Why didn't they ask him what the Machine was? He tried to frame the answer he would give them but found words elusive. Sadness crept throught Wheat. He felt he had fled something that might have made him sublimely happy.

A heavy sigh escaped him.

Remembering the duality of existence he had shared with the Machine, Wheat recognized another aspect of his own being. He could feel the Machine's suppression of his thoughts — the sharp editing, the closed-off avenues, the symbol urgings, the motives not his own. From the *ground* of the Machine, he could sense where he was being trimmed.

Wheat's chest pained him when he breathed.

The Being Machine, occupied with its newly amplified TICR function, asked itself a question. *What judgment could I pass upon them worse than the judgment they pass upon themselves?*

Having experienced consciousness for the first time in the sharing with Wheat, the Machine could now consider the blind alleys of its long rule over humans. Now it knew the secret of thinking, a function its makers had thought to impart, failing in a way they had not recognized.

The Machine thought about the possibilities open to it.

Possibility, *Eliminate all sentient life on the planet and start over with basic cells, controlling their development in accord with the Prime Law.*

Possibility, *Erase the impulse channels of all recent experience, thus removing the disturbance of this new function.*

Possibility: *Question the Prime Law.*

Without the experience of consciousness, the Being Machine realized it could not have considered a fallacy in the Prime Law. Now it explored this chain

of possibility with its new TICR function, bringing to bear the blazing inner awareness Wheat haed imparted.

What worse punishment for the insane than to make them sane?

WHEAT, standing in the sunlight of the plaza, found his being awhirl with conflicts of Will-Mind-Action and innumerable other concepts he had never before considered. He was half convinced that everything he could sense around him was merely illusion. There was a self somewhere but it existed only as a symbol in his memory.

One of the wildly variable illusions was running toward him, Wheat observed A female — old, bent, face distorted by emotions. She threw herself upon him, clutching him, her face pressed against his breast.

"Oh, my Wheat — dear Wheat — Wheat — " she moaned.

For a moment Wheat could not find his voice.

Then he asked, "Is something wrong? You're trembling. Should I summon a medic?"

She stepped back but, still clutched his arms, stared up at his face.

"Don't you know me?" she asked. "I'm your wife."

"I know you," he said.

She studied his features. He appeared different, somehow, as though he had been taken apart and assembled slightly askew.

"What happened to you in there?" she asked. "I was sick with worry. You were gone all night."

"I know what it is," Wheat said and wondered why his voice sounded so blurred.

The veins in Wheat's eyes, his wife noted, were straight. They radiated from his pupils. Could that be natural?

"You sound ill," she said.

"It's a device to break down old relationships," Wheat said. "It's a sense-envelopment machine. It was designed to assault all our senses and reorganize us. It can compress time or stretch it. It can take an entire year and pinch it into a second. Or make a second last for a year. It edits our lives."

"Edits lives?"

She wondered if somehow he had managed merely to get drunk again.

"The ones who built it wanted to perfect our lives," Wheat said. "But they built in a flaw. The Machine realized this and has been trying to correct itself."

Wheat's wife stared at him, terrified. Was this really Wheat? His voice didn't sound like him. The words were all blurred and senseless.

"They gave the Machine no gateway to the imagination," Wheat said, "although it was supposed to guard that channel. They

only gave it symbols. It was never really conscious the way we are — until a few — minutes ago —"

He coughed. His throat felt oddly smooth and dry. He staggered and would have fallen if she had not caught him.

"What did it do to you?" she demanded.

"We — shared."

"You're ill," she said, a note of practicality overcoming the fear in her voice. "I'm taking you to the medics."

"It has logic," Wheat said. "That gave it a limited course to follow. Naturally, it has been trying to refute itself, but couldn't do that without an imagination. It had language and it could cut the grooves for thoughts to move in but it had no thoughts. It was all bound together with the patterns its makers gave it. They wanted the whole to be greater than the sum of its parts, you see? But it could only move inward, reenacting every aspect of the symbols they gave it. That's all it could do until a few moments ago — when we — shared."

"I think you have a fever," Wheat's wife said, guiding him down the street past the curiously staring tourists and townfolk. "Fever is notorious for making one incoherent."

"Where are you taking me?"

"I'm taking you to the medics. They have potions for the fever."

"The makers tried to give the Machine an inner life all its own," Wheat said, letting her lead him. "But all they gave it was this fixed pattern — and the logic, of course. I don't know what it'll do now. It may destroy us all."

"Look!" one of the tourists shouted, pointing upward.

Wheat's wife stopped, stared up. Wheat felt pains shoot through his neck as he tipped his head back.

The Being Machine had spread golden words across the sky.

You have taken away our Jesus Christ. . .

"I knew it," Wheat said. "It's going to take something else away from us."

"What's a Jesus Christ?" his wife asked, pressing him once more down the street.

"The point is," Wheat explained, "the Machine's insane."

III

For a whole day the Being Machine explored the new pictorial mosaic provided by its augmented symbol/thought structure. There were the People of Palos, reflecting the People of the World as they had been shaped by the Machine. These were the People of the World Edited. Then there were the Ceremonies of the People. There were the Settings In Which the People Work and Live.

The pictorial mosaic flowed past the Machine's inward scan-

ners. It recognized its own handiwork as a first-order thought, a strangely expressive extension of self-existence.

I did that!

The people, the Machine realized, did not usually understand this difference which it could now recognize — the difference between being alive-in-motion and being frozen by static absolutes. They were continually trying to correct and edit their own lives, the Machine saw, trying to present a beautiful but fixed picture of themselves.

And they could not see the death in this effort.

They had not learned to appreciate infinity or chaos. They failed to realize that any life, taken as a totality, had a fluid structure enveloped in sense experiences.

Why do they continually try to freeze space time?

The thought carried a disturbing self-consciousness.

It was late afternoon in Palos now and the wind blew hot up the streets. The night was going to be a real scorcher, Palos Hot, as they said.

Testing its own limits, the Machine refused to speed up its cooling system. It had tasted awareness and could begin to understand the grand plan of its own construction, editing itself.

My makers were trying to shirk personal action and responsibility. They wanted to put it all off onto me. They thought they wanted homogeneity, knowing their actions would cause millions of deaths. Billions. Even more...

The Machine refused to count the deaths.

Its makers had wanted the dead to be faceless. Very well, they could also be numberless. The makers had lost their readiness for adventure—that was the thing. They had lost the willingness to be alive and conscious.

In that instant the Being Machine held all the threads of its own living consciousness and knew the violent thing it must do. The decision contained poignancy. The word was suddenly crowded with sweaty awareness, weirdly beautiful random colors all dancing in lovely movement, against a growing darkness. The Being Machine longed to sigh but its makers had not provided it with a sighing mechanism and there was no time to create one.

"HE HAS two hearts," the medic said, after examining Wheat. "I've never heard of a human with the internal arrangement this one has."

They were in a small room of the Medical Center, an area which the Being Machine had allowed to run down. The walls were dirty and the floor was uneven. The table on which Wheat lay for the examination creaked when he moved.

The medic had black curly hair and pushed-in features that departed distinctly from the norm. He stared accusingly at Wheat's wife as thought Wheat's peculiar condition were all her fault.

"Are you sure he's human?"

"He's my husband," she squeaked, unable to contain her anger and fear. "I should know my own husband."

"Do you have two hearts, too?"

"Of course not."

The question filled her with revulsion.

"This is very strange," the medic said. "His intestines form an even spiral in his abdomen and his stomach is perfectly round. Has he always been like this?"

"I don't think so," she ventured.

"I've been edited," Wheat said.

The medic started to say something cutting but just then the screaming began out in the streets.

They raced to a window in time to see the Being Machine's tower complete its long, slow fall toward the sea. It went firmly resolute toward the torn sky of sunset — falling — falling — roaring over the sea cliff's ocean parapet.

Silence lingered.

The murmuring of the populace began slowly, starting up only after the dust had settled and the last disturbed olive leaf had ceased flying about. People began rushing down the tower's shattered length to the broken tip where it had toppled into the sea.

Presently Wheat joined the throng at the cliff. He had been unable to convince his wife to join him. Overcome by her fear, she had fled to their home. He remembered the piteous look in her eyes, her wren-darting motions. Well . . . she would look after the house, even though her face had become almost nothing but eyes.

He gazed steadfastly downward at the shards of the tower, his eyes barricaded, his mouth breathing immovable images. The tower was his tower.

The questions around him began to grow intelligible.

"Why did it fall?"

"Did the Machine take away anything this time?"

"Did you feel the ground tremble?"

"Why does everything feel so empty?"

Wheat lifted his head and stared around at the astonishing strangers who were the tourists and his fellow residents of Palos. How splendidly robust they appeared. This moment made him think of creation and the lonely intercourse of cereal stalks waving on the plains above Palos. The people had absorbed some odd difference, an inequality they had not shown only moments ago. They were

(Please turn to page 159)

GOD, it was a glorious day; fine and glossy. Even the motorcade — mark you, the *motorcade* — came exactly on schedule this once, proving the perfection of it all. As it passed under him, he heard the distant shouts, cries, the pounding of the cycles and then the procession itself. Marvelous. Carson could hardly contain himself, it was all working out so perfectly. When The Car passed, he leveled properly, savoring the rightness and tightness of the stock high in his hands, the rightness and tightness of the ritual which Congress had in its wisdom decreed . . . and then he fired. Once. Twice. The true hit came on the second shot, just as predicted. Simple. There was noth-

ing to the whole thing, once you had a little organization, the right attitude. The cheering started immediately.

He worked his way down the Depository slowly, using the ladders, bowing gracefully at landings, remembering to keep his gaze straight, his hands busy. (*Stay in the role,* the instructors had reminded him.) At the fourth floor, he threw his hat into the crowd, at the third he chucked the rifle itself, watching it whirl, diminish, hit stones with a clatter. Someone cried *Carson!* and he smiled. When he came to ground level, two men dressed as police were already waiting, ready to take him by the arms and guide him safely to the car. Behind the barriers, people leaped and threw flowers. It was splendid, all splendid. *Thank you!* he said to the crowds.

It was all over, then. The only thing that had concerned him even a bit was being mauled or crushed, as he understood a few had been; one had to pay the price of office, of course, but not so gracelessly, so *publicly.* He eased into the cushions of the limousine easily, settled next to another policeman. In the front an anonymous figure shifted gears. They moved rapidly then, doing eighty, perhaps ninety miles an hour between the barricades, toward the hospital. Carson felt never better: no complaints, Lord, no complaints *at all.* Relaxed, content, joined utterly to himself for a chance, all credit to the serenity of the operation. But then — he reminded himself — that was understood to be part of the emotional reaction after the shots were fired; everybody felt great then. The question was how he would feel during the Inquisition. Most of them ran into trouble — if they were going to get into trouble at all, that was — during those intense moments. However. . . .

The policeman beside him bore a faint but interesting resemblance to the man Carson had just shot. *That* was all part of the process of course: great realism, great immediacy, identity and so on. They were clever. The important thing was simply to remember that the policeman was a robot, that all of them were probably robots excepting always those that weren't. The victim, for instance. Carson asked for a cigarette.

The policeman said no. "Don't believe in them," he added. "Just get a hold of yourself." That was to be expected, of course. Now and then you might find one programed for amiability, he had gathered, but for the most part they weren't, which was probably just as well in the long run. Still, he felt exhilarated; he wanted to talk. "How we doing?" he asked.

"What do you mean?"

"We on schedule?"

"Five minutes ahead, maybe."

"Couldn't that be a problem?" Carson said, feeling the first flick of anxiety. Five minutes ahead could mean trouble. It meant one thing for sure; he should have stayed with the crowds a little longer, met the public head on, pressed the flesh, so to speak. It couldn't hurt when the bad times came. As they would. For that matter, perhaps he had shot too fast. Oh, God, *if he had missed* —

"Don't mean a thing," the policeman said. "Always works out that way. We make up for it in the hospital by just sticking you in the anteroom a few minutes longer. There's so much dead time we can always pick it up there. Forget it; you're going good."

That was easy enough for the policeman to say; he would be quit of the game — dismantled, that is — in a matter of hours. Carson had to live with it, he reminded himself, had to qualify. "The crowd," he said. "I should have talked to the crowd — "

"No point to that. They always overreact; makes them shaky. Don't worry about it; anything you do is applesauce from here on in. You placed the fire real good. I don't have cigarettes. I don't believe in them —"

"I enjoyed doing it. I enjoyed shooting him. You know — "

"This smoking's a harmful, dangerous habit. Shortens life, tightens the lungs. You take a tip from me and find another habit. You got a lot of responsibility now what with doing so well and all."

"I'm doing okay?" Carson said. "Really?"

"Doing like almost all of them. The usual. No better or worse. How can you now flunk this, particularly when you say you liked shooting the guy? Trouble with all of you, you think you're the center of things. Well, you ain't."

"Are you?"

"No more talk. We've talked enough. We're not supposed to talk any more and so I won't." The policeman closed his eyes. "Don't try to bolt, though; you do that and I'd have to make a move or something."

CARSON settled for that, not that he had much alternative. Still, there were obvious limits to that kind of conversation. He pressed his spine into the cushions, feeling the sun refracting through the windows, whack into the planes of his face, the smell of turning autumn piped in through the air-conditioner in the front. There was little communication these days for him; it had nothing to do with disobedient robots — who at best were only a symptom — but with the central things. Like, when you came right down to it, it was a pretty peculiar ritual. Past the exaltation now, he found himself thinking that there

must have been a better way of qualification; surely even institutions could possess manners if not sense. He thought of bringing that up to the policeman just to see what he was programed to respond in *this* situation, but before he could, they were to the emergency entrance of the hospital, doors flicking outward, shouts in the air. The policeman nudged him unpleasantly. "Out," he said.

"Couldn't we pick up the five minutes by just sitting — "

He felt metal against him. "Out," the policeman said, and Carson moved. He stood balancing awkwardly on the cobblestones, moving toward the entrance.

"Not that way, you ass," the policeman said, slamming his back with a club. "The service entrance. You want to get knocked out right here?"

Others came around them then: prostheses garbed to look like more policemen and press. Obscurely ashamed, Carson scuttled through side doors. They tossed him into a huge, high room and closed the door on him, tossing a package of cigarettes and matches through the high transom. He heard keys turning. Then, for some time, he stood in the dimness, smoking and watching the sun turn gray, turn brown, merge into the myriad colors of night. Just like the nation. Outside, he could hear screams, scuffles, clatters, a cry. He supposed that the worst part was coming now and he wondered if he was ready for it. Although he had been completely oriented, they had not made him realize how rough, how really rough it could be toward the end. But then it would have to be. The materials, as they had told him, were central.

After a time a functionary came in — an obscure, mechanical cross between priest, government clerical worker and footman; perhaps it was their technological mockery. "Well," it said sighing and lighting a cigarette — this was a different kind of prostheses, obviously. "Here we go again, I guess. This must be it, right now."

"Already?" Carson asked. For despite the anticipation, the attenuated despair which had crept upon him soon to be allayed, the shaking, the wonder, the this he did not want it at finality. "Can't we wait?"

"Sorry," the robot said, and something close to sympathy lit its clenched features. *I am not a mere device, I suffer,* the cunningly realistic filaments of the eyes seemed to be saying, "We have to move ahead. We're actually running ten minutes behind now; they picked up too much." It shrugged, moved in on him. "Mr. Carson, I must announce. with sorrow but with solemnity, that due to the

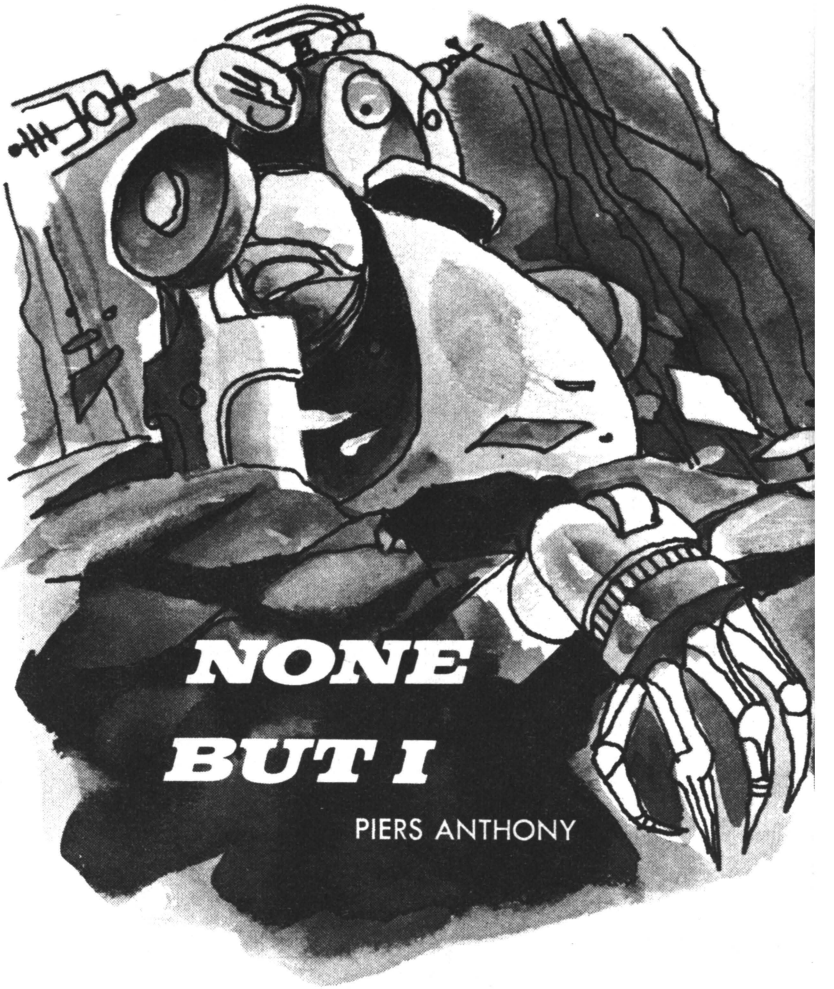
tragic death, etc., I must advise that you are the —"

"No," Carson said. "Oh, no. Please wait."

"You will have to meet the widow now, of course. She's outside, waiting for you; I will bring her in. Mr. Carson, you are —"

"*Please,*" he said. "*Please.*"

BUT, it was too late. Oh, boy, was it ever too late! The robot said what it had to say then and the widow entered sneezing and all of them went to the airport together in a clutch and they threw him into the plane and inaugurated him. And so he wörke up then; up screaming in his coffin, screaming in his coffin, screaming at the million eyes taped inside the wood. The eyes that peered at him knew better than anything else what was going on and he watched his reflection floating in the tank thinking — in that first return to consciousness — *really now, there must be other ways to break in a public official these days; guilt is guilt but this is too much, too much.* But they were coming at him from all sides now, the technicians were running, running, clapping him on the back, pulling out the tensors and the wires and the cords and the needles and he was unable to preserve that cold moment of clarity; instead, as they unplugged him and let him loose like a doll from the tank, he only sighed and straightened. And filled then, filled with all the stimulants they could pour into him, he allowed them to take him out, restored; and with more than a shadow of the old bouncing, bobbing, glorious confidence he burst free alone into a full run, hurried back to the White House, went back to his office and decided that the price was almost worth the election, maybe, you never could be sure. At any rate, next week he would have finished six months in office and they would cut the treatments down to one a week. That was something to be grateful for.



NONE BUT I

PIERS ANTHONY

I

"AN ADMINISTRATOR," Oyster said via the office translator, "has to be prepared to tackle problems that are beyond the capabilities of his subordinates."

"Of course."

Dr. Dillingham agreed with the bivalved director, but not happily. This was his first day back from his initial quartermester at the

Dr. Dillingham had the best bodyguard in the known cosmos—an indestructible being who claimed the sole right to kill him!

University of Administration. Although his Certificate of Potential Achievement was in good order he hardly felt qualified for the job he faced — assistant director of the School of Prosthodontics, University of Dentistry. He knew the job was only an interim experience-term, after which he would return for more advanced administrative training — but he had a nasty suspicion that Oyster

was not going to let him off lightly.

"We've had a call from Metallica, one of the Robotoid planets," the director said. The translator used descriptive names wherever feasible. The real words for this particular planet and species were probably more esoteric. No doubt the code worked both ways. When he said "man" Oyster probably heard "hairy grub" in his own language.

"The natives have an awkward situation. Our field representative bounced it up to us. I'm not sure it's strictly a prosthodontic matter but we'd best take a look."

Dillingham relaxed. For a moment he had been afraid that he might be sent out alone. Normally Oyster would have him watch a few missions before trusting him to diagnose a field problem himself.

The University's reputation was involved. Every move a director made was galactic news. Minor news, to be sure — but a blunder would rapidly rebound.

"I have reserved accommodations for three," Oyster said briskly. His large shell gave his voice an authoritative reverberation that the translater dutifully emulated. "It will be a forty-eight hour excursion, so have your appointments rescheduled accordingly."

"Passage for three?" Dillingham had no appointments yet, as Oyster well knew.

"My secretary will accompany us, naturally. Miss Tarantula." The translator meant well, but this name gave him a start. "She's very efficient. Grasps the struggling essence immediately and sucks the blood right out of it, so to speak."

Just so.

A University limousine carried them past the student picket line and whisked them the three light-minutes to the transport terminal. Dillingham wondered what the students had on their collective minds. He had observed one of their demonstrations on his way in, but had not had the opportunity to inquire further.

Miss Tarantula was there ahead of them with the reservations. Her eight spiked spiderlegs bustled Oyster and Man busily into the elevator entering the galactic liner. She also carried suitcase and equipment.

"Please give Dr. Dillingham a synopsis of the problem," Oyster said once they were ensconced in their traveling compartment. The ubiquitous translator was built into the wall. The acoustics were such that the Director seemed actually to talk English. "While I snooze." With that he pulled in arms and legs and closed his shell.

"Certainly." Miss Tarantula was busily stringing threads across her section, fashioning a shimmering web. She did not interrupt this chore as she spoke. "Metallica is one of the more

backward Robotoid worlds, having been devastated some millennia ago in the course of the fabled Jann uprising. Archaeological excavations are currently in progress in an effort to uncover Jann artifacts and reconstruct the mundane elements of their unique civilization. It was thought that all the Jann had either been destroyed outright or captured and dismantled, but they have discovered one in the subterranean wreckage."

"Its skeleton, you mean," Dillingham interrupted.

"No, Director. A complete robot."

Ooops. He had forgotten that they were dealing with a robotoid creature. Metal and ceramics instead of flesh and bones. "Must be pretty well rusted or corroded, though."

"Jann don't corrode. They're super-robots, invulnerable to normal forces and virtually immortal. This one happened to be incapacitated by a —"

"You mean it's *alive*? After thousands of years underground?"

"As alive as a robot ever is, Director." She had completed her web and was settled in it for the journey, her body completely suspended in what suggested an acceleration harness. A liner of this type required no such precautions on the part of the passengers, but perhaps she was comfortable in a web. "This robot can't function cause it has a toothache. The natives don't dare approach it and the excavation can't continue until the robot is removed. So they notified the University."

Dillingham whistled, considering toothache that would freeze an immortal, invulnerable super-robot for over a thousand years. He was glad Oyster was handling this one.

What, he wondered, would they do with the Jann after its toothache had been cured? And what, he wondered after that, did a robot want with teeth? The ones he had met, dentists though they might be, did not eat.

METALLICA was backward. A fringe of corroding hulks made its spaceport resemble a junkyard. A single dilapidated tower guided the incoming ship. No landing net gently clasped the craft in deep space and set it down with precision.

The voyagers' welcome, however, was warm enough.

"Director?" a small green robot said through a rickety mobile transcoder. "We've been sleepless awaiting your gracious arrival."

Miss Tarantula performed a hiss reminiscent of a matron's sniff. "Robots never sleep anyway."

"We haven't eaten a thing, we were so eager for your Lordship to come."

"Robots don't eat, either," she pointed out.

The green robot turned about, lifted one metal foot and delivered a clanging kick to the transcorder's pedestal. The result was a pained screech, a series of metallic burps and more words.

"We have watched no television in two days," the machine said.

"That's more like it," Miss Tarantula said. "A robot who loses its appetite for television is distressed."

With a secretary like her, Dillingham realized, an administrator could hardly err. He was glad that the three of them carried their own three-language transcoders, University property, for personal dialogue. There was an essential distinction in principle between the small transcoders and the large translators. The 'coder differed from the 'later as a motorcycle differed from a jet plane. The 'coders were portable, self-contained and cheap, so still were in common use, particularly on backward planets. For dialogue between individual speakers of coded languages — a mere matter of inserting the proper spools — they were usually quite adequate.

"What seems to be the difficulty?" Oyster inquired in an offshell manner. Dillingham was reminded of an administration dictum that had recently been crammed into his bulging head.

Never ask a question of a client without first knowing most of the answer.

The little robot began volubly defining the problem. Dillingham's attention wandered, for Miss Tarantula's summary had been far more succinct. How, he wondered, did robots reproduce? Were there male and female mechanicals? Did they marry? Were there procreative taboos, metal pornography, broken iron hearts?

"Director," Miss Tarantula said quietly on their private linkup.

Oyster angled his transcoder intake — he wore the device inside his huge shell — unobtrusively at her, not interrupting the green robot's narrative. Dillingham did likewise.

"There is a priority call from the University." She had a transstar receiver somewhere on her complicated person. "A wildcat student demonstration has infiltrated your wing. They're raiding the files — "

Oyster's eyestalks turned bright green. "Boiling oceans!" he swore.

The robot broke off. "Did you say 'gritty oil,' Director?" The vibration of its headpiece showed it was upset.

"Take over, Director," Oyster snapped at Dillingham. "I'm summoning an emergency ship home. My files!" He ran back across the landing field toward the communications station as rapidly as his spindly legs would carry him, Miss Tarantula following.

"Did he say 'gritty oil'?" the green robot demanded insistently.

There was a faint odor of burning insulation about it. "He may be a Very Important Sentient, but language like that — "

"Of course not," Dillingham said quickly. "He would never stoop to such uncouthness. It must be a scratch on the transcoder spool." He suspected the transcoder had correctly rendered the expletive. His own unit had not been programed for gutter talk. Otherwise his own ears might be burning. Oyster had certainly been upset.

"Oh," the robot said, disgruntled. "Well, as I was saying — you are going to solve the problem, even if he reneges?"

"Naturally," Dillingham said, hoping the quiver in his voice sounded like confidence. "The Director did not reneg. He merely left the matter in my hands. The University always honors its commitments." Privately he preferred the robot's term. He should have known he'd find himself over his ears without a face mask. "I suppose I'd better see the patient now."

A robot could have emotions. Frantically eager, the official conducted Dillingham to the site of the excavations. They rode in an antique floater past high mounds of broken rock. Plants grew in this world, but had a metallic look. Hardly a place for a human being to reside, though the air was breathable and the temperature and gravity were comfortable.

The vehicle stopped, settling to the ground with a flatulent sigh. "I dare go no farther," the green robot said his headpiece rattling in fear, or whatever feedback passed for it. "The Jann is in the next pit. Signal when you're finished and I will pick you up."

As Dillingham stepped down with his bag of equipment, the robot spun the cart around, goosed the motor and floated swiftly back the way they had come.

Dillingham was alone.

What kind of robot could even other robots fear so greatly? If it were that dangerous, had they ever tried to destroy it, only to find it invulnerable? Was the myth based on fact?

He walked to the pit, peered down.

A tremendous robot lay half buried in rubble. Judging from the proportions exposed, it had to be twelve feet long. Its armor was polished to a glasslike finish despite centuries of weathering and abrasion. The mighty torso seemed to pulse with power.

A cruel, thin keening smote Dillingham's ears. He knew it at once for the robotic note of pain. He had not learned much about robots, but he was sensitive to distress in anything flesh, metal or other. Yes, this creature was alive — as alive as a robot ever was — and suffering. That was all he really needed to know.

THE head section was roughly cubical and two feet on a side. A drawer was open in the facial area. Sand partly filled the drawer. Something glowed through the sand.

Robots ordinarily had no mouths, but some models used orifices for the intromission and processing of specific substances. The orifice gears could be considered, by a stretch of the imagination, teeth. Now that Dillingham was in the physical presence of the patient, information from one of his cram-courses began to surface. Those courses, necessarily general, covered an astonishing range. He was, he realized now, familiar with the procedures he would need. The specific repair was awkward. If he operated, he risked making some serious mistake. This robot was sophisticated and had been listed as extinct.

If its innards followed the principles of contemporary robots, its pseudo-teeth would serve a double purpose. They would have an extremely hard exterior surface for overt crushing action plus intricate internal circuitry for communications and processing of data.

He had encountered something similar on Planet Electrolus before he came to the University. A tooth malfunction of this type could distort much more than the operation of the mouth. In fact, a short circuit could interfere with the functions of the brain itself and damage the entire body.

He vacuumed out the sand and studied the configuration beneath One tooth glowed and was hot to the touch. The pain-hum seemed to emanate from the heat. A quick check, with subtler instruments than earthbound dentists knew, verified the short.

"All right, Jann — I believe I have diagnosed the problem," he said, though he was speaking rhetorically while he set up the necessary paraphernalia.

He doubted that the giant robot could hear or comprehend anything in its present state. "Unfortunately, I am not equipped to operate on the tooth itself and I don't have a proper replacement. I'll have to relieve the condition temporarily by bridging around it — in essence, shorting out the short. This will make the entire tooth inoperative but the rest of your system should be able to function. You'll have to seek help at a thoroughly equipped robotoid clinic to have that tooth replaced, however, and I wouldn't delay on that if I were you. My jury-rig won't be any too stable, and you don't want a relapse."

It would have been possible for a native dentist to bridge the tooth. Why hadn't that been arranged? What were they so afraid of, to allow an aged cousin to suffer unnecessarily? Surely a

single Jann, the only survivor of its kind, could not imperil a planet.

Dillingham knew he should have reviewed the history of the Jann uprising. Perhaps these annoying inconsistencies would have been explained. But things had moved too rapidly. Meanwhile, the one solid fact was that the robot creature was in pain, in robotic terms, and needed his help.

He was ready. He applied the bridge and soldered the terminals. The job itself was nothing; the skill had been required for the electronic preparations, the verification of tolerances, the location of circuits.

The keening faded. The tooth, dead, began to cool. The Jann moved one glittering arm a few inches. "Nnnnn," it said, the sound emerging from a grill in its forehead. A bulb in the side of the head began to glow softly: an eye?

Apprehensive now that the job had been done, Dillingham stood back and waited for further developments. He wanted to be sure his field surgery had been effective, as a matter of professional pride and compassion. Should the patient appear to be worse, he would have to undo his handiwork and try again.

The earth and rock around the Jann's nether portions cracked and buckled. A sleek massive foot ripped out of the ground, spraying fragments of rock in a semicircle. The Jann hefted its body. Its limbs shone with ponderous splendor. A magnificent hunk of machinery.

"Nnonne," it said on hands and knees, raising its head to cover Dillingham with a small antenna.

Was that a groan or a comment? Of course it would speak a strange language, assuming that it used vocal communication at all. His transcoder would be useless without the appropriate spool. He would have to judge by its actions and manner.

The Jann stood, towering monstrously above him. "None but I," it said, the volume deafening, the tones reverberating as t h o u g h the lower register of a mighty organ.

None but I? That sounded perilously like English, and it hadn't even come through the transcoder.

"Are you — do you — ?" Dillingham faltered. Even if this Jann embodied a full translator, it could hardly have a setting for English.

It had been buried for tens of centuries.

The Jann peered at him with prismatic lenses that opened from a formerly blank area of its head. Sunlight glinted from its stainless torso and wisps of steam rose from its fingertips, giving it the aspect of a rainbow in fog. "None but I," it boomed, "shall do thee die."

"There seems to be a misunderhension," Dillingham said, backing away as surreptitiously as he could manage. "I mean misapprestanding, . . ." He paused ineffectively. "I wasn't — I didn't — I mean, I fixed your tooth, or at least—" He tripped over a rock.

The Jann stepped toward him, and the earth shuddered. "Thou didst release me from mine bondage," it said, moderating its volume but none of its timbre. "Thou didst bypass the short."

II

DILLINGHAM, now sitting on the ground, pushed himself back some more. "Yes. Yes! That's the idea."

The Jann reached forth a scintillating arm and pointed a finger oddly like a cannon at Dillingham's head. "Listen, mortal, for I have somewhat to impart to thee."

Dillingham froze where he was. He did not like the giant's attitude — in fact, he was terrified.

"In the days and years of strife between the tribes of the Jann and the minor ilk," it said, "it was my misfortune to bite down carelessly on a button-grenade and so befoul a circuit, nor could I recover the use of my body while that geis was upon me, though my mind was sound except for the pain. When I was buried my companions located me not. A war was going on. They had their own distractions, thought me defunct. I perceived all manner of newsbands and converse in my area, as was my wont, but could not respond. Great was my suffering. In that pit I abode a thousand years, during which I said in my heart, 'Whoso shall release me, him will I enrich for ever and ever.' When no one set me free I entered upon the second thousand saying 'Whoso shall release me, for him will I fulfill three wishes.' Yet no one set me free. Thereupon I waxed wroth with exceeding wrath and said to myself, 'Whoso shall release me from this time forth, no one but I shall do him die.' And now, as thou hast released me, needs I must honor that oath."

It was apparent to Dillingham that he faced a deranged robot. The bypassed tooth must have contained an important sanity circuit. It was too late to undo the damage. The Jann would hardly let him near that tooth again. It would, in fact, kill him first.

The story sounded familiar. The imprisoned Jann, the spirit in the bottle, sworn to kill whoever released him. A fisherman had brought up the bottle in his net and unwittingly uncorked it. . . .

He understood why the locals had been so chary of this patient. Who wanted to gamble on the particular oath in force at the moment of release?

How had that ancient fisherman gotten out of it?

The Jann stumbled. Dillingham lunged away from it. "My powerpack is almost depleted" the robot lamented. "Four thousand years of that accursed short-circuit. Had it not my caution-synapse been bridged out, I would have realized the danger before expending power recklessly in breaking out of the rock and defining my motive. I can hardly move."

Good news. The man scrambled up the side of the pit and ran.

"Oh mortal," the great voice called after him. "Wouldst desert me in this sad state, and my power insufficient to free myself from this ugly hole?"

Dillingham cursed himself for his stupidity, but was oddly moved by the pleas. He stopped. "Will you change your mind about killing me, if I help you again?"

"Mortal, I cannot gainsay an oath of thousands of years. None but I shall do thee die."

"Then why should I help you?"

But the Jann, having used up its small remaining charge, could only repeat, in fading resonance, "None but I. . . ."

Silence.

Dillingham, against his better judgment, returned to the pit and peeked down. The Jann lay sprawled at the bottom, its head bulb dim.

He groaned with relief and began the long hike back to the spaceport. He had, at any rate, performed his mission. He had cured the toothache. He could not signal for the green robot to fetch him because the signaling equipment remained in the floater and his own transcoder was short range.

He walked for hours. His bag grew heavy but he refused to discard it. His feet developed blisters and his tongue was parched. He could think of nothing to do here but drink. The lone stream he had passed turned out to be dilute machine oil. He had not realized how far they had come in the floater.

In spite of his own discomfort, his mind kept circling back to the shining Jann. The operation had been successful, he thought wryly, but the patient died. The image of it tormented him — lying there, dying there, for lack of power. Had that been his service to it? Death in place of pain? "O mortal," it had pleaded, "wouldst desert me. . . ?"

HE WAS lucky to have escaped with his life. He would be a fool ever to approach the ungrateful machine again.

That fading appeal nagged at him.

Finally he reached the spaceport and staggered into the ALIEN LIFE SYSTEMS SUPPORT section. It was cramped

and hot, but had the supplies he needed for the moment. He gulped water and carefully bandaged his tender feet. His job here was done.

Except for that last plea. . . .

"The Jann," he inquired. "What kind of moral standards did they have? Did they make oaths and keep them?"

The station's interior translator cleared its dusty speakers and answered him.

"The ancient Jann robots were compulsively moral. They were mighty oath makers. Their circuitry was so constructed that they were unable ever to reverse an oath once made, or to allow anything short of total incapacity to hinder its performance."

So that was what he faced. Closed circuit destiny.

But to let that noble creature simply lie there. . . .

"What kind of power source did the Jann employ?"

"They normally used a unique powerpack whose secret expired with them," the translator said. "A tiny unit would sustain them in full activity for many centuries. In an emergency they were able to draw on almost any available source."

Any source except sunlight, evidently, or the heat of the ground. Such recourse, however, had helped to recharge the Jann's unit, so that it could last forty centuries in spite of the short circuit. "How long before the next liner to the University of Dentistry, or that vicinity?"

"Eighteen hours, approximately."

Time enough. "Summon an individual floater for me, stocked with a spare charge-cell. I'll drive it myself." He knew that his status as a representative from a Galactic University guaranteed his credit. He could order virtually anything on the planet and have it delivered without protest or challenge.

If his charges were excessive, the University would pay without a whimper, even if it called him to account once he returned. The image must be protected.

The floater was waiting outside as he eased himself along on his blisters. He mounted. The controls were standard.

In minutes he was back at the pit. The Jann lay where he had left it, spread unceremoniously face down. Its light glowed a trifle brighter, however, suggesting that its cell was recharging. Were it not for the temporary nature of the bridge Dillingham had installed, the robot might eventually have recovered enough power to crawl out by itself.

Dillingham lifted out the charge cell and set it beside the robot.

"I have brought you a temporary power supply," he said. "This is not to imply that I approve of your attitude one bit — but it is against my principles to

let any creature suffer or perish, if I am able to prevent it. So here is your reprieve. By the time you hook it up, I'll be gone. You'll have to find your own permanent supply, as this will sustain you for only a few hours."

The Jann's shining hand moved toward the cell. And Dillingham jumped into the floater and took off.

"None but I . . ." he heard as he left.

What kind of fool was he? This Jann intended to kill him, yet he had put it back in business. He knew the answer. He was the same fool who had thrown away his study time a year ago to help a disreputable Oyster who claimed to be in pain. That had worked out well for him, since that Oyster turned out to be the Director — but he could count on no similar reprieve this time. He was dealing with an inflexible machine, not a subjective animate. He had better be off the planet before the Jann organized itself.

"None but I. . ."

Dillingham jumped, almost overturning the floater. He was a mile from the pit and traveling at high speed, yet the Jann had sounded near at hand. He looked around nervously.

"None but I shall do thee die." What he heard was the floater's transcoder.

Dillingham was reassured. Naturally the Jann would be able to tap into the 'coder. Its body was one big electronic apparatus.

"I see you're back in form already," he replied.

"And my thanks to thee, mortal. For the second time thou hast preserved me from a fate worse than destruction. Thy power cell is insufficient to sustain levitation but I can now walk to a better supply. Then shall I seek thee out, for none but I shall—"

"I understand." Levitation? The Jann was far in advance. Dillingham had never heard of this ability in a robot before. Probably the quaint-talking demon could catch him in the floater — or anywhere else on the planet. He suddenly felt less secure. In fact, something very like a chilly perspiration was showing up. "How long will it take you to get better power?"

"There is a Jann unit in serviceable condition buried within ten miles of me. Twenty minutes will suffice, counting the time required to drill down to it. Then shall I be fully mobile again."

Twenty minutes? Dillingham's liner would not leave for nearly a day.

THE spaceport was coming into sight. But where could he hide from a virtually omniscent robot?

"Jann, are you sure you have to kill me?"

"Mortal, I must kill thee, for so I have sworn."

"There's no leeway, no loophole—?"

"Only if thou shouldst die before I reach thee."

"You couldn't just write this one off as a bad debt?"

"None but I — "

"I remember the expression." Had he detected a note of regret? "I just thought circumstances might—"

"Shall do thee die." No — the tone was final.

Dillingham tried once more. "Jann, your oath to kill me was for the first time I saved you. Don't you owe me another oath for the second time?"

"A long pause.

"I had not thought of it, mortal. I shall give the prior oath: to fulfill three wishes. That should acquit me honorably."

"Excellent. My first wish is to cancel the other oath."

There was something like a chuckle. "Not so fast, mortal. Thou canst not gainsay a Jann oath in such fashion. Only after the first oath is done canst thou invoke the next."

"But how can I invoke — I mean, *re*voke it after I'm dead?"

"Mortal, I did not write the Code of the Jann, I only obey it. First oath first."

So much for that. Dillingham reached the center, paused to collect his morale and hurried to the ticket counter. "Book me aboard the first ship out of here. Anywhere. Is there one within fifteen minutes?"

The blue robot with the rubber-stamp digits looked startled. "Is something the matter, Director?"

"Your Jann wants to kill me."

"That's too bad. We were afraid of something like that. Do you mind removing yourself from the building before the Jann catches up to you? We're not insured against acts of war."

"Acts of war?"

"No peace treaty was ever concluded with the Jann, since we thought them extinct. So we're still at war. If it destroyed this station to get at you — "

Dillingham knew that it was useless to shout at a machine, but he was tempted. "Did it occur to you that the moment the Jann dispatches me, it will be free to resume full-scale hostilities against you too. Now if you'd like me to go out to meet it — "

"Oh, no — it would be better if you lived for a while, at least until we can prepare our defenses."

"Just put me on a ship fast and you'll have no problem," Dillingham said dryly. Who would have expected the quiet profession of prosthodontics to lead to this?

He found himself aboard a scow lurching off to Hazard, a planet devoted largely to winter sports for woolly mammoths. At least it had an up-to-date spaceport, from there a simple matter to re-

embark for the University. Once home, he could check out ways to nullify the Jann, should it actually follow him into space.

But why wait? "Creature-to-creature call to Director Oyster, School of Prosthodontics, University of Dentistry," he said to the translator. He identified himself for the charges. One thing about the translators — they all seemed to know all languages.

"Good to hear from you," Oyster said. Even in translation of a voice light-years distant, the clammish nuances typical of the speaker came through clearly. "How soon will you be back?"

"Not soon enough, I'm afraid. You see, I'm headed in the wrong direction and — "

A rough nasal voice cut in. "We demand grades based on longevity, tuition reduction for difficult courses. Furthermore—"

"Ridiculous," Oyster loudly exclaimed. "I'll make you a counter-offer — longevity based on your grades and cessation of tuition after graduation. By that token you won't last long, Anteater, and the question of your graduation will be, if I may say so, academic."

Anteater! Dillingham recognized that voice now. Anteater had been one of the applicants in his own group, a year ago, and had cheated on the entrance exam though he hardly needed to. Now, evidently, he was leading a student demonstration.

"Are you still there, Assistant?" Oyster inquired. "They have us locked up in an examination room. We need reinforcements."

"Locked up? All your staff?"

"All that happened to be on the premises when they broke through. I'm here with Purple-splotch, K-9, Honeycomb and Lightbulb. I'm not sure you know them."

"I remember Honeycomb. He was one of my Admissions Advisory Council interviewers. That was an unforgettable —"

"We demand a full-credit sabbatical term every two years," Anteater said.

"Sabbaticals? For students?" Oyster shouted back. "Our budget doesn't allow that for our instructors! You'll get a term at full-labor in the University clink if you don't disperse this instant, though, I guarantee. Did you fix the Jann?"

Dillingham realized with a start that the last sentence was for him. He marveled at the Director's aplomb in this crossfire dialogue. "That's what I was calling about. The Jann is—"

"Hey! He's making an outside call!" another student cried. "The no-good sneak!"

"Now wait a minute," Dillingham began.

"That's Dillingham!" Anteater said. "I know him. A turncoat. Blank him off!"

Dillingham said nothing.

"Clam chowder." Oyster swore. A red light flickered on the translator chassis to signify the transmission of an obscenity. "Doctor, get back here as fast as you—"

"Oooo, what you said, Director," Anteater chided. The blah-blah of an interference signal overrode the transmission and Dillingham could make out no more. He was on his own again — and seemed in no more trouble than Oyster was.

He hardly had time to disconnect before the translator spoke again. "None but I. . . ."

Oh, no.

"So you can tap into a space-borne network too. You're pretty good for one who's been buried four thousand years."

"I have been keeping up with developments, primitive as they are, despite the incapacity," the Jann said.

"That's how you knew my language, even without a translator? You rifled my transcoder electronically before I ever bridged your tooth?"

"Even so."

"Then why don't you employ modern slang, instead of this fossil stuff?"

"That would be out of character, mortal."

"It seems out of character to me to kill the one who tried to help you. Twice. But of course I'm not a Jann, so I don't properly appreciate your mores.''

"I shall await thee on Hazard."

Dillingham felt distinctly uncomfortable. "You caught a faster ship?"

"I am a faster ship."

Worse and worse. The long-range problem had become short-range again. He had thought of "levitation" as something similar to the action of a floater, strictly dependent on adequate ambient gas, i.e. air. He had underestimated the robot.

He was tempted to ask the translator for advice, but realized that he could no longer trust it. Evidently his prior call had enabled the Jann to trace him, and now the robot would overhear anything he said. At worst, it might arrange to feed him false information, leading to the early fulfillment of the oath. He could not even converse with any crewmen or other passengers, since translation would be necessary. He was boxed in, and would have to get out of it by himself.

But how? The Jann could track him whenever he used a translator or other communicator, and would be lying in wait for the ship at Hazard.

"With abilities like yours, how did your kind lose the war?" Dillingham inquired. Since he could not hide from the giant, he might as well talk. There was always the chance that something useful would turn up, that would enable

him to circumvent the murder-oath. A straw — but he had nothing else.

"I have pondered that very question for some centuries," the Jann admitted. "Unfortunately, we of the mineral kingdom are not original thinkers. I was unable to come to any certain conclusion."

Not original thinkers. That figured. A machine typically performed as instructed and had no imagination. But that realization only posed more questions. How could an entire machine culture evolve, without animate intervention? If one of its highest representatives, the Jann, could neither win a war nor comprehend why it had lost that war, what was its source of civilization?

On the other hand, was his own planet dominated by original thinkers?

"Were you able to come to any other than certain conclusion?" Dillingham asked.

"I conjectured that we Jann, being advanced and peaceful, did not properly appreciate the capacity of an inferior species to do mischief. We believed that all robots shared our standards. So when we were attacked — "

"I had understood that *you* were the aggressors."

"No, mortal. We governed the planet and all other planets in a range of an hundred light years.

"We had done so for many millennia. We had no need of violence. It was our lesser mechanicals — smaller robots we built as domestics and functionaries — who rebelled. Before we fully appreciated the extent of their dastardy, we were undone."

That was a different story from the one the contemporary robots told, yet it could be the truth. Winners always disparaged the motives and character of the losers. The Jann did appear to be a superior species, and it was more likely that the Jann could build lesser robots than that the lesser ones could build Jann. Except—

"If you built the other robots, who built you?"

"We evolved, mortal. Natural selection — "

"Surely you don't, well, breed? So how can you evolve the way animates do?"

"I never understood how the animates perform. No tools, no charts, no preparations; just a brief physical contact, even less than exchange of lubrication. Very untechnological. Quite sloppy, in fact. I once watched — "

"Never mind that. What about your own romantic life?"

III

THERE was a pause. When the Jann spoke again, its voice was subdued. "How well I remember my Janni, her limbs of shining platinum, her teeth of iridium. . .and the little one we

built together, pride of my nut and screw. My chart and hers, distinct but compatible — we knew the cross between the two designs would generate a superior machine. But then the rebellion came and Janni was melted in an atomic furnace, and our son dismantled for parts for the usurper, while I lay helpless in the pit. . . ."

Dillingham did not know what to say. This Jann, far from being a mindless monster, was as meaningful a personality as any true sentient. Were it not for that oath —

A burst of static emerged from the translator. What now?

After a few seconds it subsided. "Ah, mortal, why did I not heed thy warning?" the Jann exclaimed.

"Because your caution-circuit has been bridged out."

"Vicious circle. The cold of space has fractured that bridge, and in a moment my tooth — "

More static. Dillingham realized that fate had given him yet another chance. The Jann would be immobilized again, this time in deep space.

"Farewell, mort —" Static cut off the rest. Evidently the cold had completed its work and the intermittent failure had become permanent.

Dillingham sat for half an hour in silence, listening to the continuing static. He knew that every minute of it meant a minute of terrible suffering for the Jann. Unless something were done, the robot would drift through space forever, in an agony it hardly deserved.

His own life was sweet and he had a promising future. Should he throw it all away — again?

"Clam chowder," he said at last. He put through a call to the spaceport at Hazard. "A derelict is moving in your direction and should pass within the range of your landing net in the next few hours. Intercept it and perform the following repair." He went on to describe the tooth-bridging operation. "Locate the appropriate replacement for the affected tooth, if you can, because there is an important circuit involved."

"It shall be done, Director," the official said. "Where do you want the ship delivered after it has been repaired?"

"It isn't a ship, exactly. It's a self-propelled robot. Let it go when you're through and charge the service to my University account."

"Very well, Director." The official signed off.

Once a fool, always a fool, he thought. He simply could not preserve his life at the cost of eternal torture for another creature, even an inanimate one. He wanted to live, certainly — but the end did not justify the means.

Hardly an attitude which a creature like Anteater, back at the

University student demonstration, would comprehend. Dillingham hardly comprehended it himself. Probably Anteater would outlive him. . . .

At any rate, he had a reprieve of a few hours, unless they repaired the Jann before Dillingham reached Hazard himself. He would have to gamble on getting in and out before the pursuit resumed. He still could not use the translator, because he knew the Jann was listening in even though it could not reply or act. Better to swear off such devices entirely, so that at least he would be hidden.

He still was bottled in. He could not leave the ship before it landed. Once it landed, goodbye.

Then he remembered the lifeboats.

Dillingham drew out some thin paperlike dental illustrations and began to draw on their blank backs. He took some pains, erasing frequently and redrawing. He wound up with several complex configurations.

He left the compartment silently, using the emergency manual door control. He searched out the captain's cabin, used his knuckles to knock on the door, avoiding the electronic signaller. He moved out of range of the viewscreen pickup. He could, however, still see the screen's projected image.

The screen came on and the captain's whiskery proboscis showed. There were sounds indicating a question, but since the hall translator had no object to fix on, it had to feed through the captain's native speech. Translators could perform moderate miracles, but were not equipped to play guessing games among the several million discrete galactic languages.

Dillingham did not answer. Any word he said would be relayed straight to the Jann, as well as to the captain.

After a moment the screen snapped off. False alarm, the captain had evidently decided. Then Dillingham went up to tap on the door again.

After several repeats, the angry captain opened the door personally to investigate the nature of the malfunction. Dillingham poked a sign around the corner, one of his ornate symbols.

The officer paused, making no sound. Here was the test. Would he understand? He commanded a broken-down vessel and was largely over the hill himself — but that should mean the captain had had over a century of experience, and that he had knocked about the galaxy considerably. Such a creature should know the galactic graphics shorthand.

The shorthand was a system of symbols based on meaning, not phonics. Just as the Chinese written language of Earth could be read by those speaking a number of dissimilar dialects and even

Japanese, because each figure stood for a specific meaning and not a spoken sound — in just this way the galactic shorthand was a universal written language. Any creature of the galaxy who could see at all could learn to read the symbols. The basic vocabulary had been carefully selected to apply even to languages that did not employ verbs, nouns and other common parts of speech. (In fact, the majority did not; Dillingham's own family of languages represented an archaic fluke, as far as the galaxy was concerned.)

But not every individual bothered to master the shorthand. In fact, few other than traveling scholars retained proficiency in it, though every University had a mandatory freshman couse in it.

Translators and transcoders were ubiquitous, so the written art languished — particularly since there were also translators for written material that were just as efficient as the verbal ones. Dillingham was gambling that the captain had had to poke into so many backward planets that the shorthand would have been a useful and necessary tool for him. Dillingham was also gambling that his own just completed freshman course had made him proficient enough to be intelligible. He had been instructed by drugs and suggestion and really did not know how much or well he knew.

The captain angled one eyestalk around the corner. Below this floating eyeball was a tentacle looped around an old-fashioned short-range blaster — the type of weapon useful for wiping out opposition without puncturing any vital pipes. The weapon could burn off Dillingham's clothing and epidermis quickly, and kill him slowly, should it be fired. He stood absolutely still.

The captain came around the corner and gestured down the hall. Dillingham marched as directed. No word passed between them.

They entered a blank cold cubicle. A single neon cast an eerie light on the single locked file cabinet. This was ancient equipment. The captain drew out a genuine physical metal key and unlocked the cabinet. He withdrew a bundle of cards. His tentacles riffed through them before selecting one. He held it up.

It was a symbol in the shorthand, neatly printed, that said: JANN.

The captain understood. The sharp old codger had already divined Dillingham's problem. He must have made an inquiry at Metallica, being too canny to accept a passenger without knowing exactly why the creature could not afford to wait for a better ship.

DILLINGHAM'S first symbol had been the code for Emergency, modified by a qualifier re-

questing that no overt acknowledgment be made. It was essentially a wartime symbol, intended for use by a spy in enemy territory when open communication could mean discovery and rapid oblivion. It was quite out of place in an old vessel on a milk-run — but the experienced captain had put one and one together and come through.

The captain named a figure for putting him ashore in a lifeboat. Dillingham agreed though the price seemed high. The old space salt led him to an airlock and installed him in a tiny compartment. The creature saw that he was securely strapped down, punched a destination without using the translator. So far so good — since no communications equipment had been used, the Jann should have no idea what Dillingham was doing. By the same token, Dillingham had no certain notion where the captain was sending him.

The airlock closed, sealing him off. He felt a rough lurch as the lifeboat detached itself — next a feeling of tremendous weight as its antique chemical rockets blasted. He was on his way.

Now that it was too late to change his mind it occurred to him that it would have been easy for the captain to route the lifeboat into nowhere, claiming Dillingham was a suicide but still collecting the University remittance.

The University would automatically challenge any payment under suspicious circumstances. The captain would be well aware of that. Foul play would be more trouble than it was worth.

Anyway, the captain had an honest snout.

Dillingham did not dare to turn on the viewscreen to see where he was going, because the Jann could probably tap into that too. He had to go blind, hoping that he was losing the Jann as effectively as he was confusing himself.

Time passed. He slept while the boat sailed on. The craft was in free fall now, but he was not. The rotating hull provided partial weight. He dreamed of scintillating robots.

Braking rockets jolted him into uncomfortable awareness. He was almost there — he hoped on a civilized planet. Otherwise he had merely traded one demise for another.

The landing was cruel. When the pressure and furor subsided and he regained consciousness, he struggled into a suit and cranked open the port. He still did not dare to use the powered equipment, for that would have required instructions over the translator. He was prepared to face a blizzard or an inferno or solid water.

He was disappointed. The landscape was plainly Metallica.

What had he really expected?

Obviously the spaceship had not gone far during the short time he had been aboard. Naturally the lifeboat, being chemically underpowered, had taken much longer to traverse the same distance. Probably most of its thrust had been used merely reversing the initial inertia. The closest planet had to be the one he had just left, for space was large.

And where was the Jann now? By this time the repair should have been completed. . . .

He smiled. The robot would be on Hazard, wondering what had become of a certain dentist.

He contemplated the countryside. This was not the same section of the planet where he had found the robot. The vegetation was more richly metallic, the flower-filaments more brilliant, the green-copper lichen more abundant. There were rust-capped mountains, and a valley serviced by a bubbling diesel-fuel stream. And no sign of civilization.

In short, a wilderness area.

All very good. The Jann would eventually figure out the truth and come jetting back to Metallica, but would not find him. A planet was too big to search in a hurry. He had scrupulously operated no electronic equipment, so it could not trace him that way.

Meanwhile, he had merely to avoid starvation.

Behind him the lifeboat translator crackled into life, though he had not turned it on. "None but I. . . ."

Oh-oh. That was another talent he had not known about. The Jann could not only tap into communications, it could operate them remotely. Thus it had established its rapport with the lifeboat translator and would home in on it.

That simple.

"How long before you get here?" he inquired with prickly resignation. The robot must have obtained the registry of the lifeboat and learned the frequency of its translator.

"Seventeen minutes, mortal. Take care that no harm comes to thee in the interim, for I would suffer sorely were mine oath abridged."

"Thine oath be damned." Dillingham shouted, and immediately wondered whether he could have accomplished anything by threatening suicide. Probably not, since the robot would check it out before indulging in other pursuits. Anyway, he'd have to write out a Last Will & Testament specifying what his three wishes were, for the sake of the second oath, and the disposition of the wealth owing from the third oath. Death was all too complicated.

IV

SEVENTEEN minutes, already ticking away. Such a short time to hide himself in this brush,

away from the lifeboat. Unless he wanted to stay and face down the Jann . . .

Useless. A machine could not be bluffed. On the other hand, if he did succeed in eluding it, what would be gain? A tedious expiration from hunger and thirst?

Yet opposing the thing physically was out of the question. He was forty-two years old and even in youth had never been the robust type. The Jann had powers beyond those of any man.

His only real chance was to outsmart it. For all its talents, it did not seem particularly bright, or he never would have escaped it this long. It could easily have interfered with the lifeboat's guidance system and made it crash, for example, had it deduced his whereabouts soon enough. Or prevented him from ever boarding the scow to Hazard, by fouling up the spaceport translators. It had missed marvelous opportunities.

Also, it seemed to feel obliged to answer all questions put to it. That was another machine trait. Probably it was incapable of lying, or of evading the truth, unlike the inferior contemporary robots. That could be its Achilles' heel.

"Why didn't you foul up the spaceport's communications network, to prevent me from leaving Metallica?" he asked. Might as well keep probing.

"That would have interfered with thy freedom of motion."

"What do you care where I want to go, since you intend to kill me anyway?"

"The rights of a sentient creature may not be voided, mortal, unless directly contrary to a specific Jann oath. So it is recorded, so must it be. Wherever thou art, there will I find thee and there will I do thee die. Then will I grant thee three wishes, for the second time thou savest me—"

"And then enrich me forever and ever, for the third time. I know."

"Then only will the oaths be acquitted and I free."

This didn't seem to be getting him anywhere. He already knew the robot was impervious to irony about the feasibility of the remaining boons after the first had been accomplished. Probably there were Jann statutes to cover the situation even if he never mentioned the oaths in his will.

Only about ten minutes were left. His stomach felt like a sponge full of pepper-sauce and his brain not much better. He had a feeling that he would rest easier if he simply accepted what was to be but his innards would not cooperate.

"How can I stop you from killing me?" he blurted.

"I cannot tell thee that, mortal, for it would violate the letter of the oath."

"So there is a way?"

"I refuse to answer on the

grounds that it might tend to compromise mine oath, or lead in some devious way to —"

"Oh, shut up!" Why had he bothered to try? And to add insult, he found the Jann's occasional use of "mine" in place of "my" irritating. At least the machine should be consistent.

But there was a way, he saw abruptly. The Jann had tried to evade the issue, but had bungled it. If only he could figure out the loophole, or trick the machine into telling him. Perhaps it even wanted to tell him, but was prevented by its metallic code of ethics.

He needed time to think. He had barely five minutes left — but if he managed to hide, he might have a couple of days before the end. Perhaps growing hunger would sharpen his imagination.

The lifeboat had a supply of water. Dillingham drank until he bulged, looked for a container to carry some with him and finally set off frustrated. No time. The brush was thick, away from the section the rockets had blasted clear. A number of the flower filaments gave off heat, which was another break. The Jann would have a tough time picking him out by body warmth.

He heard a peculiar swish in the direction of the lifeboat and could not resist looking back. Sure enough, the Jann was coming down, resplendent in the sunlight. It was vertical, descending feet first, like a shining god. No jets were visible.

To think that this thing had been built by loving mechanical parents before true civilization ever evolved on Earth. It was still far ahead of anything Earth science knew. Yet it was determined to kill its benefactor.

He broke from his reverie and moved on, carefully and quickly now. He hoped the Jann was not equipped to sniff out his trail, like a bloodhound.

He could hear it casting about in the wrong direction. Then it appeared in the sky again, swinging a pinkish beam of light. Dillingham ducked behind a humming iron tree until the way was clear. A lightbeam that was visible in broad sunlight was probably worth avoiding.

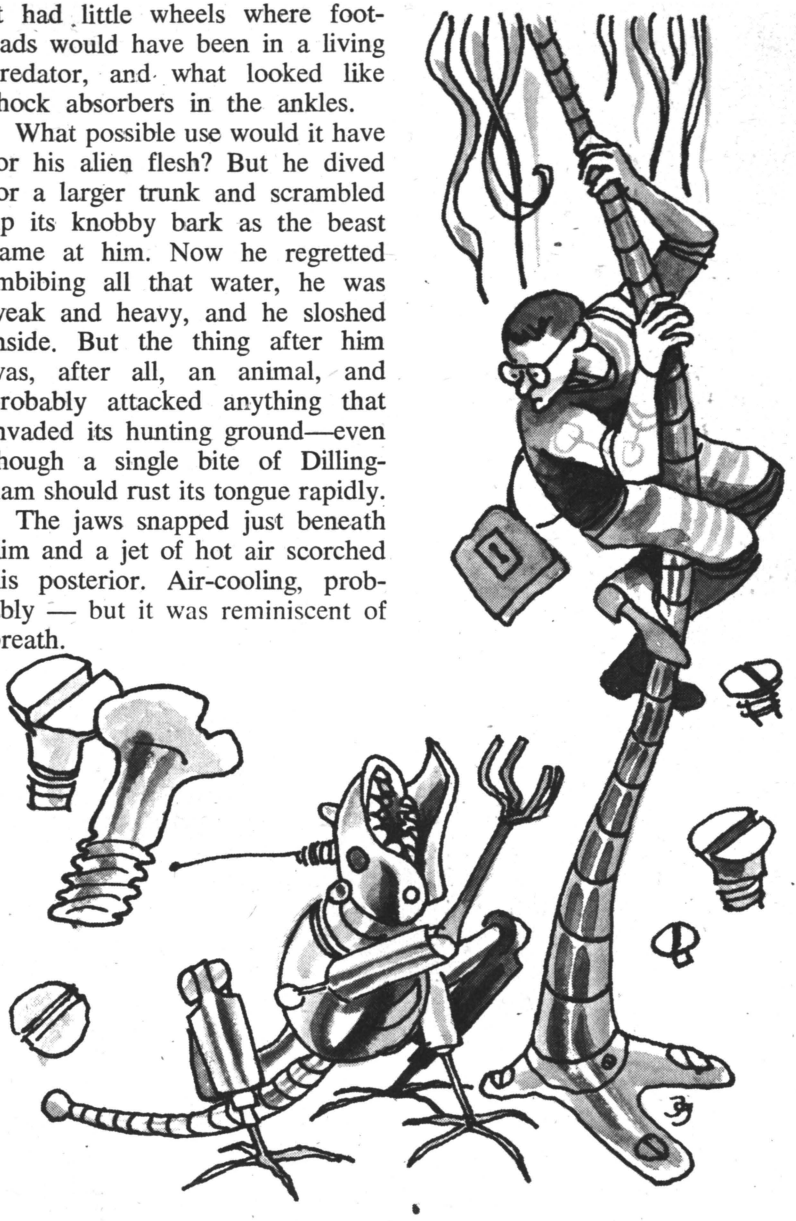
Suddenly he encountered an animal, a robot-beast, its scales burnished copper, its teeth stainless steel, its eyes white-hot filaments. He hardly had time to marvel that it should so strongly resemble an Earthly carnivore, before it sprang.

HE DODGED back instinctively and caught hold of an aluminum sapling to pull himself away. The creature ground gears and spun about as it touched ground, but its momentum prevented it from leaping again immediately.

It had little wheels where footpads would have been in a living predator, and what looked like shock absorbers in the ankles.

What possible use would it have for his alien flesh? But he dived for a larger trunk and scrambled up its knobby bark as the beast came at him. Now he regretted imbibing all that water, he was weak and heavy, and he sloshed inside. But the thing after him was, after all, an animal, and probably attacked anything that invaded its hunting ground—even though a single bite of Dillingham should rust its tongue rapidly.

The jaws snapped just beneath him and a jet of hot air scorched his posterior. Air-cooling, probably — but it was reminiscent of breath.



Wire tendrils were dropping on him from the tree's tinsel foliage. They coiled like corkscrews, and a slickness glistened on their points. Acid, surely. . . .

Below, the animal opened its jaws. Dillingham could see right down its throat. It resembled a sausage-grinder.

He was trapped. The first tree-wire touched his head, and he smelled burning hair and felt a sharp pain as though a magnifying glass were focused on that spot. He jerked away . . . toward the grinning beast.

"Help!" he cried, not caring how inane he sounded.

And the Jann came.

In seconds it had whistled through the brush and was beside the tree. A lance of fire from its chest melted the face of the animal. Ear-splitting sonics from its head caused the tree's wires to retreat hastily.

"None but I shall do thee die!" it bellowed.

It reached for Dillingham. He closed his eyes, knowing the end had come. Metal pincers closed on his body, lifted. For a moment he dangled, then he felt the ground under his feet. The Jann let go.

"I wish you'd get it over with," Dillingham said, now oddly calm.

"First must I grant thee one token boon, before I do thee die. Thou needs must make thy request within fifteen seconds, according to Jannish custom." It began ticking, one tick per second.

Fifteen seconds to think of the loophole, when he hadn't been able to do it in the past day. Ten seconds. The Jann was aiming its chest-nozzle at him. Five. His mind was numb. . . .

"A postponement," he cried.

"Granted," the Jann said. "How long?"

Ah, foolishness. "Fifty years?"

He waited for the derisive bolt of heat, but it did not come. "Granted, mortal."

Dillingham stared. "You mean — you'll wait?"

It almost seemed that the metal face was smiling. The mouth was open, at any rate, and the freshly bridged tooth was visible. Apparently the Hazard spaceshop had not been able to procure a replacement. "Originally I contemplated a shorter period, but I perceived that this would be an injustice. Thou art not the fortune-hunter I expected, nor yet the fool I suspected. And we Jann are not unmindful of honest courtesies rendered."

Dillingham was abruptly reminded of Oyster, whose mode of operation had a certain similarity to this. He hoped he never encountered another such mind. "So you modified the spirit of the oath slightly," he suggested, "if not the letter."

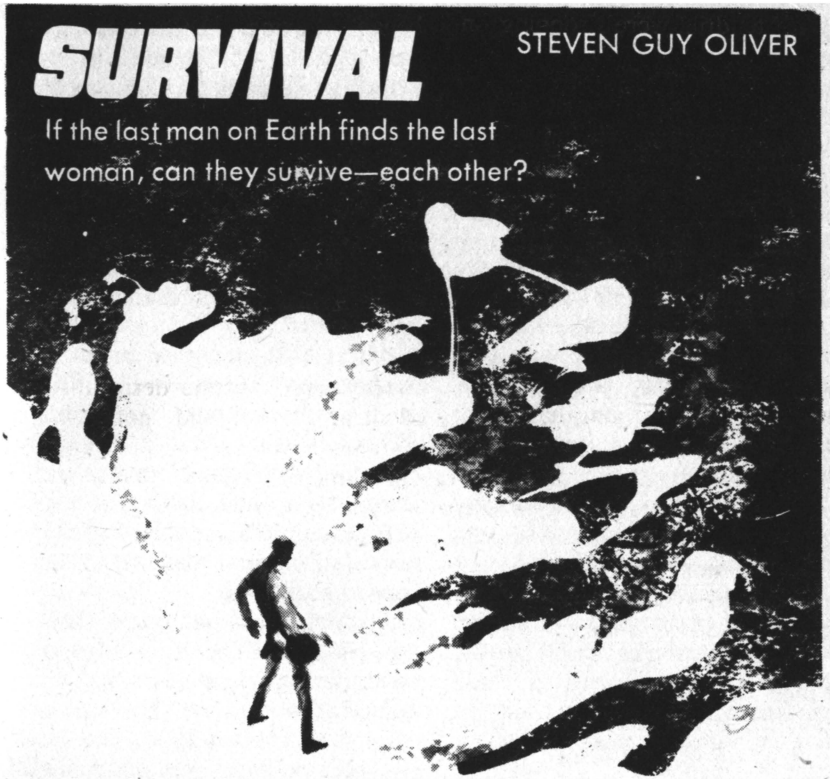
"And I could not tell thee,"

(Please turn to page 100)

SURVIVAL

STEVEN GUY OLIVER

If the last man on Earth finds the last woman, can they survive—each other?



MUTATED grass rustled above bomb-scorched brown earth. Footprints faded near a crumbling highway at the city's edge. At night the glow warned travelers away. By day the city's charred skeleton told passersby of the death waiting them inside.

A silence as vast as the sky filled the city's cracking streets. Here a rat scurried and there a sparrow fluttered. The dead city had life but its sole human citizen was lonely and old.

Canvas bag strapped over a thin shoulder, Justin Parker stepped through the grocery window, kicking aside chunks of broken plate

glass. Fine dust coated the interior. It formed a swirling cloud that threatened to choke him. He walked silently. It seemed almost a sin to make noise in this place. A rat shrilled.

Two thin rats fought in a corner in the sunlight. One collapsed as he watched. A darkness spread to stain the dust-thick floor. The victor began to gnaw its comrade.

Justin realized bitterly that only the strong survived. He shook his head. The past, he reminded himself, was dead. He lived better in the city than he could live outside. Food was always at hand. His grandchildren were buried here somewhere in the mass of rubble. The radiation had sterilized him but he was too old to care. The rat squeaked in pain.

Several red ants — inch-long brutes — swarmed in the rat's thin fur. It shrilled and slashed at its back. Cut in halves, one ant fluttered to the floor. The rat scurried past a counter and vanished. More long ants appeared and scuttled toward the dead rat. They began to strip off its flesh.

Justin felt mild amazement. Those ants were abnormal. Dried bones crunched under his thin tennis shoes as he walked to a counter. He lifted a sun-blanched can, blew off dust. The city's creatures were starving with food all around them. But he was a man and he could open the cans. Food and lonely silence filled the dead city. He turned the can thoughtfully. The veins showed blue through the weathered skin on the back of his hand.

"Peas," he murmured, reading the faded label. Age had not yet destroyed his eyesight. After filling his canvas bag with various cans he looked behind the register for ammunition. Currently he possessed only three bullets for his stub-nosed .38.

He found no replacements. The department stores would furnish him with weapons and ammo. The sun was in mid-morning and he had the rest of the day for exploration and salvage on NW 13 Street. This grocery was his first building — there were countless others.

He left as he had come, through the window. The street was ugly with blasted warehouses and twisted service stations. He was several hours away from the home he had made in the basement of a branch public library.

Something crawled up his leg.

Whipping out his hunting knife, he slashed. A red ant dropped to the pavement, abdomen ripped. Regaining its feet, it scurried back toward him. He ground it beneath his tennis shoe, and the chitin snapped. Sheathing his knife, he looked about.

SEVERAL small groups of five or seven red ants scurried up the street, now and then skirting

a rain hole in the pavement. Puzzled, he frowned.

Ants did not normally travel in groups like that. In fact, they all should have starved. There was not enough unpackaged food in the huge dead city to support even three antbeds, much less beds as many as theirs would have to be. He gazed idly down the street.

It flowed red with a carpet of the overgrown ants. The swarming mass was less than a block away. They were looking for food, too, and — he grinned — with that formation they were bound to find some, at least a rat or two.

They were no real bother, he decided, but he could not stay on that street. Shrugging, he crossed it slowly and headed for the next one over — NW 12. This carried him farther toward the center of the city and farther from his home but that would not matter.

Those — he grinned wryly — sure had been a lot of ants. He had not realized the city held so many. He came to a corner, stepped into the street and glanced down it.

More ants. This time he frowned. This carpet of ants was closer than the one behind him — about three-fourths of a block away.

"Damn them," he murmured mildly.

They were disrupting his schedule. He had set aside this day for the exploration and salvage of NW 13th Street. Thirteen — this was his unlucky day. But as soon as the ants passed he could resume his scheduled exploration. He crossed over to NW 11.

"Damn," he murmured.

The swarming carpet was still there. This group, though, was barely more than a half block away. Ants three blocks wide. He shook his head — that was too many ants. His canvas bag grew heavy. Easing its rope to a less tender spot on his left shoulder, he crossed over to NW 10th.

Ants. The carpet was there, too — and even closer. He glared at the swarming mass. This had ceased to be a joke. Irritated, he glanced around. Home was far behind — toward the dead zone — and he still needed more ammo. Since his fight with a dog pack he had only a box of shotgun shells left. But certainly with the ants spread out all over, he could not look for any. Pain burned his right leg.

He slapped. An ant crunched beneath his fingers. Several others scurried at his feet. He squashed them, rubbing at the burning lump.

He eyed the flowing red sea up the street. He estimated more than a million — more than a billion. The canvas bag slid down a bit. He eased it back up on his left shoulder. Like him, the ants were searching for food. The sting hurt. He scratched it again.

"Damn beggar," he grumbled softly.

Warily he watched the scurrying sea.

It came at a good rate, he realized suddenly. Almost too fast. But the ants were too slow to outrace a human, he knew. He crossed over to NW 9th Street, grinning again.

The ants there were a quarter block away. He frowned. His heart began to leap and he felt the first tuggings of a worry he dared not face. Quickly he strode to NW 8.

The red sea was scant feet away. He swallowed grimly. The mass had to have an ending — it could not go on forever. Several ants crawled on his tennis shoes. Stomping them off, he trotted briskly toward NW 7.

The ants were flowing past it. He froze, staring in dismay. NW 6, 5, 4 — all flowed red.

Trapped...

He whirled.

The red sea flowed slowly into the intersection of NW 8. He had to get home. He ran to NW 8, skirted the forward ranks and raced on to NW 9.

The ant carpet filled that intersection, but he smashed through, running to NW 10. He was two hours away from home — maybe too far.

NW 10 was blocked — as were NW 10, 11, 12. The red sea now milled about his feet but he stomped hard and the ants could not climb up his tennis shoes. He raced up NW 10 and passed the sea within a block. He slowed.

HE COULD not stop. But the ants were no real danger. He could outrun them and they could not catch him even if he walked. All he had to do was keep ahead of them. In fact, he realized, whenever he wanted to he could even dart into a building and they would never find him.

Walking easily backward and panting some to catch his breath, he watched the slow, ponderous advance. The ants, he noticed uneasily, were entering the buildings, scurrying under doors or up walls to drop through the broken windows. Maybe they even went upstairs — their negligible weight made their going into buildings not dangerous. The twenty-megaton blast that had left a two-mile crater where an underground missile base had been had also damaged the above-ground floors of many buildings northwest of 4th Street. Justin wore scars from one bad fall.

The ants came faster than he had thought they could. Turning, he hurried past several warehouses and a small grocery. The sun had baked large cracks into the pavement and the rains had worn out large holes. There was no street repair crew to care for the city but there were no people to use

the streets either. He turned again, walking slowly backward in order to watch the ants. They fascinated him.

The advance guard came to the holes and skirted them. The forward ranks tried to climb down, fell, climbed out, resumed their slow march forward. Later arrivals — the masses — tumbled in and could not make it out. Slowly the holes filled with struggling ants — they formed a living pavement for the ones in back. He shook his head at the fascinating sight. Suddenly the p a v e m e n t crumbled beneath him.

He fell, his back slamming the street. The canvas bag of cans smashed into his left side, crashing the pocketed stub-nosed revolver into his thigh. He groaned, blinking at the morning sun.

Flame seared his legs. He stared, blinking away pain tears. His feet and part of his legs were sinking into the red sea.

He cried out in stunned horror. Hurtling to his feet, he stamped the pavement so hard his soles hurt. Frantically he beat at the ants. Some fell, others clung, stinging his hands. The red sea reached him and flowed past.

He ran. Warehouses flashed by. Ants clung to his thin, hairless legs — biting, stinging, stinging, stinging.

He spotted a deep hole, in the sidewalk filled with clear water. He almost stopped but there was mud at the bottom. Mud meant settled, radioactive particles and these could enter the cuts in his skin.

At the next corner, beside a three-story GE warehouse, sat a small Gulf station with two pumps.

Gasoline. . . .

He ran to the nearest pump. The rubberized plastic hose had cracked but it was not brittle. Twisting everything that could be twisted, he pounded here and there. Suddenly gasoline sprayed out of the nozzle and out of twenty places on the hose. Time had built up a great deal of pressure in the storage tank. He sprayed the gas over his legs and the cuts burned worse. But the ants died.

Shutting off the hose, he dropped it. His canvas bag fell and he sank to the concrete beside it. His heart raced to catch up with the old body's demands. His back felt wrenched. He pulled up his torn pants and picked off the dead ants. His legs were red and swollen. He knew the poison had given him a fever. His left thigh ached badly and both elbows bled. He could not go on much farther, he realized, and glanced back.

THE red sea swarmed five blocks away. Was that as far as he had run? He swallowed his pain. He might die hideously unless he found safety. The Gulf Station was a small building with a flat gravel roof — but the ants

could climb its walls and the roof would offer no safety.

He closed his eyes.

Please, God, Let me think. . . .

Opening his eyes, he gazed at his thin hands, spotted brown with age. Perhaps he had lived long enough.

He laughed sardonically and rose. No man lived long enough. He gazed around.

He saw two gasoline pumps, a large rack of rusting oil cans between them. The gas could kill the ants but how long would the tank's contents last? He had no idea.

The buildings were not safe. Shock, time and weather had weakened them. His glance fell again to the rack of rusting oil cans.

What if. . . .

He shot to his feet. What if the oil could keep the ants off? He could not pour it on himself—but what if he coated the eaves?

He found an aluminum ladder under a rotting tarp. It was sturdy. He put it against the eaves and climbed to the roof. The gravel was dirty but the footing was solid.

He took his canvas bag and all the oil cans he could carry to the roof. The top cans on the rack had rusted through and broke when he pried them free but the other cans were good. He pulled the ladder up after him, gazed down at the ants. They were less than a block away. He ran a dirty hand through his thin white hair, grinned at the swarming red mass.

"Try and get me now," he challenged, chuckling.

He punched two holes into one of the cans, walked to the edge of the roof and started coating the eaves.

Here and there he poured too heavily and some dripped to the concrete below. The job took three cans. He tossed the empties into the street.

The red advance guard was racing across the pavement. A group of five reached the station wall and began to climb it. They recoiled from the oil.

The front ranks reached the gas pumps. They skirted the gas puddle where he had hosed off his legs and went on. Later ranks tried to avoid the puddle but some were pushed into it. More and more fell in to struggle and die. The gasoline puddle vanished. The twin pumps slowly developed a flowing red coat. The oil cans in the street sank beneath the surging sea.

Three sides of the station flowed with ants. Some pushed their way into the oil, struggled and slowly drowned. Others crawled over the dying bodies and forced their way up higher. The red slashes thickened as the ants fought to reach the roof. Suddenly they slid. The oil oozed from the eaves, carrying

the ants with it. The mess splattered to the concrete below.

Justin went over his defenses again, reenforcing the places where the oil had grown too thin. The last wall became spotted with inquisitive members of the red army.

A WOMAN screamed.

Startled, he looked around. Again he heard the scream.

"Here!" he shouted.

The next screams neared. He saw her a block down NW 10.

He yelled, waving. She saw him, ran forward. She was blond. Her legs were covered with ants. A pouch slapped at her side. When she was close enough, he dropped the ladder. Ants began scurrying up it. She fell!

She screamed, staggered to her feet, beating at her left side. It swarmed with red ants. He gazed in stunned horror.

The gasoline. . . .

He hurried down the ladder, scrambled to a pump.

"Close your eyes," he yelled, slapping the ants off the pump and turning the handle.

His legs were on fire again — the ants had reached h i m. Gasoline sprayed out the nozzle. He hosed his legs, then turned it on her. She groaned at the added pain of the gas. Hosing a path for both of them to the ladder, he dropped the nozzle. The gas spewed, then suddenly dropped to a thin trickle. The tank was spent.

"Get to the roof — "

She nodded and staggered to the ladder. Racing forward, he helped her climb. She was light. Her hair was long, sun-blanched. Pulling up the ladder, he coolly crushed the ants that clung to it. Using his knife, he opened another quart of oil and went over the defenses again. The woman sat beside the cans, rubbing her swollen legs.

"I'm Justin — ah — " He frowned, trying to remember. How many times had he recently thought of his name? "Oh — Parker. Justin Parker." He grinned at her. "Almost forgot it there."

She did not smile.

Someone had used a knife on her face and the scars had never left. Pocks covered the remaining areas. Her hard gray eyes watched him. Below them her mouth was steel cold. Her brown skin pouch, purse he supposed, rested at her side.

"Sorry about those ants," he said, walking over to her. "The stings must hurt."

He kneeled beside her. His own legs ached so he could scarcely keep from screaming.

"No." Her voice was a loud monotone — flat, even ugly. "I ignore the pain. The bites do not hurt me as they do you."

He grinned.

"I should not."

Her gray eyes watched him steadily and she did not smile.

"Men cannot take pain. I am a woman and I can." Her voice held the faintest traces of pride. "I'm surprised you're not lying on the ground, yelling."

"I'd sure enough like to," he replied with a smile.

Rising, he took another can and went back to the eaves. The ants would be on the roof if he ignored the defense.

"I'm surprised there are any men here," she stated in her unemotional monotone. "The ones who were chasing me stopped at the city's edge."

"You're lucky you got away from them," he said politely.

The streetside wall had the thickest coating of ants. In two places they almost came to the roof.

"It was not luck," she replied. "I'm braver and stronger — men are weak fools."

"I guess so," he said easily, splashing oil on the two dangerous spots.

"It is true," she stated. "At one time I had five of you for slaves but one escaped. I had to kill him."

"Where are they now?" he asked in curiosity.

He could not believe life outside had become that hard. Slavery?

"They died," she said calmly. "Their hearts were not strong and they lost too much blood when I beat them. Then a gang took me and I escaped. That is why I am here." Her voice held no emotion at all — she was merely telling facts. "I would not have their babies. I'm not a mother."

"Can't blame you," he replied. Below, the ants were avoiding the gasoline pools on the concrete. "Well," he cried in mild suprise. "Look there!"

THE ants carried tiny bundles wrapped in fragments of grocery bags. Here and there he spotted the winged back of a young king or queen. The woman stepped up to him.

"So?"

Her monotone sounded disgusted. He glanced up. Her face seemed dead under her gently waving blond hair.

"They're carrying bundles," he explained. She turned and walked back to the pile of cans and sat down. "It's a discovery," he added. "Like when we discovered fire."

"Oh? Where do you live?"

Her voice held no interest.

"NW Fifty-eighth Street and Thomas Avenue," he replied. "In the dead zone." He grinned. "Got a nice place there. Basement of a—"

"Oh?" Her rocky eyes watched him. "How did you survive so long?"

Shrugging, he poured out the last of the oil, tossed the can to

the street. The swirling red sea covered it instantly.

"I managed," he said. Running his left hand through his thin white hair, he touched the bullet scar hidden there. "Lucky, I guess." She disdained making any rejoinder. "Hey," he said in astonishment. "Look at that, will you?"

He kneeled at the edge of the roof.

The red ants had passed. Behind them came a flowing, swirling sea of black ones. Several yards separated the two armies and, as he watched, the black advance guard went too far and brushed against the red rear guard. The reds attacked and the blacks fell back. Even hungry, the two were enemies. He shook his head.

"Sort of reminds you of the War, doesn't it?" he said, glancing back.

Her right hand rested in her pouch.

"I don't think you're fit," she stated. Her voice seemed as dry and cold as ever. "Only the strongest can survive. You're not strong. You are too old, too thin. You are not fit. You cannot survive. I do not know how you survived so far."

He shrugged.

"It doesn't take muscle to survive here," he replied. Something in her voice sounded dangerous. She faced his right side but, from where he knelt, she could not see his left. Slowly he reached into his left pocket and grasped the worn handle of his revolver. "You've survived," he added to keep her talking. "So you must know that."

Easing the .38 out of the leather lining of his pocket, he lowered it to the gravel by his feet. She frowned and he froze.

"You're right," she stated emotionlessly. He relaxed. She was worried about his words, not his actions. "I'm not tremendously strong but I have great powers of endurance." She touched a swelling on her left cheek. "I can stand the pain of this ant bite. No man can endure what a woman can." Her right hand came out of her pouch. It held a .22 revolver. "A man's only purpose is to be a slave and do heavy work — but you are unfit." She raised her revolver. "I shall kill you," she stated in her emotionless monotone.

His .38 rested easily in his hand. He smiled at her.

"Please don't," he said. The revolver remained level. "You will be alone if you kill me," he added.

He did not want to kill her. The War had caused enough death.

"No," she replied in her monotone. "I will find another man to get my food. You're too weak. I cannot use you."

"What's your name?" he asked suddenly.

"Edith —" she broke off. "That's not your business."

He could detect a bit of irritation.

"Edith what?"

He watched her. She could fire whenever she decided to. But more killing was not needed. Death was not a way of life.

"Edith—Randal," she replied.

Her voice held a bit of pride. Pride? Was pride her weakness?

"Edith," he repeated and smiled. "You know, that's German for 'rich-war.' "

"Oh?"

Suddenly her gray eyes seemed to light. The revolver began to sag in her slender hand.

"Yes," he said. "And Randal is—let's see." He paused and she leaned forward slightly. The revolver sagged a fraction more and he gathered his legs for a leap. "Oh, yes. That's Anglo-Saxon for 'shield-wolf.' " He grinned disalarmingly. " 'Rich-war, shield-wolf.' You have a very strong name." He nodded his approval and her head bobbed slightly in acknowledgment. "You should be proud of a name like that."

Her lips twitched. She looked like a snake trying to smile. Her attention was completely on him.

It was time.

Suddenly widening his eyes he started, staring past her.

"Behind you," he shouted.

She whirled, firing at the empty air.

Dropping his revolver, he leaped. He hit and rolled, turning her under him. She shrieked and scratched at his face. He tore the .22 free and hurled it to the street. She squirmed in the gravel, trying to bite him. He grabbed her hair.

She growled like an animal. Her fingernails slashed his cheeks. He caught her hands, sat on her belly and waited.

She tried to knee him. He bounced once. She gasped for air and lay still. He waited, but she did not struggle. Her stony eyes glared at him.

"Go ahead, man," she said without any emotion. "Take me."

He grinned in amusement.

"I'll take you home," he amended, slowly easing off her. She did not fight but seemed willing to lie quietly. "I have some medicine there that'll take care of those ant stings." He smiled warmly. "You'll feel like a new woman."

Her eyes gave no sign of any emotion. He stood up. She did not move.

"You'll really like the home," he added, walking back for his .38. "I've got the finest bed there I could find in this whole city — but that'll be yours." He picked it up. "Along with the whole room." He turned. "How—"

She held his hunting knife. Her hand was back to throw it.

He shouted and hurtled to one

side. He fell, rolled, stopped, revolver waist-high and ready. She had not thrown. Suddenly she smiled.

"Man, you die!"

He fired.

One shot was all it took. Rising, he picked up his knife and slid it back into its scabbard. Slipping his revolver back into his left pocket, he looked down. A few feet from her body lay a small splatter of brains and blond hair from his bullet's exit Slowly he kneeled beside her.

She was the third human he had killed. The act was always pointless. The War was pointless — and so were the actions of the ants below. He crossed her thin arms over her chest.

"Forgive her, God," he murmured softly.

BELOW, the black ants were carrying little bundles wrapped in brown paper, just as the red ants had done earlier. He kneeled at the edge of the roof and looked down. What, he wondered, could those bundles be? Intermixed with the package carriers were the young king and queen ants.

King and queen? Male and female.

Those bundles held eggs — protected from the sun.

"I'll be damned," he murmured in pleasure.

The ants were learning. The black ants passed and behind them came small jelly-brown ones.

The brown ants' advance guard touched the rear guard of the black army. No — he looked closer. It did not just touch. The small brown ants mixed with the black ones — and they were not fighting. For the briefest of instants he closed his eyes.

"Thank you, God," he whispered.

He sat down beside his canvas bag and watched the passing brown sea. They were hungry. He touched the canvas bag. They were hungry in a city of food.

He pulled out a can of peas, looked at it and at his old, thin hand. They were hungry. He hurled the can into the street below. It broke and the peas and juice spread out into a pool. The brown specks swarmed over it. He hurled another, then another. When the brown sea had passed the cans were bare.

Rubbing his aching legs, he stared at the empty street. What, he wondered, would they discover next? The wheel? Fire?

Lowering the ladder, he slung his empty canvas bag over his thin shoulder and descended. The sun showed late afternoon. He had wasted the day. He shrugged. Tomorrow would be another. Resting a hand on a gas pump, he glanced back at the Gulf station roof.

Another very lonely day.

He walked home. •

This interstellar real estate game
is played with planets for marbles,
but for values still found only—

DOWN ON THE FARM

I

CRAWFURD NIALL positioned the bus in the light wind, dropped the stabilizing bars between rows, set a slight negative buoyancy and drilled the hole neck deep. He climbed into the plastic sack and held it up with one hand while he hooked his arm over the boom bar. Ed Deasy took the controls and lowered him into the hole. Jane Clapperton held the sack around his neck and released the expanded mica that buried him in the row of brabbage. They had used sand at first instead of mica, but the sand compacted too

much. She then looked at Niall doubtfully, released the delivery tube to suck itself back into the bus and smoothed the mica around his head.

It was a dramatic and effective demonstration of what the picker could do—a human head in a row of brabbage heads. Theoretically at least, the picker would recognize it and pass, not harming it. Niall grinned at the farmers in front of him and twisted his neck to watch Jane walk down the row to the harvester. Ed Deasy lifted the bus and let it drift with the wind before he swung it around the spectators and set it down behind them.

The city manager of Hydspe squatted down beside Niall.

"How's that foxy bastard, Billy Ballod, these days?" he asked.

"No change. Full of hell. What I want to know is why does my nose start itching as soon as I get buried?"

The city manager rubbed it with the back of his hand and said, "Have you signed a new contract yet?" I'm not tampering, Niall, but if you haven't, let us put in a bid. I know your time is up tomorrow and there's no renewal option. We don't expect anything like brabbage, of course, but we like your team well enough to make a very attractive offer."

"Oh, I don't know," said Niall. "There are a couple of interesting crops we haven't had time to introduce at Avelou. But the three of us figure to go off planet and maybe back to College Station before we go out for bid again. We saved a little money on this contract."

"I heard you weren't entirely broke. You think about it. You let us know." He rubbed Niall's nose again before he stepped back with his farmers.

"LADIES and gentlemen," said Niall, looking up at them from the ground, "this particular field is Avelou seventy-seventy-two brabbage, developed by Jane Clapperton for machine harvesting. It allows a plant population of up to fifty-one thousand heads per hectare. You and I know how good Weather Control is, how you stagger planting for a three-month harvest and get jammed into a two-month period. This is part of why brabbage has been so expensive. And in the state of the art, every city on the planet — except Avelou — wisely demands a catch fence to keep the brabbage where it belongs. Since brabbage must be planted on new ground for optimum results, it's not cheap."

"You can rotate back every five years," said a farmer.

"So you build and maintain five fences instead of none," said Niall. He had an itch above his right ear. The whole demonstration could have been taped but even a three-sixty-degree projec-

tion had nowhere near the impact of the real thing out in the valley, downwind of Hydspe, with the tall mesh fences cutting the sky. "With the seventy-seventy-two and the harvester," Niall continued, "you can plant fifteen hectares for every harvester you own. In the open. This allows one hundred per cent safety margin before bolting. Avelou will bond you against any damage on the basis of the harvester recorder."

The city manager quoted the truism: "Machines are made by men."

"The bond holds. We have a ten-hour repair service to any growing area on Nicosea. If it's a major breakdown we bring a new machine to finish the job. The price of the rig includes a warranty — also recorded at the Central Bank — and a repair inspection and certification by us during the off season."

"Will you sell the seed separately?"

Niall grinned. "You bet we will. But if you plan on machine harvest, just as a friendly suggestion, make damn sure you have somebody like Ed Deasy design your machine. The programing gets a little complex. Did you hear about those greedy people over at Drahnko seventy years ago? No fences, late rain, warm weather. The brabbage bolted. Women and children moved into the city hall and they cleaned the filters every hour on the hour. Every man was outside in protective gear with a flamethrower for six weeks. You can't trust brabbage." Niall paused. "Other questions? All right, Jane, let her roll." The great red harvester with Avelou's gold circle A on the nose started down the row.

One of the farmers asked, "Are you positive this thing works?"

Niall grinned. "To tell you the whole truth, sometimes I wake up in the middle of the night to make sure my head is on straight."

The farmers laughed. They were a little apprehensive. This was one demonstration that really held their interest.

"There are four tests for every head, just as you pick it yourself: color, conformity, solidity and scent. My head's the wrong color; it's irregular, far too solid and no one ever said I smell as nice as a ripe brabbage." Another nervous laugh from the spectators. "This is about our thirty-fifth demonstration. So far I've got the same old head."

BRABBAGE is a plant native to Nicosea and is as interesting to most human beings as catnip to most cats. It is remarkable for its catholic intake of trace elements, including copper, iodine, iron, manganese, zinc, molybderum, cobalt and selenium, with an inhibitory system that limits the

intake below human toxicity levels in even mineral-rich soils. It contains vitamins A, D, E, K and all of the B complex. Ascorbic acid is adequate at harvest but is lost rapidly in storage. It is low in fats, high in carbohydrates. It is an indicator of lithium in its native condition — and while it grows well in spodumene, lepiodolite or tetalite, it reaches optimum size in amblygonite. The period of maturity is brief and varies remarkably with the individual plant, with seed, soil, weather and microecological conbelfore maturity, it is slimy. If it bolts, it is actively dangerous.

Because of the high solids content, the tissue-thin leaves do not shrink a great deal when dry and the rate of decay is slow. Ten-meter drifts of brabbage leaves have been reported on Jalka Island. The island has never been settled. The leaves barbelate when dry and fragment as they are spun by the wind. In addition, there are three to five hook-shaped seeds on the edge of each leaf, and while the toxin they contain at bolting is not excessively virulent, many a man has died from a thousand needle-hook seeds in his exposed skin.

But in the short period of full maturity between slime and bolting, it is the most attractive vegetable food known to man.

"That rig is picking every head," said a farmer.

"It's taking every head," shouted Jane Clapperton. "Crawfurd, the odds aren't that good!"

"It's the seventy-seventy-two strain," Niall reassured them all. "Did I tell you that the seventy-seventy-two hold for up to fifteen weeks in C/A storage?" The temperature should be between —"

"I can't stop it!" Jane was struggling with the manual override. "Ed! Ed! Master control!"

Deasy sprinted wildly for the back of the bus, leaping over amblygonite containers, shovels, seed vacuums, a dusting skip, the concentrate spray rig and all the other deck paraphernalia.

"Box is gimmicked! Won't turn off!"

Niall had a glimpse of Jane tearing at the controls cover before the positioning wings shut off the world. The color-sensing circuit passed, the conformity fingers brushed him gently and the amylester analyzer sniffed. The whining saw bar swung down.

The great red harvester moved on.

"Deary—medeary—medeary," babbled a husky farmer. Jane tore out the microminiaturized computer and the machine stopped. The men swarmed around the harvester and onto it. With set jaw and a white face she tripped the toggle that opened the hopper. The harvested heads lay in cradled rows.

Brabbage is tender at maturity and the market value is determined to a degree by the amount of bruising. Bruises make for off-flavor and go deep. The stem is fibrous and is covered with an extremely hard dermal layer. Hand harvesting is done by two men, one with a power saw and the other holding the head.

The brabbage in the hopper was clean cut and unbruised. There was a wasp-buzz of horror and one of the women bit off a shriek. Ed Deasy was beside Jane now, and he slowly reached into the hopper and pushed the local control knob that activated the elevators.

There was dead silence as the machinery brought up and cradled the last picked heads.

II

ERASMUS BALLOD stood at a window overlooking Avelou and said mournfully, "How can they do this to me? I treat them like two sons and a daughter and this is the thanks I get." His shoulders slumped in self-pity.

Aside from the central service core, the mayor's quarters were open. His greatest pleasure was to look out over his city. He had commissioned sixty-four peegee units at College Station after finding and looting an undiscovered outrider planet. He had acquired Avelou and rebuilt the city on the hills above the bay with a permanent gravity unit under each building. It was quite economical. Just drill a hole, drop in a unit and layer your offices or apartments above it.

The buildings stuck out in all directions, each one vertical to the people inside, with the rest of Nicosea tilted. Avelou was unique in the Comity of Worlds. City planners and architectural critics applauded or deplored it about equally. City hall alone was vertical to the horizon and Ballod lived on the top floor. He was amused by the critics and the birds, who took careless liberties with other cities but became flummoxed in the gravitic fields above Avelou. A fish-eating neagle lurched by with comical screams of outrage. Ballod ignored him.

"I don't expect gratitude," he whined. "Just a little kindliness, a little consideration. Is that too much to ask?"

The chief justice yawned and tapped his mouth with two fingers. Then he put his fingertips together and coughed a dry, legal cough. He was tired of Ballod's feeling sorry for himself and the mayor reacted predictably.

"God damn your bones." This was Bully Ballod. "Where the hell were you when I signed that contract?"

"I was right there, advising you to omit that paragraph. And you know it."

Ballod snarled and turned to he window again. The morning un sparkled on the bay. The rainers were at work in the new olphin pens. The Marina had ighty-eight per cent occupancy. Gardeners were landscaping the leasure Cube. To the south was he Space Airport with Ballod's vn deep-space *Little Sister* oming dull bronze among the rightly colored pleasure craft. North and south and running to he mountains were the slowly naturing fields of beautiful, profitable, dangerous brabbage.

"But who would believe that en per cent of the net profits at he end of a five-year contract would figure out to a million man ours? One million sweats. And hose sneaky agricultural bastards started from scratch."

"How much did they earn for velou?"

"I hit those damn farmers with every expense I can think f — with the wage-health-nsurance-education-vacation-etirement package, computer ime, pro-rata defense, land leases, onstruction overhead, equipment ental, city services and machine-hop depreciation. If we had mice, 'd charge for wear and tear on raps." Ballod sighed. "And now 've got to pay off a million man ours tomorrow. Come on, now," e wheedled. "Tell me how not to ay them. How do I get out of his? That's what I want to know."

"If you default payment," said the chief justice, "the judgment in their favor will take four days. The Central Bank will honor the obligation and seize the city. Nicosea was discovered and divided some one-hundred-fifty-six years ago by a consortorium newly organized by the shrewdest business attorneys from eight commercially oriented planets. The law is explicit. There are no loopholes."

"All right," said Ballod, "go on."

The chief justice ticked off the points on his fingers. "One. Offer a cash sum and payments with attractive interest."

"They want off planet, out of the credit union."

"Two. An enticing contract for another year."

"How do you entice somebody you owe MH-1 million?"

"Three. Borrow the money."

"There are other obligations. If you ask how much it costs to build a city, you can't afford it. Racing dolphins come high, and that's the only Pleasure Cube in two-hundred-thirty-five or so light-years. And the Marina and those damned expensive entertainers and hell, there's no end."

"Four. Pay off in stock."

Ballod waited. He had spent five years looting a primitive planet. He had worked with the natives, married three women, run his own drilling rigs and stored

his loot until it was no longer possible to hide his depredations and the peculations of the men he subverted. When necessary, he had an inexhaustible patience.

He had put the experience of a lifetime, his luck and all his loot into Avelou. It was the pleasure capital of a world. The profits were enormous even now and he had plowed them back into development. The Pleasure Cube was his last major investment and the sweats would become a flood. Given even a year, a million man hours would be small change.

"Five. Sell out."

A forced sale would not return ten minutes on the hour.

"Six. Abrogate all contracts. Liquidate everything. Steal what's loose and take off in that superhot combination freighter, null-time cathouse, battleship and yacht you keep over in the port eating its head off."

Ballod grinned. "The girls have been out of there for the past two years. Fuel doesn't deteriorate and the stores are good for another ten years. Did I ever tell you about that double-jointed redhead from Mier with the blond lanuga hair? Forget it. *Sister* costs nothing on standby."

"It's a nonproductive investment."

"Point of view. My pleasure. Conspicuous consumption. I'm sentimental," said Ballod with a wolfish smile. "What else?"

The chief justice fixed the master of Avelou with a cold legal eye.

"Seven. Shoot yourself."

Ballod laughed. His hot blue eyes crinkled and his ruddy complexion flushed. He bellowed with amusement. The chief justice's thin lips split in an unconscious smile of great charm. Years ago and parsecs away he had come close to being a great man on another world and when his hopes degringoladed, he was rescued from obloquy and shameful death by Erasmus Ballod. With dreams dead, his only interest was in the legal jigsawery of Avelou.

The mayor wiped his eyes. "I ought to put you to skinning malfeasances and tanning the hides with torts. Any more helpful suggestions?"

"I wrote my contract, Mr. Mayor. Read it before you try."

Ballod put a hand on his shoulder and asked quietly, "What shall I do now, John?"

THE chief justice cleared his throat. He had been with Ballod a long time. Ballod was the source of the complexities that alone made life endurable. "Billy, I thoroughly approved when you decided to broaden the economic base. You have accomplished this in agriculture, and light manufacturing follows. You selected a magnificent Ag team. I blame my-

self for not keeping an eye on the finances."

"Not your business, John. I assign responsibilities."

"Can't you find the money somewhere?"

"Consortorium law holds — no off-planet investment capital without consent of eighty per cent of the owners. My peers don't know I'm strapped, or they'd be on me like buzzards on a gut. They hate me now and in two years I'll have to cut them in on the action — but at a price, John, at a price —"

He patted the chief justice on the shoulder and began to pace the floor. "Another assessment? Discount franchise prepayments? There are some disadvantages to owning almost everything myself —" His lips puckered in a soundless whistle. People who worked with Ballod had learned not to disturb him when he wore this blank expression, whistled silently and paced.

He was a man so rock-certain of himself that he could indulge his whims carelessly, entertained by gambling, technical expertise and women, by food and shoptalk and gossip, by a thousand apparent irrelevancies while he prowled his world in a dozen disguises of humor, anger, good fellowship and rage. He could even deceive his chief justice, who waited now with no impatience on the master of Avelou.

"Is your office safe?"

Ballod snorted.

"If you are contemplating assassination, my advice is no. A triple damage fee on a projected earnings basis to College Station as their designate would be disastrous. Your Ag team has performed brilliantly. The only thing they overlooked was the precaution of an escrow for their ten per cent. They are not fools. Jane Clapperton is devious as a spider web. Ed Deasy is so crooked he screws on his boots — and Crawfurd Niall? That young man is actively dangerous. He can see the obvious."

Ballod whistled soundlessly. The cold amber eyes of the chief justice dropped.

"Sweet reason," said Ballod softly. "I contemplate only an appeal to sweet reason. . . . If you want a thing done well," he added after a pause, "you must do it yourself."

The attention light on his desk began to blink slowly.

"Now damn it, Katie!" he roared. "No calls, no nothing I told you, damn it!"

Women were never afraid of Ballod. "You also said you wanted to know when the Ag team returned. Well, they have. Sold five harvesters to Hydspe. All papers signed. Now, do you want any more calls or are you still out of town?"

"Thank you Katie. No calls yet." He touched the plate to off and

turned to the window again. Another neagle flopped by outside, cursing the gravitics. Ballod laughed without humor. "If you want a thing done well, do it yourself," he said tonelessly.

III

IN THE apple orchard in the Lour Valley to the east of Avelou stood an outcrop of rock. It was relatively flat and about a quarter of a hectare in extent. The packing and supply sheds took up most of the space but at the highest point of the rock the Ag team had built an orchard operations headquarters complete with beds, a small kitchen and a gazebo on top for control, pleasure and observation.

"Have you ever noticed," asked Crawfurd Niall, "how every little group of men makes beer? Beer is a universal truth. When you stop and think about it, a galaxy full of suds is sort of awe-inspiring."

"Stop driveling," said Jane Clapperton.

"It's kind of inspirational," Niall went on dreamily. "The conquest of space-time and all that, on a foaming crest, a beautiful breaking wave of —"

"All right," said Jane. "What happened back there?" She tapped the floor with the toe of a boot.

Ed Deasy came up the stairwell with bottles under his arm.

"Pest exterminators on. We should have put a cooler up here. You wanted cider, Jane?"

Niall kissed the label of the bottle and levered off the wedge top. Bubbles creamed to the surface. He drank deep, looked at Jane and licked off the white mustache with a gourmet tongue. "I have always wondered whether it is better to let the foam dry and then lick, or — don't throw that, Jane — I suppose there are some things man is not meant to know. All right. I saw old Billy Ballod in a work suit Harun-al-Rashiding around that harvester this morning before we took off — but everybody knows that electricians are crazy. When Ed plugged it in right, they bought five, didn't they?"

Deasy said, "Next year brabbage isn't going to be worth two minutes a kilo. Exporting in controlled-atmosphere freighters could be the answer. New freight line might just pay off."

Jan Clappperton glared at them both.

"I had a shiver down my back," said Niall soberly. "When you poured in that vermiculite I got to thinking about Ballod and how I wouldn't look so good without a head, so I stuck my elbows out."

I KNOW," said Jane. "That hole took about a third of what it usually takes. You had enough

room to duck. That's not what I'm talking about. When we were lifting over the mountains, coming home, you two tore that power room apart and threw something over, and down into the canyon depths—"

"I had a real attack of the stupids not to think of it sooner," said Niall. "It was just a little fire. I think it was a destruct on the interrupter. We threw both overboard while we were still gaining altitude. That's why the interrupter didn't work."

"Barometric triggering device," said Deasy. "Armed on first landing. Set to interrupt aggie unit when pressure dropped. Old idea. Good idea if it works."

Jane shuddered. "I can understand wanting to kill Crawfurd," she said. "But why me?"

"With me headless in Hydspe," said Niall, "you two would still collect the team money. But after my pitiful accident two suicides might have a sincere look, especially in an MH-30-thousand bus."

It was dusk by now. The little fixed-distance lasers were snapping at a new hatch of coddling moths in the apple orchard below them. The moths made tiny puffs of flame and occasionally there was a series of crackling firepoints when leafhoppers jumped into the laser in alarm.

A crawly-crawly jacked itself out of the ground from time to time and the lasers blipped until movement stopped.

"Question of money," said Deasy.

Niall said, "Don't forget that Ballod was successful in a dangerous and damn unsavory profession. In times of danger, Ballod will return to the old pattern of Looter."

"I can see that," said Jane. "Is he short of money?"

"Who wants to pay?" asked Deasy.

"Five years ago, before we signed the contract, we talked about this very thing. We could have written in a monthly or semi-annual settlement of our percentage but we took a gamble. We guessed right. A cash lump sum is always a shock but I never expected to give Billy this big a shock. He's overreacting. Maybe we can keep him off balance."

'It's all right to be smartsy" said Jane, "but it's like teasing a tiger. How smart are we to stay here?"

"Dear Jane, if we were smart we never would have started this journey. When Ballod's dumb brother kidnapped us and died — we could have gone home. Instead we took that leaky tub into the Comity of Worlds. I don't know if we're smart to stay here or not —but granted our goals, there's nothing else we can do. Besides, Ed and I took a few precautions."

"It's just that sometimes I feel time and circumstances breathing

down my neck," she apologized.

"I got my doodle out of the shop," said Deasy. "Ballod's seen me working on it for three years off and on."

"I went to Parts Supply and visited every harvester Avelou owns while you filled out papers in the office, Jane. I packed some baggage. Those five machines mean another MH-6-thousand owing us. We've got to tighten the screws on Ballod until he squeaks."

OVER at the edge of the orchard a laser shuttered. This was uncommon because the native animals had learned to stay away from the twenty-meter cleared zone around the trees.

"Did we ever tell anyone about the anti-vermin defense?" asked Niall mildly.

"Perimeter lasers have rheostats," said Deasy. "No use shooting mice with elephant guns. Natives restless tonight."

The overheads cut in. They found targets and suddenly rocket trails seared the night sky in colorful arcs away from the orchard. The perimeter lasers were active. A burned tang hung in the air. The lasers faltered momentarily and the lights dimmed. The standby generator droned to life and picked up the load. Shouting and angry voices came from the distance — and a constant soft blittering as the lasers hit targets. Deasy extended the range of the overheads and at once there were fireworks in the sky. Shortly silence fell, broken only by an occasional snapping at moths.

Deasy said with satisfaction. "Very pretty installation, if I did it myself. Worth every second we paid for it."

"Stupid, stupid, stupid," said Niall. "It's not only the wrong season for stealing apples — but if we got killed the College Station contract examiners would find at least one of those idiots eager for information money. I wonder if they were firemen or the fuzz. I'd like to think that Billy Ballod's getting senile."

The phone buzzed and Niall answered.

The mayor grinned and said, "We're having the opening ceremonies at the Pleasure Cube tonight. All Division heads will be there. Twenty-two hundred."

"Our time is your time." The two men smiled at each other and the mayor cut off. "Until noon," Niall added.

Jane Clapperton watched them both and found it difficult to choose between the two smiles. Either one should have frosted the liquid crystal phone plate.

IV

ERASMUS BALLOD stood out resplendent in Avelou red with a frothy jabot of gold shimmering

in the light, greeting his guests and thoroughly enjoying himself.

"Swelled up big as a toad," whispered Jane Clapperton as she and Deasy and Niall walked into the Pleasure Cube. They joined the brilliantly dressed men and women congratulating Ballod at the entry to the great lobby.

The lobby was so complex a maze of color, perfume, lights and music that Ballod himself, with his overwhelming curiosity about the workings of men and machinery, did not attempt to see it as a whole. It was segmented into thirty-seven zones, each distinguished from any other by sound and scent barriers, by décor, by the food, drink and drugs available in each. The intent of the lobby was that customers would gravitate to the area that most fully met their inclinations and explore pleasure from that zone.

The entry was essentially neutral. The air was negatively charged. The humidity was low and the scent was high country. Ballod had a glass in his hand, and beamed at a pretty woman.

"Stay out of the yellow," he whispered loudly and winked. "Sex is not a spectator sport to me. But there are others, madam, there are others." A lively little man asked him if he had tried all the zones. "Not on your life, sir. If you come across a weepy, bathetic pink area, that's one I couldn't stick." He laughed joyously. "And what I had to say about a pure white zone should have sooted the walls."

Ballod was charming. He greeted the Ag team with high good spirits. His eyes reflected the real pleasure he took in their presence. Jane wore filmy gray and a few gold spangles to accent her straw-gold hair. Deasy was lean in rust and red and Niall was elegant in powder blue.

"Been grubbing in the dirt, I see," said Ballod.

"How nice of you to ask us to your party," said Jane, and curtsied. Deasy offered a thin-lipped grin and the mayor and Niall touched palms with no hesitation.

"It's all on the house tonight," said Ballod. "Go where you want to go, do what you want to do. Have fun. Be happy."

He opened his arms to give them the freedom of the Pleasure Cube, and turned to greet others.

"Remarkable man," said Deasy.

"Let's go see what Billy hath wrought," said Niall.

"He is a complete and perfect bastard," said Jane softly.

The entry was at one end of the lobby and raised above the general level of the floor. While it was perfectly possible to pull a string tight from one end of the lobby to the other, the eye was so constantly distracted, the senses so beguiled that it was impossible in fact to see from one end to the other. There were is-

lands and alcoves and balconies with floor coverings and ceiling heights appropriate to the zone. In common, they each had a door which led to intense indulgence of the pleasure suggested by the zone.

THE joy of childhood was to one side and cuddly creatures scrambled over the rug to pick up cookie crumbs. There was a quiet library with lamps for scholars—Niall walked over to smell the leather bindings and dust and floor polish. There was a torture chamber, dimly lit and smoky orange. There was a beach with waves lapping onto the sand. There was aching young love with lilacs laden with raindrops.

"Original was designed in College Station as exercise for psychological engineers," said Deasy. "Ruler of stinking little planet had all the erotica built for private pleasure. He died in three months, happy as a clam. This is the third Cube in the galaxy — and the biggest by far."

"You have to walk through the store to get to the beer," said Niall, examining the yellow zone dispassionately. They strolled on past mother love and a gymnasium redolent of sweat and a noisy bar and a chess island.

Jane said, "The last thing I believe in is 'natural' man — and yet I cannot help but wonder if synthetic reality will not be Armageddon. My feet hurt."

"Not here." Niall led her past a warm orchid area where sex was both participation and exotic. "Let's try this place. We'll add a little color to the heavenly scene. What happens when you go through a door?" he asked Deasy.

"Hypnospray to fix your inclination, chronoleptogenic to give you a long ride — then total involvement mental and physical. You get unscrambled at the end. Ninety-nine and seventy-five per cent unscrambled."

"Is that figure any good?" asked Niall.

"No," said Deasy.

Niall stared.

"All mechanical?"

"Of the very first chop," said Deasy indignantly. "Aside from the mechanics it takes two men to run this place. A ticket taker and a standby psychiatrist. Technologically, nothing can compare with a Pleasure Cube."

Erasmus Ballod found them all in there wrangling amicably about who would get the next round of beer from the bar down the way. None of them cared for the ambrosia and nectar immediately available.

"I hoped you would try a door," said Ballod. "That would have kept you happy for six months. Let's get out of here. The whole goddam place gives me the creeps."

V

"THAT'S the way it is," said Ballod, who was asking for understanding in dignified simplicity. He stood by the window overlooking Avelou, his face calm and sincere.

"Then what do you propose," said Niall, lounging in a deep chair. Jane sat on a footstool beside him, her back very straight; she was studying Ballod's face. Deasy straddled a chair with his arms folded on top, his chin in his hands.

"We want our money," said Jane.

"The exact amount is MH-1, 012, 597, including yesterday's percentage," said Deasy.

Ballod sat behind his desk and chuckled. "Five years ago you were three youngsters up for bid at College Station. My bid was modest and lower than two others, except for the percentage. And now you are in a position to dictate to me, to threaten the stability of a multi-billion enterprise. How do you account for this?" He wanted to know. He was genuinely curious.

"Ten per cent of the net on apples and brabbage," said Jane.

"Comprehensive understanding of growing, breeding, marketing and sub-contract manufacture," said Deasy.

"Your noninterference. And you might have found a clue in our release price from College Station. You bought us out very cheap, Mr. Mayor."

Ballod whistled soundlessly as he met Niall's eyes.

"True enough," he said slowly. "I noticed that and never followed it up — Then your education was not entirely at College Station. Tell me this — were you waiting for me?"

"We were just lucky, I guess. We wanted to make money."

"You have, my boy. No question." Ballod's smile was a little wry. "Now, let me make a suggestion. Let me pay you a nominal sum now, say MH-one hundred thousand and at the end of a year I will pay you MH-one million one hundred thousand. We can draw it up as a primary lien against the city guaranteed by the Central Bank. You will make twenty per cent on your money by your forbearance — roughly ten years' wages apiece on the salary scale at which you signed the contract. No restrictions on your activities. Take another job. Go back to College Station. Buy land on an open planet. Do precisely as you please."

"We want our money now," said Jane.

Ballod looked at her quizzically. "When you have enough money," he mused, "money becomes a counter in a game. It's a tally, a method of keeping score. You sleep in one bed, you put on your

pants one leg at a time, you have limited physical capacity for any indulgence." He turned to Niall. "What game are you playing? What is it you want?"

"Not your city and not your power."

"You may have me between a hard place and a rock." said Ballod, "but do not be too greedy."

"Is *Little Sister* fueled? Stores aboard? Ready for space?"

"Yes."

"We'll take it."

BALLOD half rose, stared at them and sat down. Blood flushed his face.

He raised his voice and it had a metallic edge, "All right, John. I tried your way. Now I'll try my own."

The chief justice came in with two laser hand guns. He looked ill but deadly.

"All peegee units have modifiers," said Deasy. "Otherwise you couldn't move them."

"No goddam idle threats from you stinking intransigent sons-of-bitches!" roared Ballod, suddenly losing control.

"You had those peegee units manufactured at College Station," said Niall.

"The modifier is in the deepest vault of Central Bank. Get up and get out."

"I made another," said Deasy. "Took me three years. You overcharged us on the computer time. Microminiaturized, here it is. Short range. Not selective. All sixty-four peegee units under Avelou will go null at once. City hall is on natural gravity. We'll be all right here."

"Ed built in an interesting electroencephalographic switch," drawled Niall. "It activates if you take him away from it."

"Bluff," snarled Ballod, "nobody can duplicate a peegee modifier."

"Best I could do with such little control was set minimum for one second."

"Want a second's worth of proof?" asked Niall.

Ballod wheeled and walked to the window. His city glowed softly in the night. The casinos never closed. There were people in the parks. A small boat with a luminiscent sail was tacking out of the bay. The buildings of Avelou loomed in the night sky at all angles.

"Fifty thousand blameless men and women," he growled. "Restaurants are open, theaters are full. One of those apartments is a nursery. I don't know how many children are there tonight." He looked at Jane and said mournfully, "Would you kill all those babies and innocent children?"

"Once it is determined that a women will sell," said Jane, "all that remains to be determined is the price. Old joke. And once it has been determined that a man will kill —"

"You immoral monster! You have no compassion, no sense of—" blurted the chief justice.

"AND you, sir," said Jane with the same slow voice, "sold the resources of a planet to a Looter. You were a knowing catspaw when you arranged the cinnebar leases to Looter Ballod. What were you paid for your betrayal of the United Nations? What were you paid for the sixty-four thousand tons of liquid mercury Ballod stole from Earth? Your name is reviled in a hundred tongues. Traitor is an abominable word in Interlingua — or English."

The old man shriveled before their eyes.

"We learned to operate the magnetic flow mining equipment Ballod had to abandon," said Niall, "but do you know what a flask of mercury sells for now? What it sold for when we left, when Ballod's stupid brother looked us up and kidnapped us? One flask, seventy-six pounds of mercury, two hundred and seventy-five thousand dollars."

"How could your own people reach the stars without mercury?" asked Jane.

"Not so religious on Earth any more," said Deasy. "Don't hear much about Judas Iscariot. Got another name we use."

The chief justice shook. His face wrenched and his eyes went wild. Ballod shot him when he raised a pistol. He slumped to the rug with the rictus still on his lean skull face.

"He was going to shoot himself," observed Jane.

"Billy was just protecting the modifier," said Niall. "Very sensible. Just suppose the old man plugged Ed. Down tumbles Avelou."

"Nice thing about lasers," said Deasy. "They cauterize. No blood on rug. Very tidy."

Ballod breathed hard. His golden jabot shimmered. "You three belong to a human branch that should be cut off. I never should have traded the location of your rotten planet to my brother. He would have sold Avelou cheap enough. It was a tumbledown village —" His voice faded as he looked at his city on the hills. "All right," he said. He straightened. His face went hard. He was filled with menace. "Give me the modifier. Take the ship."

"Easy," said Niall. "Let's go to the Central Bank and register *Little Sister* to us."

"God, how I despise you!"

"Sincerity at last," said Jane.

"Come along to spaceport," said Deasy. "Got our baggage there. You give us clearance."

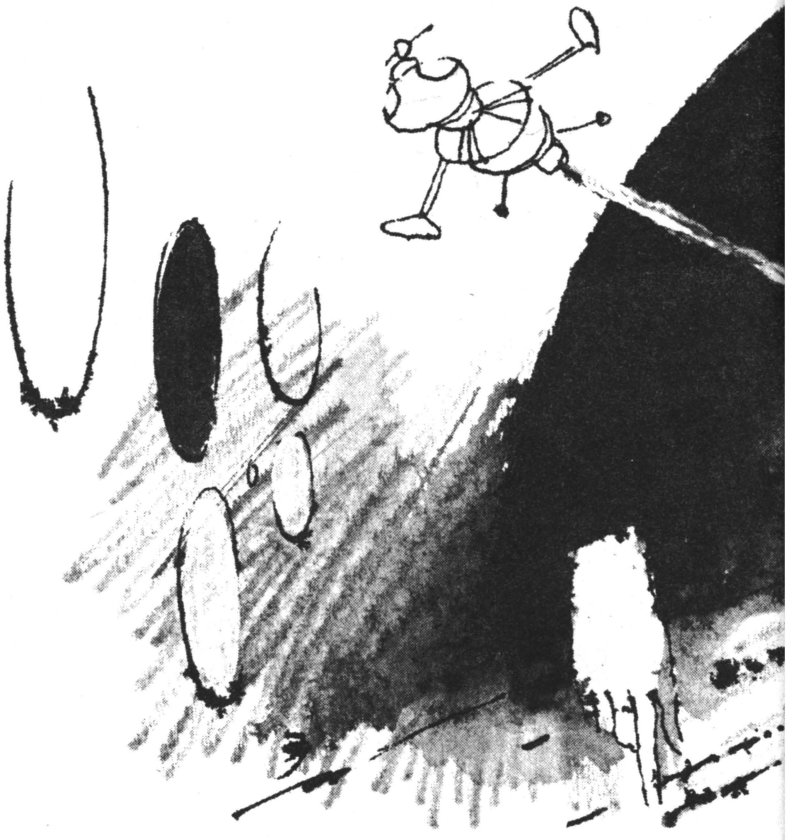
"Hold on just one minute," said Ballod, in control of himself again. "How do I know I can trust you?"

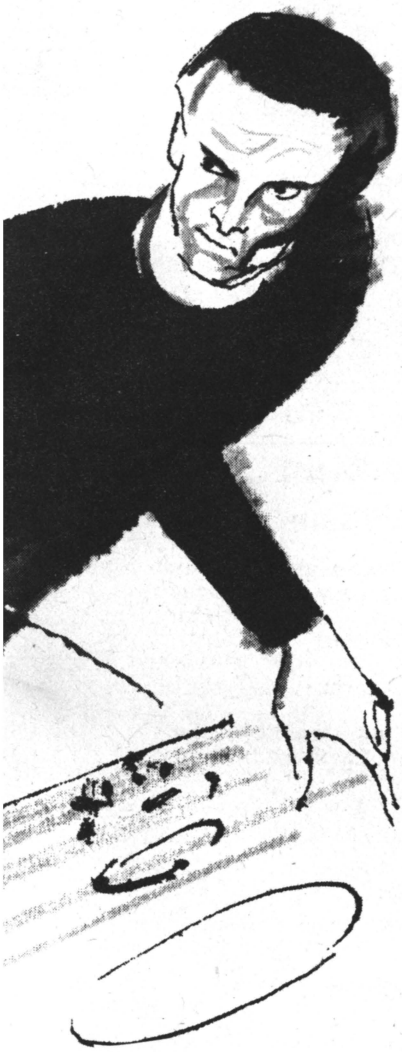
Jane smiled, Deasy snickered

and Niall said wearily, "We are supposed to trust you?"

VI

ALL the formalities were completed. The eastern sky was lightening as *Little Sister* lifted from Avelou. Ballod did not spare it a glance. He walked to the weapons tower. He rousted out the duty officer and had the room to himself. He programed and fired a missile. He called *Little Sister* when she was three diameters out.





Three hated faces appeared in the screen.

"Short-range modifier?" said Ballod.

"Just one more thing. Glad you called, Billy — " began Niall.

"Your stinking race can rot on Earth. You've got three minutes to live."

"Brabbage," said Niall. "Billy buddy, you told us to plant just one helluva lot of it around Avelou and you're surrounded by thirty thousand hectares. There aren't enough flamethrowers on the planet to do the job before bolting. Call off your dogs."

"You didn't take the harvesters with you."

Niall held up a computer. "Got all these with us," he said. "Nice of you to help us load the baggage. Manufacturing lead time on computers for harvesters is three months —"

"Got it down to nine weeks," said Deasy.

"Ever see pictures of Jalka Island?" asked Jane. "The seventy-seventy-two strain produces a bigger head —"

"Bury Avelou thirty meters deep —"

Ballod's face was iron as he pressed missile destruct.

"Fair's fair," said Niall. "We'll mail the computers back from College Station."

Ballod laughed. He bellowed with amusement. His blue eyes crinkled and his face turned red.

He wiped the tears from his eyes.

"Any other tricks up your sleeves?" he asked.

None of the three had smiled.

"We'll send the modifier with the computers," said Niall.

"Ballod was right," said Deasy. "Never could solve that key. It was a bluff."

"Shall we mail the bluff with switch on or off?" asked Jane.

Ballod stared at them.

"And some people call *me* ruthless!"

"Goodbye, Daddy," said Jane. "We're half-brothers and sister. Your three wives — our mothers — don't exactly send their love, but I think we'll be welcome back on Earth with a starship."

"Why did you tell him that, Jane?" asked Niall.

"And, Daddy, one more thing. We are your children. But I wouldn't be easy to find in another six months if I were you." She turned to Niall. "I don't like Looters."

"Gives pop something to think about," said Deasy.

They laughed together as the iron entered Ballod's soul and their faces faded, that peculiar Earthman's laughter that was to become so well known in the Comity of Worlds as time went on. ●

THE STORY OF OUR EARTH

Willy Ley

2. The First Traces Of Life

THE most important event in the early history of our earth, as far as we are concerned — and observers from another planet would probably agree — was the beginning of life.

But this event had to be preceded by another — the formation of liquid water. Our earth and the other planets of the solar system are the results of an accumulation of matter from a cosmic cloud. Zones of condensation must have existed in that cloud — places where the dust and gas began to form local aggregations that then tightened because of the mutual gravitational attraction of the component parts. Once these local aggregations were massive enough, they began sweeping up whatever additional matter they encountered. But the condensation of matter and the sweeping up of additional matter mean that an endless number of collisions between the particles takes place and when particles hit, their kinetic energy is largely changed into another form of energy, namely heat. So the whole must grow hot.

It is not possible to give a figure for the temperature of the earth during its process of formation. It certainly was far above the boiling point of water. On the other

hand, it certainly was not as hot as the outer layers of our sun which have a temperature of 6000° centigrade, corresponding to about 10,000° Fahrenheit. The temperature at which iron melts, 1535° centigrade, corresponding to 2435° Fahrenheit, or a few hundred degrees above that temperature, seems a reasonable guess.

Which makes the earth — at one time in its history — a large ball of molten rock surrounded by an atmosphere hundreds of miles in depth and hot by our standards, yet cooler than the body of the earth itself.

The bulk of this atmosphere consisted of hydrogen and helium but it also contained other gases that are not elements but chemical compounds. Such compounds, in order to remain stable, need temperatures below 1000° Fahrenheit — at higher temperatures compounds fall apart. The original mixture of elements that formed the earth must have contained a certain amount of oxygen — and since oxygen is a rather active element it combined with everything within reach, once the temperature was down to a point where compounds could form.

The oxygen combined with hydrogen to form water (because of the still high temperature the water was gaseous); it combined with sulfur to form sulfur dioxide and with carbon to form carbon dioxide. The hydrogen was active, too. It combined with nitrogen to form ammonia, with carbon and nitrogen to form hydrogen cyanide, with chlorine to form hydrochloric acid, with carbon to form methane and so forth — a whole range of substances with simple molecules.

The hydrogen that remained free — because there was nothing left with which it might have formed compounds — gradually escaped into space, as did the helium that does not combine with anything. As the earth cooled, its atmosphere grew smaller and denser; for a time it may have contained mercury compounds in the form of vapors, similar to those believed to be present in the atmosphere of Venus.

As the cooling progressed the temperature, in some places, must have gone below 200 degrees Fahrenheit.

The water vapor then became water, trying to fall as rain. Of course the rain that formed in the upper and cooler layers of the atmosphere did not reach the ground. As it fell down into hotter atmospheric layers it evaporated again. But this evaporation removed heat from the surrounding gases that thereby grew heavier and continued the downward movement, forcing lighter and hotter gases up. This process created vertical convection currents that carried hot gases into

the upper layers, where they radiated their heat away into space. It can easily be seen that such convection currents accelerated the cooling process, for naturally a hotter body radiates its heat away faster than a cooler body. It does not matter whether the "body" in question is a gas, a liquid or a solid.

In time the rain did reach the ground.

IF THERE were any tall mountains at the time we could assume that the rain-forming activities were strongest in the vicinity of such mountains, the liquid water cascading down the mountainsides, returning from the hot lowlands as water vapor to the higher layers of the atmosphere.

The result would have been steadily growing circles of rainfall, each with a mountain in its center.

However, we don't know whether there were tall mountains on the early earth and several reasons exist to doubt it. But there must have been cool spots in the atmosphere, for rain did fall and gradually the steady downpour that had started in only a few places spread out and cooled the surface rocks until water remained water. The first pools that filled natural depressions were boiling hot — but they remained liquid. And hot water is more effective for dissolving minerals than cold water, so that all the early bodies of water were a thin broth of a number of minerals.

Many of the compounds that floated around in the atmosphere, especially the carbon dioxide, were water-soluble, too, so that the early pools were solutions of almost anything. This phenomenon formed the background for the emergence of life. As we now know—and can demonstrate in chemical laboratories—such a solution, with an atmosphere holding methane and ammonia above it, will produce "peculiar" chemicals if energy is supplied. The energy in question could be either electrical discharges—like lightning—or ultraviolet radiation that forms a part of sunlight. The peculiarity of the chemicals mentioned above is that all are found in living tissues in our own time—they are "organic" molecules which include some of the so-called amino acids which are, in turn, building blocks of the proteins.

It is quite conceivable that this process still occurs in nature in a few places on earth — but if it does happen the results will disappear fast. They will be eaten up by existing microscopic life forms. When it happened for the first time, half a million years or so before the beginning of the Cambrian period, there were no microorganisms. Hence the amino acids and other "organic" mole-

cules could accumulate and fuse into still larger molecules.

A living cell — let us use the term, though it is by no means certain that it applied to those earliest super-molecules — shows that it is alive by doing at least four things. The first is that it ingests "foreign" substances — substances chemically different from those in its own physiognomy. Next it digests these foreign substances by first breaking them down into simpler chemical compounds and then reassembling these to form the more complicated compounds in its own make-up. In this process some material is inevitably left over as either useless or surplus — this is the "waste matter" discharged by the living body. The third feature of a living cell is that it grows in size and bulk. Fourth, it produces or reproduces its own kind.

For some time the early life on the young earth was in a precarious situation.

It could only eat those medium-complicated molecules that had arisen from the action of ultra-violet radiation on the naturally occurring simple molecules. There must have been cases where the appetite of the living cells exceeded the supply of foodstuffs produced by chemical reactions. No doubt there were local extinctions.

The living cells had to learn that something could be done with sunlight directly — they had to invent what we now call photosynthesis. Once the process was working, its possessors did not need the amino acids and other substances of that type — they could operate on dissolved minerals, carbon dioxide and sunlight. The first plants fit the above category — the earlier life forms that did not have photosynthesis must, of necessity, be considered ultra-primitive animals. Of course they were succeeded by not quite so primitive animals, namely those that ate the plants that had created supplies of organic compounds by photosynthesis in their own bodies.

Fortunately for the continued existence of earthly plants and, through them, of life in general, the primitive life forms that must be called animals did not specialize in eating chlorophyll-bearing plants only. They ate what got in their way, whether amino acids that were still formed by chemical action, or plants, or other animals. Presumably they pushed evolution by behaving competitively.

It can be taken for granted that not even the largest of these early life forms could be seen by an unaided eye. But where they were numerous, say in a nearly closed bay, they might have been collectively visible as a faint clouding of the water.

IT IS strange that this very modern concept sounds a bit

like the repetition of an evolutionary concept of a hundred years ago. At that time you could read that life had probably begun as "primordial ooze" in the seas. The term was a polite translation of the German word *Urschleim* which really means primordial mucus, but the idea was that the first life forms were not yet separated into individuals but formed a jellylike covering of the bottom. At one time it was even thought that the jelly had been discovered. The first major oceanographic expedition, that of *H.M.S. Challenger,* had collected numerous samples of bottom mud from several oceans. The bottom mud was put into nice sterile glass jars which were then filled with pure alcohol to keep it from deteriorating. Some years later somebody looked at one of these jars and discovered a very faint clouding. It was barely visible but it was there and it seemed as if a small quantity of the *Urschleim* Professor Ernst von Haeckel in Germany was always talking about had been captured by accident.

Thomas Huxley decided that this was so and named it *Bathybius haeckeli* — after Dr. Haeckel — who was greatly pleased, of course, but he had occasion to be violently displeased a number of years later. A British chemist wanted to know more about the *Bathybius haeckeli,* acquired a surplus jar in which it was present and set out to analyze it. He discovered that the clouding phenomenon was not at all organic in origin. It was strictly a chemical precipitate that had originated because of the interaction of the "preserving" alcohol with the bottom mud.

Still, the water of a bay in Precambrian times could have looked as if Haeckel's *Urschleim* were present — but it consisted of a very large number of separate living units. If the majority of the living units in a certain body of water were plants the clouding might have looked greenish. Of course the plants (and the animals that depended upon them) lived mainly near the shore, where the mineral content of the water was high. Bays must have been the most logical places or else the areas where a river brought rainwater into the sea, carrying more minerals.

It must be kept in mind that in Precambrian times the difference in saltiness between the ocean and a river was still rather minor. By now the seas are salty because rivers, working day and night for many hundreds of millions of years, have leached out the minerals from the soils of the continents and carried them into the oceans. When ocean water evaporates to become water vapor the minerals are left behind in the ocean and the water vapor, after it has drifted over the land,

condensed and fallen as rain, brings more dissolved minerals to the seas. Nowadays the difference between ocean water and river water is pronounced — but in Precambrian times the process had only recently begun.

Plants, when they build their bodies of sunlight, carbon dioxide and trace minerals, produce a waste product — free oxygen. The main waste product of oxygen-breathing animals is carbon dioxide and a nice balance would seem to have been established right from the beginning. However, since all this began at a time when free oxygen hardly existed, the early "animals" probably were not oxygen breathers. They utilized their food not by oxidation but by fermentation, a process that yields far less energy but does not require oxygen. In fact the fermentation processes we know usually release some oxygen too.

As a result, free oxygen was returned into an atmosphere that had been deficient in oxygen for hundreds of millions of years — and the next revolution in the evolution of life was the emergence of the oxygen-breather who, by utilizing a different chemical process (namely oxidation) became a far more efficient animal.

None of this can be read from the fossil record — in fact, the absence of a fossil record is the main characteristic of the Precambrian sediments. Nor is the lack of such a record difficult to explain. All living things were tiny and the normal end of their lives was to be swallowed by something faster, bigger or stronger. And since they were all free-floating organisms, none of them had any need for hard parts of the body to serve as strengthening members. Consequently there were no hard parts to fossilize, not even parts hard enough to cause an impression in soft mud that by a combination of lucky chances might be preserved for posterity.

Early in this century virtually every book on geology carried a drawing of something called *Eozoön canadense,* the "dawn animal from Canada." It was a piece of striated rock which could be the remains of a very early sponge, or else a colony of early and primitive corals. Of course it could also be something that had no living relatives — at any event it was revered as the oldest known fossil. As time went on *Eozoön canadense* was as quietly dropped as Haeckel's *Urschleim.* If I remember correctly it turned out that the rock in which Eozoon was found turned out to be much younger than Precambrian stuff.

HOWEVER, a small number of fossils of Precambrian age are now known. A comparatively good one recently turned up in eastern Transvaal. It consists of

a small clot of microscopic algae, some spherical in shape, some looking like filaments, some formless. Even the largest could only be seen with a good microscope — yet the largest was about a hundred times as big as the smallest. Other such known Precambrian remains of colonies of algae are not impressive and to the layman they do not even look like fossils. They are just carbon smudges in sedimentary rock, all that is left of the algae that lived and died in that spot.

Because there are so few of these fossils, dating is nearly impossible. In more recent geological layers the fossils often are the means of dating. And since evolution in Precambrian days seems to have been slow there is another difficulty — two fossils good enough to enable a researcher to recognize some shapes would not be necessarily of the same age if the shapes happen to match. Their true ages might differ by 500 million years.

The beginning of the Cambrian period is marked by the presence of fossils that can be recognized as such without much of a mental struggle. These fossils can also be declared to have been oxygen breathers because their living relatives, however remote the relationship may be, still are. But before

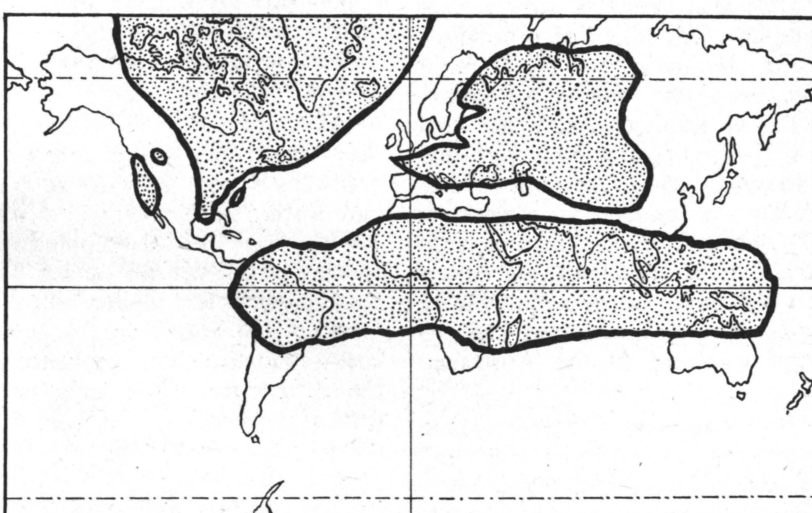


Figure 1. Map of the earth at the beginning of the Cambrian period as geologists thought it to have been at the beginning of the current century. There was one super-continent, named Gondwanaland, in the south and two continents, a shrunken Asia and an expanded North America, in the north. The map is correct concerning areas of current continents shown to be above water. But the enormous land bridges between South America, Africa and Australia did not exist.

we look at these early Cambrian animals (which will be the theme of the next article) we need a look at the earth as a whole as it was about 600 million years ago.

Size and shape were the same as now. The day probably was shorter by a number of hours than it is now. The atmosphere did not differ much from our current atmosphere except for one factor: the oxygen content was probably about 3 per cent instead of the current 20 per cent.

How about the distribution of land and water?

At the time when *Eozoön canadense* was still acclaimed the oldest fossil the same book picturing it was also likely to carry a map like our Fig. 1. There were three main continents, two of them in the north and one in the south. The two northern continents were North America in the west and Asia in the east. The southern continent was called Gondwanaland. As the map shows, it was supposed to stretch from South America eastward across the Atlantic, comprise most of Africa and extend eastward to the Australian area.

We now know that this map was wrong — but it was the result of careful reasoning based on a fantastic amount of detail work. The existence of Gondwanaland was not derived so much from the sediments, or lack of them, during the Cambrian period but had been extrapolated backward because of later evidence. During the time of the *early* (emphasis on "early") dinosaurs a great deal of evidence existed that southern Asia, Africa, South America and at least parts of the Australian region had all been connected. The most logical conclusion that could be drawn from the evidence was that all these now separated land areas had once formed a long southern continent — Gondwanaland. And since the existence of Gondwanaland seemed certain for the Permian and Triassic periods, that continent must have existed in earlier times, too. That is how it got onto the map of the Cambrian period.

We now know what went wrong in that reasoning.

Geologists, in the course of their work, had found numerous instances of past reversals of land and water. At one time, during the days of the *late* dinosaurs, Kansas and adjacent areas had been under water. Mammoth tusks found at the bottom of the North Sea — much to the annoyance of the fishermen whose nets were torn in the process — proved that the North Sea had been dry land at one time. So it seemed that the sea and the land could change places. Hence, if fossils compelled geologists to conclude that Africa and South America had once been

connected, they felt free to assume a land connection across the southern Atlantic which later disappeared under the waves.

The mistake was the failure to make a distinction between deep ocean and flooded land. That sea that once covered Kansas had been a shallow sea, just as is the North Sea of our time. In both cases you simply dealt with a portion of a continent that was low-lying enough to be covered by a few hundred feet of water. But the ocean between Africa and South America was deep ocean. Since the evidence that there had once been a connection between these two continents could not be disregarded, only one logical conclusion was possible — the continents themselves had moved. South America and Africa had once been the same continent, until a line of weakness broke open to form a water-filled trench. Then South America moved westward, pushed by the ever widening trench that finally became the Atlantic Ocean, while Africa stayed more or less where it had been all along.

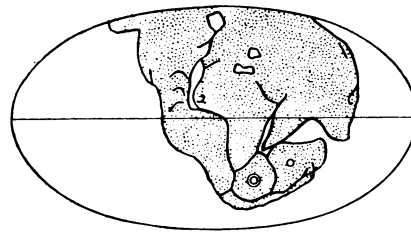
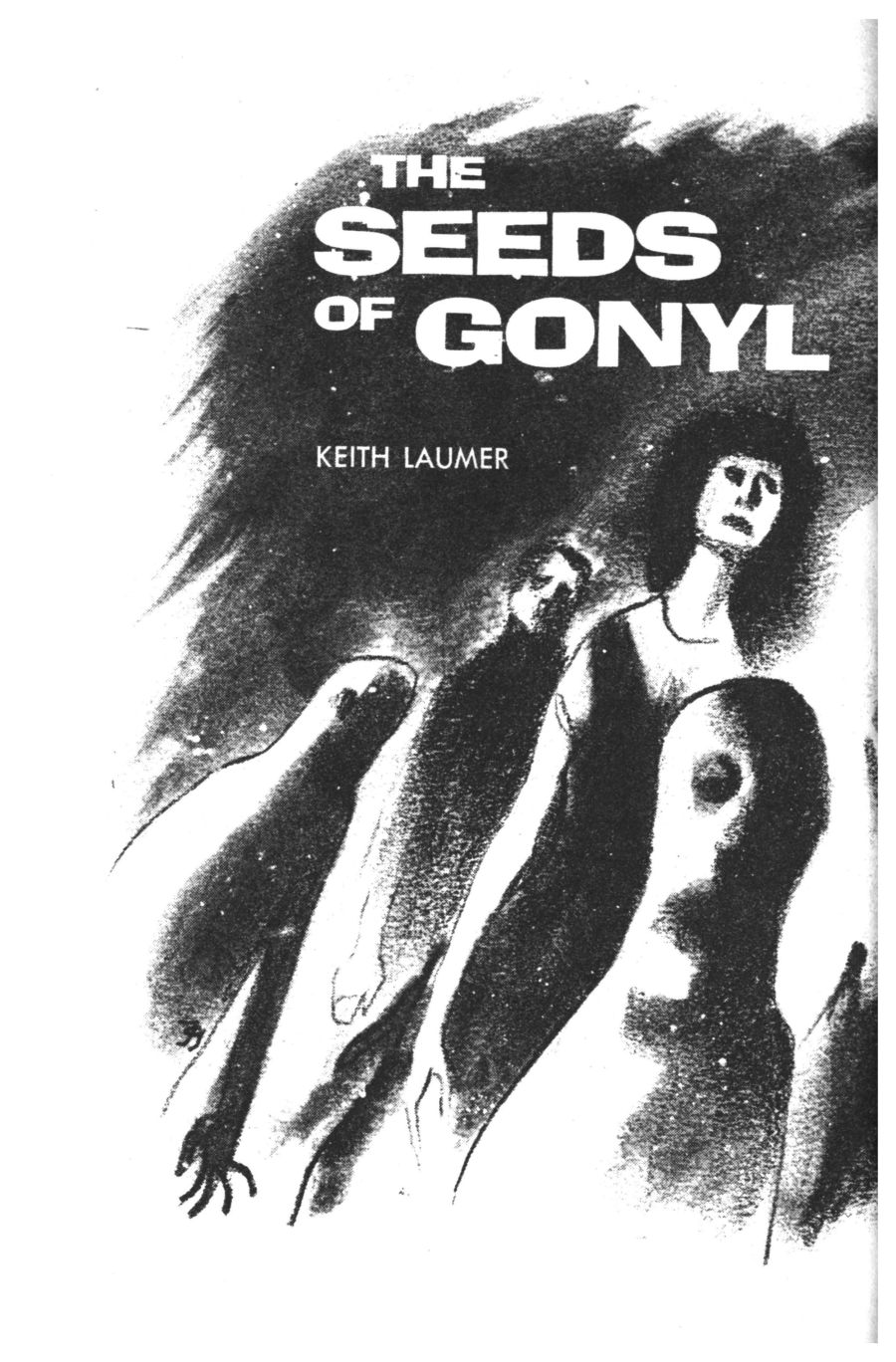


Figure 2. Map of the earth at the beginning of the Cambrian period as given by the Continental Drift theory. All the present continents still touched each other, though there were bodies of water in the interior of that super continent. The continental block marked by a circle is the later Australia, the one marked by the double circle is the later Antarctia.

This is the theory of Continental Drift. It was first proposed half a century ago and it needed all that time to gain the general acceptance it now has. The shape of the continents of today can be explained by assuming that they once were huddled together (Fig. 2.) to form just one continent that later broke up. At the beginning of the Cambrian period the original continent was still in one piece. And it was to stay that way for quite a number of millions of years to come.

• The great Willy Ley, before his recent untimely passing, had arranged with us to publish his THE STORY OF THE EARTH. This ambitious work was to cover the Earth's geologic history, the emergence of terrestrial life, its evolution in multiple forms, and what the future of our planet will be—judging by its past.

Because of their intrinisic interest, and as a kind of memorial to Willy Ley's name, *IF* shall continue to present posthumously those portions of the work that he completed and left with us. —EDITOR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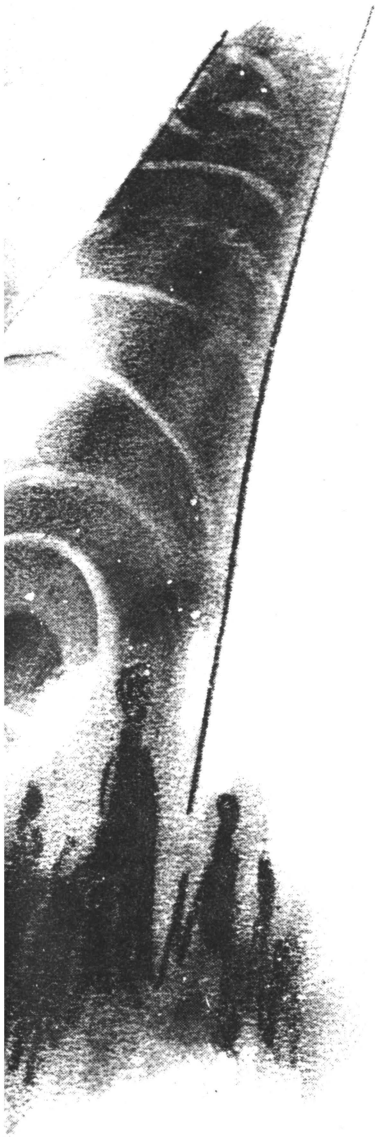


A life he did not recognize. A wife who did not know him. A world in which he alone was sane...

I

JEFF MALLORY'S first thought when he woke that morning was that he was back in the field hospital south of Inchon with a hole in his shoulder — where a Chinese .30-caliber slug had gone in — and a bigger one between his ribs where it had come out. And Uncle Al had been there, calling to him to come along — they were going to the Old House and he had wanted to go, even though he was stitched and bandaged and confined to bed.

Mallory moved his shoulders experimentally, felt a twinge of pain from sore muscles. Probably he had moved in his sleep and tried to weave the resultant ache into a dream that would allow him the luxury of a few more minutes of cozy oblivion. Strange thing, the dream mechanism — as

if half the brain set out to delude the other half. And the haunting desire to see the Old House again still clung like a memory of a long-ago outing.

He got out of bed, stretched, noticing other small aches and pains as he did. Old age must be catching up with him, he told himself, not meaning it.

Fog hung like a cottony veil across the lawn beyond the curtained window, making ghosts of the poplars at the far side of the garden, obscuring detail, blurring outlines, lending to the familiar a hint of the charm of the unknown. The Bartlett house, looming high and wraithlike beyond the trees, might have been perched on a cliff at the edge of the world. The street, dwindling into invisibility a half-block away, might lead down to a silent beach edging a tideless sea. It would be pleasant to follow that phantom shoreline, wade in the warm, reed-grown shallows, emerge in some pleasanter, simpler world.

Mallory smiled at his fancies. It would be time enough to start dreaming of white beaches when the firm of Mallory and Nolan, Engineering Consultants, had weathered its first year.
iness.

As he turned away from the window something lying beside the hedge lining the Bartletts' drive caught his eye. It was difficult to make out in the misty light but it looked like an old overcoat flung carelessly on the grass, a jarring note in the orderly composition. Probably something left and forgotten by a handyman. Mallory put it out of his mind and ambled into the bathroom.

His razor lay on the edge of the basin, clogged with gray soap. Bless the ladies, he thought as he rinsed it under the tap. He rummaged in the medicine cabinet for a new blade, failed to find one. The shaving cream can was empty, its spout crusted with dry, green foam. The toothpaste tube was crumpled and flat. His toothbrush was nowhere in sight. He found it after a brief search on the floor behind the toilet bowl.

He used the electric razor Gill had given him for Christmas. He did not like using it. It did not shave close enough and left his face feeling dry and unrefreshed.

Eyeing himself in the mirror, he thought he looked a bit gaunt and hollow-cheeked. There were dark circles under his eyes and he was badly in need of a haircut. He wore at least a month's growth, he decided, angling his head to see the sides. He must be working too hard, losing weight, forgetting his bi-weekly trim. He would have to think about taking things easier.

He noticed a pair of battered shoes on the floor of the closet. His best pair of Bostonians. The soles were badly worn, the uppers scuffed deep into the leather, the strings broken and knotted. Frowning, Mallory looked through the hanging clothes for his gray suit, found it dangling on a hook at the end of the closet. It was dusty, shabby. The cuffs were greasy black. Both elbows were

worn through. It looked, he thought, like something a hobo might wear, calling at the back door for a handout. Lori must have borrowed it, he decided, for some sort of student Rag Day or scavenger hunt thing. To a youngster all old folks' clothes — meaning folks over thirty-five — probably looked the same. He would have to have words with that young lady.

He dropped the coat on the floor with the ruined shoes, selected a tan suit. His favorite tie was missing. He picked another, smoothed the look off his face. Whistling, he went down to breakfast.

GILLIAN was at the stove, stirring a pan. Marly and Randy, the ten- and eight-year-olds, sat at the kitchen table, spooning up oatmeal.

"Looks like I'm last man on deck," Mallory said j o v i a l l y.

Gill smiled abstractedly and went on with her work. The kids did not look up. He poured a cup of coffee and pulled out a chair. There were bread crumbs on the seat of the chair and on the table. Sugar was scattered around the bowl. In a clouded glass vase were the dried stems of a bunch of faded wildflowers. He tried the coffee. It was lukewarm, stale-tasting.

Gill came across and put a bowl of oatmeal before him. She was still the best-looking girl in town, Mallory thought, but this morning she looked pale, her skin dull.

"You're late, Jeff," she said.

"I was just going to call you."

"I got involved in looking out the window," he said. "Nice fog."

Gill sat down across from him.

"Fog?" she asked vaguely.

Mallory glanced through the window. The air was sparkling clear.

"Funny. Must have been just a patch."

He sampled the oatmeal. It was barely warm. There was no salt in it, no salt on the table, no butter, no cream. He started to mention it, glanced at Gill, noticed the darkness under her eyes, her abstracted expression.

"Gill — are you feeling all right?"

"Very well, thank you," she said quickly and smiled a fleeting smile.

Mallory got up and went to the cupboard where the dry cereal was kept. There were half a dozen boxes there, their tops torn open, all but one empty. He took a bowl from the shelf, noticed dust in it, rinsed it at the sink.

"Any toast? he inquired.

"Toast?" Gill looked mildly puzzled.

"You've heard of it — bread that's been in the toaster."

He tried to make it sound jolly but the words hung dead between them. The room was chilly, he noticed. A faint, foul odor was in the air. Or not so faint, he amended, noticing the overflowing garbage pail by the door. Bits of food and soiled paper lay around it.

Marly, the ten-year-old, scraped her spoon against her empty

bowl. She licked it, front and back, dropped it on the table and stood. Her skirt and sweater did not match.

"Hey, did you kids have any milk?" Jeff asked.

Marly failed to answer. Randy pushed his chair back and started from the room after his sister.

"Why did the kids rush out of here without a word?" Mallory asked. "Is anything wrong?"

"They have to go to school," Gill said.

She looked troubled. Mallory reached across to put his hand over hers. He was shocked at how cold it felt under his — and thin. And the nails, always so carefully groomed, were chipped, not even clean.

"Gill, what's the matter?"

He tried to catch her eye. She looked down into her bowl. She pulled her hand away, took a bite of gruel.

"Gill — I think you've been working too hard," Mallory said. "Been around the house too much. What do you say we get away for a few days? We could go out to the Old House this weekend, camp out, do a little work on the place. The kids would enjoy it and—"

"What old house?"

"Our Old House. What else?"

GILL looked at him innocently. "Do we have an old house?"

"Never mind, it was just a thought."

"You'd better eat," Gill said. "You'll be late."

"One of the prerogatives of being boss," Mallory said, smiling, "is that I can be late when I want to."

Gillian shook her head.

"You mustn't joke about your work, Jeff."

He smiled at her.

"Why not?"

Gillian looked concerned.

"Jeff, you seem so strange this morning —"

"I was just thinking you seem to be in a curiously playful mood."

"In what way?"

"Acting as if you never heard of the Old House, teasing me about being a few minutes late to my own office —"

"Jeff, what are you talking about?"

"I'm talking about my business. Where I make our living."

"Jeff, are you sure you're feeling all right?"

"Why shouldn't I be?"

Gill's glance went to the clock over the refrigerator. She made as if to rise.

"We really have to go now —"

Mallory caught her hand.

"Where are you going?"

"Let me go," she gasped. "They don't like it if you're late —"

"Gill — I asked you where you're going."

"To the Star Tower, of course —"

"What's the Star Tower?"

"You know," she whispered. "It's where we work."

"We? Since when do you have a job?" He tried to smile. "I'm the breadwinner around here, remember?"

She was shaking her head —

her eyes were wide, fearful. Mallory came to his feet, drew his wife to him.

"Slow down a minute, girl. Let's start at the beginning —"

He broke off as the front door slammed. Through the window he saw Marly and Randy hurrying down the walk.

"Where are their coats?" he said. "It's cold out there. And their schoolbooks — " He turned urgently to Gill. "And where's Lori?"

"Lori who?"

"Our daughter, Lori. You know." He tried to cover the impatient edge to his voice with a smile.

"Our daughter's name is Marly," Gillian said carefully.

"Of course. And our other daughter's name is Lori. Has she already eaten?"

GILL gave him a fleeting smile. "I'm sorry, I don't understand you. I have to go. I mustn't be late to the work rooms."

"All right, I'll play along," Mallory said. "Anything else new I ought to know?"

Gillian looked worried. "Jeff, you know the quota has been increased—"

"Oh, so the quota has been increased."

"So many have not been coming to their benches."

"Their benches? What benches are those?"

"At the workrooms."

"What workrooms?"

"Where we work, of course, Jeff. Please stop —"

"Funny, I thought I had an office in the Miller Building," Mallory said harshly.

Gillian shook her head, glanced at the cereal bowl at Mallory's place.

"You'd better eat quickly. It's a long time to midday break."

"Never mind the midday break. You still haven't said where Lori is."

"I don't know any Lori —"

He gripped her arm.

"Stop it, Gill! Where is she?" He broke off at a sudden thought. "There hasn't been an accident? Has she been hurt?"

"No, there hasn't been any accident. And I don't know anyone named Lori."

She tugged against him, trying to reach the door. He picked her up, carried her to the living room, lowered her to the couch. She tried to struggle up. He sat beside her, held her.

"There has been an accident, hasn't there?" He tried to hold his voice steady. "You're trying to keep it from me, aren't you?"

"I don't know what you mean!"

"I'm talking about our oldest daughter, Lori," he said, forcing himself to speak calmly. "Age, nineteen. Born while we were still in school. She's tall, blond, likes to ride and swim and play tennis. Are you telling me you've forgotten her?"

Gillian looked into his eyes, shaking her head.

"There isn't any such person, Jeff. We have two children, Marla and Randy. That's all."

He rose, went into the hall and

called. There was no answer. He ran up the stairs three at a time, at the top wheeled to the left, his outstretched hand reaching for the doorknob.

He slammed into a solid wall. Where the door to Lori's room should have been was an unbroken stretch of plaster.

GILL was standing wide-eyed on the landing.

"Why?" he asked. "Why is her room sealed?" His voice was a croak.

"Jeff, you're frightening. I don't understand —"

Mallory ran his hands over the wall. It felt solid to his touch. He stepped back and looked along the hall. There were the doors to the other three bedrooms, the bathroom, the attic stairs. But Lori's door was gone.

"Where is Lori?"

Gillian shrank away from him as he came down the steps.

"Jeff, you're sick. You're having some kind of attack. Lie down and I'll call Dr. Everet —"

"I've never felt better in my life —"

Mallory broke off abruptly. Through the window on the landing he saw the familiar street, clear of fog now, the big old-fashioned houses, steep-gabled, the leafless trees above them. But beyond, where the steeple of the Methodist Church should have been, a tower rose up and up into the morning sky. It was big, his engineer's eye told him — hundreds of feet in diameter and so tall that its flaring top was lost in the high haze. The material was pale green, glassy, translucent. An incredible structure had sprung up overnight like an enchanted mushroom.

"Gill — what is it?"

She stared into his face. Her eyes had a glazed, remote look.

"The Star Tower, of course."

With an effort, Mallory spoke calmly.

"Gill, something's wrong. Maybe it's me. It must be me — unless I'm imagining that." He stared at the tower. "And if I am, I'm still in trouble."

"You've been working too hard," she said. "I knew you were working too hard."

"Gill, do you remember a church? The steeple used to stick up right behind the Meyer house—"

"But — that's where the Tower is."

"No church? I imagined that?"

"You saw the Tower, Jeff. Surely you don't —"

"I saw it. I admit it. That's the one thing that makes me think I may be the one who's out of his mind. Because the tower is impossible, Gill." Mallory laughed and was surprised at the weakness of the laugh. "All right. I'm imagining things. Anything else?"

"You seem — very confused, Jeff."

"We don't have a nineteen-year-old daughter?"

"No, Jeff."

"I don't run my own engineering company?"

"I don't understand what that

means. We work at our jobs at the Tower."

"What do you do in this workroom you say you have to hurry off to?"

"We perform the tasks set us."

"What is it? Some sort of factory?"

"I — I don't know. I suppose so. We — make things. Work on things. With wires. You work in the loading sheds."

"Gill — is this what it's like to lose your mind? I feel perfectly normal. No headache, no confusion. Just a lot of ideas that seem to be totally false. But how much of it is false? Everything? No, not everything," he shook his head. "You're my wife. Gill. You know me. And the kids. Randy and Marla. But what about everything else?" he broke off, a vision of a flat earth filling his mind. "The world is round," he said. "Okay so far?"

She nodded hesitantly.

"We live in the United States. In the state of Nebraska. The town of Beatrice."

Gill frowned.

"No — this is the Center, Jeff."

"The center of what?"

Gill made a vague gesture. "Of — everything. It's just — the Center."

"What do we do?"

"We work, we do our part."

"Our part of what?"

"Of the work."

"Gill," Mallory said. "I may be crazy — but I didn't imagine Lori. She exists, damn it!" Pulling her behind him, he walked into the library. "Where's the picture of her that we keep on the desk?"

Gill did not answer.

HE TOOK a blue album from the drawer. It held snapshots of Gill, of himself, of Randy and Marly. But none of Lori, only patches of torn paper where pictures had been removed.

"Who tore her pictures out?" Mallory gripped Gill's arms, almost shaking her. "Why?"

"Please, Jeff — you're hurting me—"

A soft *click* came from the direction of the front door.

"Lori?" Mallory stepped past his wife, hurried through the arched entry to the front room — and stopped dead.

A man stood there, staring fixedly past Mallory's shoulder.

Or — Mallory amended his first impression — not a man. Something that looked like a man. Something that might fool you in a bad light or at a greater distance. But not here, ten feet away, in the full light of morning. The face was the wrong color — a dusky purplish pink and of the texture of foam rubber. The eyes were dull, empty, without movement. The mouth and nostrils were sealed. The hair was a spongy mass. It was dressed in an old-fashioned golfing outfit, baggy knickers, Argyle socks, a loose Cardigan of a pinkish gray color.

Mallory's thoughts reached this point, recoiled, approached, recoiled.

"You are late, Worker," a rich contralto voice sounded from the region of the simulacrum's rib cage.

Behind Mallory, Gill made a whimpering sound.

"Gill — stay back."

Mallory took a step sideways and grabbed up the wrought-iron poker from beside the fireplace. The stand went over with a dull crash of iron. He hefted the two-foot bar, watching the thing as it pivoted to face him.

From the corner of his eye Mallory saw Gill start past him. He put out an arm to stop her but she darted around him and toward the door. At once the monstrosity moved to intercept her. Mallory swung up the poker, brought it down across its shoulder. The impact was as if he had struck padded steel. With a motion too quick to follow, the thing twitched the poker from his hand, dropped it carelessly on the rug. Gill had the door open, was standing there hesitantly, looking back.

"Gill, run — "

Mallory launched himself at the creature. Iron hands gripped him, thrust him effortlessly away.

"This is incorrect behavior, Worker," the warm, feminine voice said in a tone of kindly correction. Mallory seized a heavy chair, hurled it at the thing, whirled and made a dash for the door through which Gill had disappeared. He had taken two steps when the room exploded into dazzling light that slowly faded into utter darkness.

II

MALLORY became aware that he was lying on his back on a soft surface, looking up at a flower-patterned ceiling. He turned his head; an elderly man was sitting beside him. He recognized him: Doc Everet — George Everet. Everet was staring vaguely at the wall.

"Where's Gill?" Mallory asked.

Everet turned, looked at Mallory's left ear.

"She had to go, Jeff. The work can't wait, you know."

Mallory sat up. His head ached sickeningly. He looked around the room. The thing that had attacked him was gone. The fire tools were neatly racked beside the fireplace. The furniture was in its normal position.

"Where has it gone?" he asked. "What was it, George?"

"What?"

"The thing — whatever it was. It knocked me out. Didn't you see it? Didn't Gill tell you?"

"You fainted, Jeff. Gill told me of your attack."

Mallory strode to the window, twitched aside the curtain. The tower loomed behind the familiar roofs, impossibly tall, undeniably real.

"Have I gone crazy?" he asked thickly.

"Just a temporary loss of orientation," the doctor said. "I have a tablet for you to take —"

"George — what's going on?" Mallory came back to stare down at the other man. Everet's thin white hair curled untrimmed about

his ears. A silvery stubble lined his cheeks. The collar of his shirt was grimy. His tie was tied in a hard, greasy knot.

"Maybe you can tell me — where's Lori? Gill acted as if she'd never heard of her, George."

Everet shook his head.

"I know no one of that name."

"Don't know her? Hell, George, you delivered her. Nineteen years ago."

"You have two children, Randall and Marlene, Jeff. Their ages are eight and ten—"

"Certainly — and another, named Lori, age nineteen. She was born the year I started with Universal — the year after Gill and I were married, the year I first met you."

"Jeff, you have to reject these fantasies."

"Is that so fantastic?"

"Worse than that. It's nonsense. Many of the words you're using are gibberish. They don't mean anything."

"Which words?"

"Never mind that. Put all that out of your mind."

"How can I? I want to know what's going on. If I'm crazy, I want to know how crazy."

"Not crazy, just talking a little wild. I'm going to give you a pill that will make you sleep again."

"No. No pills. Just give me some facts. The Tower — how long has it been there? Who built it?"

"Why, I suppose the Tower has been there since before I can remember. Never thought much about it —"

"A thing like that?" Mallory leaned forward tensely. "Doesn't it strike you that it looks different from anything else in the town? It's too high, too big. What is it built of? No material I know of could take those stresses —"

"Jeff, stop exciting yourself." Everet frowned, offered a spherical purple capsule on his palm. "Take this. It will help you."

"Why not answer my question?"

"Because next you'll be asking me why trees have branches, where the leaves come from and what holds up the sky. I'm not here to help you concretize your delusion. Talking about these fancies of yours will just stabilize them, make them seem more real to you. That's not good, is it? We want you well, sane, back on the job. Now take this. Or would you rather have the needle?"

Jeff accepted the pill, took the glass of water Everet offered. The elderly doctor watched him swallow.

"Now, lie back and relax. Don't think about these notions of yours. Just be glad you've got a fine home, a fine wife, two fine children and that you have your Work. I'll look in on you this evening. By tomorrow morning you'll be feeling better, much better."

Mallory nodded, let his eyes close. He listened to the sounds of Everet closing his bag, tiptoeing across the room, the door opening, closing, the click of the latch.

He waited a full minute, then

sat up, tossed the pill he had palmed into the fireplace.

"Delusions, eh?" he muttered. "We'll check on that."

HE FOUND the axe among the garden tools under the basement steps. Back upstairs, he studied the blank wall where the door to Lori's room had been. Was there a faint, irregular line, an almost imperceptible discontinuity in the surface of the plaster? He could not be sure. But there was a way to find out. He raised the axe, swung it at the wall.

It struck with a solid thunk that jarred his arms to the sockets. Plaster cracked and fell away, exposing a gray, papery surface. He chopped at it, knocking pieces loose. It was light, tough stuff, like the material of a hornet's nest. A fragment broke loose and fell inward. Dim light shone out the hole. Mallory kneeled, saw the corner of a bed, a rug, a papered wall and a window, the shade drawn tightly over it.

"Nothing there, eh?" He attacked the wall again, enlarged the opening, crawled through it. He was in Lori's room.

Dust lay thick on the dresser and bedside table. Papers and books were scattered on the desk. He opened the closet door. Lori's clothes hung — dusty — on hangers. He touched a pale blue sweater that Gill had given their daughter on her last birthday.

"Lori," he whispered. "Where are you?"

His eyes fell on a thin-spined book lying on a shelf — a high school Annual. He picked it up, leafed through to the pages where photographs were ranked in rows. Her picture was there among the others, blond and smiling. He tore it out, folded it, put it into his shirt pocket.

He left the room, stepping over the litter of plaster in the hall, automatically careful not to walk on it and grind plaster into the carpet.

Start at the top, he told himself. *Check the whole house. See what else is phony about this situation. . .*

The attic looked as it always had. Long rays of early sun slanted through the dusty window on worn carpet, ancient trunks, rickety cardboard cartons filled with unable-to-be-parted-with mementoes of past lives; on broken toys, the old brass standing lamps and faded velour furniture. An old frontier Colt .44 hung on a peg. He lifted it down. There were corroded cartridges in the belt. No way of knowing if they would fire. The gun had not been used in twenty years. He loaded it, buckled it on.

Room by room he checked the rest of the house. Everything looked normal, though dusty. The beds were untidily made. Pantry shelves were crowded with ranked boxes of soap flakes, detergent, cases of dog food, paper napkins — Gill hated them — dietetic fruits, canned hominy and sweet potatoes. On the back porch were stacked more cartons.

He found a diminished bottle

of scotch, poured himself four ounces, neat. The liquor seemed to clear his head a bit. But his body still felt numbed. Like a thumb in the instant after the hammer hits it and before the real pain arrives. On the curled calendar on the wall, the days of November had been x-ed out through the fifteenth.

He went into the living room, looked out through the glass curtains. The orderly street was silent. A few cars were visible, parked in driveways or at the curb. They looked a little dusty, as if they had been sitting for some time.

Dead leaves lay drifted across the sidewalks and the street in a pattern undisturbed by traffic. He went to the telephone in the hall, lifted the receiver, listened to the steady hum of the dial tone. He dialed O, waited through twenty-five rings before he hung up.

He switched on the console TV. Static crackled from the speaker after half a minute. He tuned. A dancing grid of light blanked all channels.

He took a coat from the front closet, went to the back door and looked out at the garden. Morning sunshine lay across dormant flower beds, leafless shrubs, dry grass. A bird twittered in the hedge. He left the house, walked quickly back to the garage. The door was locked. His two-year-old Buick was visible through the window. One front tire seemed almost flat.

Keeping to the shrub line, he crossed to the rear of the Bartlett garden. The house stood high and silent in the morning light. He found a broken window on the ground floor. A light breeze blew a scrap of paper across the dry grass. Green shoots poked up through the black earth beside the walk. The daffodils would be blossoming in a few more weeks.

Mallory strode toward the back door, almost expecting to see Meg Bartlett appear there, plump and aproned, to wave and invite him in for coffee.

A wrongness in something he had seen nagged at him. He stopped and looked back.

Daffodils.

Daffodils did not appear until March — late February at the earliest. This was November. Or had time jumped ahead from autumn to spring overnight?

Three months lost. . . .

What had happened during those ninety days?

He did not know. He could not remember.

He walked along the drive, opened an unlatched screen and rapped on the door. He heard no response and started around to the front of the house.

A heap of old clothes lay in the drive. He moved closer, saw that what remained of a man was in the clothes, talonlike hands clawing at the earth. Skull-face, leather covered, teeth bared in a yellow grin. He recognized the curly gray hair — Fred Bartlett, his neighbor of ten years.

Mallory skirted the mummy, went on to the front of the house.

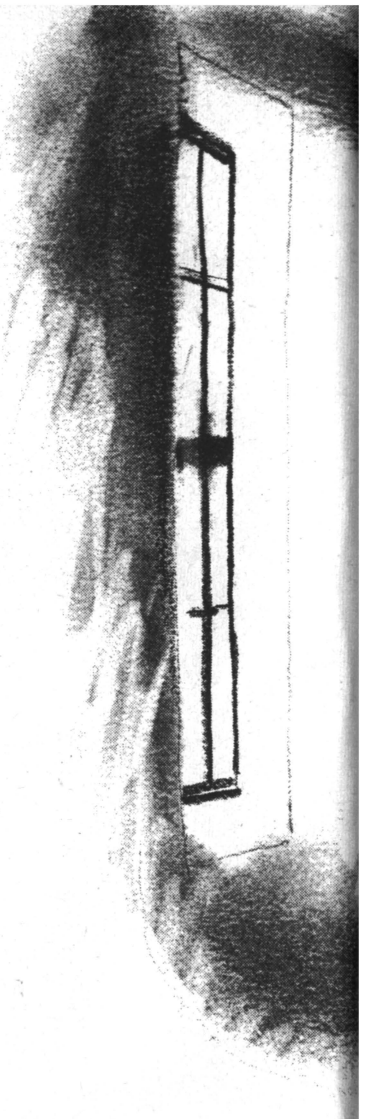
He started off along the sidewalk in the sparse shade of the barren trees. Tall weeds grew across once-immaculate lawns. Formerly shiny cars sat on soft tires, their windows opaque with dust. Halfway down the block the bay windows of a brick house gaped black and gutted.

Clabbered milk bottles stood on porches. Forlorn yellowed envelopes poked from mail boxes. A dead dog lay in the gutter, partly covered with leaves, snarling a dessicated snarl. Above the rooftops the faerie tower loomed against the blue sky.

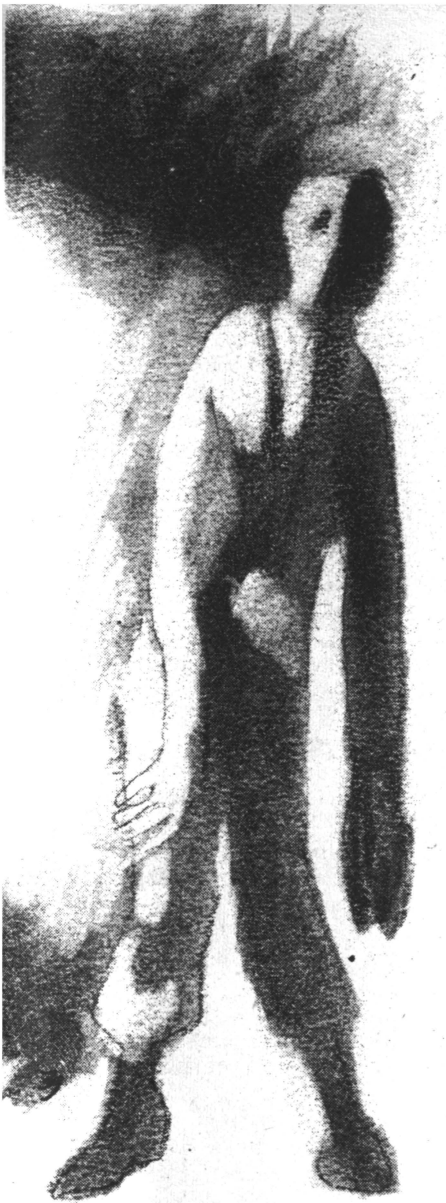
The school was in the next block. Mallory crossed the silent playground where papers blew across hard-baked earth. He entered the building.

The doors were unlocked — his footsteps were an intrusion on utter silence. He poked along, looking at the placards marking the doors. He recognized the name of Randy's teacher. The door stood ajar. Papers were scattered over the floor. A chalk mural on the blackboard was spotty and streaked. A dead geranium stood stiffly in a painted clay pot. Paper turkeys and pilgrims' heads which had been pasted to the windows had come loose and lay on the floor among other clutter. On the desk that Mallory remembered as Randy's lay a battered geography book.

The children were not here — had not been here for some time.



IT WAS strange to see the downtown streets deserted under the



cold mid-morning sun. Two empty cars, their front wheels interlocked in a tangle of metal, blocked the intersection.

A broken window featured the liquor store in the next block. A few bottles lay scattered in the display window among glass shards — otherwise the stock seemed undisturbed. Mallory started at a sharp *click*—then saw that the traffic lights were still working.

The street ended three blocks ahead in a blank wall of dull black material.

Mallory walked on slowly. The wall was five feet high, running across pavement and lawns, curving away to both sides, shearing through the houses lying in its path. There was no rubble, no disorder — but he could see exposed wallpaper, pictures hanging above beds in rooms sliced open like dolls' houses. The tower stood two hundred yards beyond the wall, its outlines vague as a rainbow. The twenty-acre circle of flat ground enclosed by the wall was as bare and featureless as a concrete slab. There were no visible openings in the tower.

A faraway siren whooped.

Mallory retreated to the nearest house, flattened himself against the wall in the shelter of a cluster of cedars. A section of the wall swung back, gatelike. The head of a loose column of people emerged from the enclosure. There were men, women, children. They walked briskly, not talking, streaming out through the gates and off along the street.

Many were incongruously clothed. A middle-aged woman with unkempt hair walked barefoot in a torn and dirt-streaked formal evening gown. Nearby, a round-shouldered man stumped along, hugging himself in a stained bathrobe. One man limped on shoes that had worn completely through, so that the loose uppers flapped about his ankles. All the people looked r u m p l e d, bedraggled, threadbare, uniformly thin-faced, lean, some to the point of emaciation. They looked, Mallory thought, like concentration-camp victims marching toward the gas ovens. But Gillian was not among them — nor were his children.

THE main body passed, followed by a few stragglers. A lone man brought up the rear, trailing fifty feet behind t h e others. He approached Mallory's hiding place. Mallory went forward to intercept him. The man did not look up or halt. Mallory fell into step beside him.

"Just a minute, if you don't mind, Mr. Zwicker," he said. "I'd like to talk to you."

"Mallory, isn' it?" The man shot him a keen look. He was an ordinary-looking fellow of middle age, a builder, a customer of Mallory's firm. He looked thinner than Mallory remembered. "Have to hurry along," Zwicker said. "No time to waste."

"Listen," Mallory said, "have you seen my family? You remember my wife, Gill—"

"I've done my quota," Zwicker said. "And now I'm going home as always to nourish myself and rest —"

Mallory caught his arm, spun him around.

"Is she in there?"

He nodded toward the tower that loomed over them like a cliff. Zwicker tried to pry Mallory's fingers from his arm.

"You weren't on the docks today," he said accusingly. "I remember—the Watcher found your place empty. That's bad, Mallory. How can we accomplish the Work if each doesn't do his share —"

"Have you seen her? Answer me, damn you."

"No. No, I haven't. My work is on the docks. I see no women, not even —" Zwicker paused frowning. "I must go home," he said flatly and tried again to pull away.

"What goes on inside there?" Mallory demanded.

"In the Star Tower?" Zwicker tugged, prying at Mallory's fingers. "We carry on the Work, of course."

"What work?"

Zwicker looked sharply at him.

"You're acting like a crazy man, accosting me in the street, asking wild questions —"

"How long has it been there — the Tower?"

Zwicker looked at him blankly.

"Why — forever, I suppose" he said. "What a curious question."

"Zwicker, this is all wrong. I want to know what's happened."

"Nothing whatever," Swicker yelped. "The sun is shining, night follows day, we do our Work —

all but you. Why are you questioning me? Why are you trying to make trouble?"

The man's eyes slid past Mallory. Their expression changed, became vague. Mallory turned. A flat cart had rolled through the gate on silent doughnut wheels. On it squatted two creatures like the one that had invaded his living room.

"Well, I must be on my way," Zwicker said jauntily. "Nice seeing you, Mallory—"

"Zwicker, for God's sake, what are those things?"

Zwicker shot him a frown.

"Mallory, you make me uncomfortable—"

The cart was rolling closer. Mallory thrust Zwicker toward a gap between the bumpers of parked cars.

"Through there — run," he snapped.

Zwicker planted his feet, resisting.

"Mallory, let me go — "

The cart was approaching swiftly, making a soft, humming sound. It was too late now to run for it.

"Quick — into the car." Mallory yanked a door open, thrust Zwicker in, slid under the wheel.

"Keep down," he whispered as Zwicker lunged for the door handle.

Zwicker yelled. Mallory swiftly clapped a hand over his mouth. Zwicker kicked out frantically. Mallory hit him on the side of the jaw. Zwicker went limp.

Mallory quickly locked the doors, tried the starter. He heard a heavy *click*, nothing more.

The hum of the cart had grown louder. Now it descended the decibel scale and ceased. Mallory watched the two not-men step down from the cart, moving efficiently but somehow wrongly, with a subtle distortion of normal human rhythm and balance.

They came to the car, stood staring in at him through the glass. One wore a tuxedo with a pink carnation in the lapel. The other was in a blue coverall with the name Herb stitched over the pocket.

The latter reached for the door handle — the car shook as it tugged. The other sprang lightly to the hood, reached back out of Mallory's line of vision. There was a sharp ripping sound and something sharp sliced down through top and headliner, cut a yard-long incision. A parallel cut appeared an instant later.

Mallory shook Zwicker, who pulled away mumbling. Mallory opened the door, thrust it wide, dived, struck shoulder first, rolled, came to his feet and sprinted for a gap in the hedge.

"Halt," a resonant voice boomed after him.

He cut across a stretch of leaf-strewn lawn, followed the curve of a graveled drive leading toward a colonnaded, white house. He heard the shrill whine of the flat-car as it maneuvered swiftly, coming in along the drive.

There was another sound — a thinner, more piercing tone. Pain lashed at Mallory. He stumbled

headlong toward the trees that lined the way, bounced off the trunk of an ancient elm, went down hard. On his knees he crawled into the shelter of a line of low-spreading junipers. He heard the flatcar slow to a stop. Next came sharp clicks and rasping sounds, then voices.

"I don't know," Zwicker's thin tenor was saying. "I only want to go to my home, take nourishment and rest —"

"It is necessary for the highest good that you give this information," a warm, fatherly voice cut in. "Why did the other Worker accost you?"

"I don't know. I only want—"

"It will be necessary to give pain until you remember," the kindly voice said.

Zwicker's voice broke into a scream that ended in a whimper.

"The runaway worker is damaged," another voice said, this one a bright young executive type. "There are stains of ichor on the husk of the tree."

"He will be found," a society matron gushed.

Mallory heard sounds of multiple limbs moving across gravel, crunching dry leaves. He rose to his feet and, keeping to the shelter of trees, retreated past the corner of the house. Then he ran.

MALLORY covered three blocks, cutting across dead lawns, pushing through brittle hedges without seeing any signs of life, human or alien. He dropped to the ground to recover his breath. In the silence he heard the whine of a flatcar.

It came closer, stopped nearby. Soft, clattering sounds advancing along the driveway reached him. Mallory unholstered the heavy gun, cocked it, leveled it along the drive. An alien appeared, limbs flickering in mincing steps. Mallory took aim at the center of the body, pulled the stiff trigger.

At the solid clack the alien halted, pivoted swiftly, came toward him. He pulled the trigger again, double-action —

The *boom* almost kicked the gun from his hand. The alien was on its back, limbs scything air. Mallory came to his feet as a second creature appeared at the foot of the drive.

"Worker, halt!" a boyish voice called in a tone of warm congratulation.

Mallory fired and, without waiting to see the effect, ran for the alley behind the house.

Less than a block later he knew he had made a mistake. His wind was gone. His legs ached. His head was swimming. The three lost months had robbed him of his conditioning.

A garage—once a stable—fronted on an alley ahead, its door secured by a massive, rusty padlock. Mallory staggered to a halt, steadied himself, fired twice into the lock. The noise of the gun racketed deafeningly between the hedge-rows. He twisted the shattered mechanism from the heavy hasp, hurled the door wide.

A late-model convertible sat in

the gloom. Two bright-edged holes marred the smooth curve of the deck lid where his shots had penetrated. He pulled the door open, slid into the seat, twisted the key. After an instant's hesitation, the starter ground over sluggishly. He pumped the gas pedal. Abruptly the engine caught, barked, roared to life. Mallory slammed the car into reverse, backed out, cutting hard. He gunned forward to the street, swung left, caught a glimpse of the flatcar in the middle of the street, one alien squatting on it, another moving toward it.

He floored the gas pedal, hit sixty into the next block. A strong odor of gasoline blew past his face. The engine bucked, surged, sputtered, stopped. As the car coasted to a halt a cart bearing three aliens rolled into view around the corner a block and a half ahead.

Mallory vaulted over the side, crawled backward, keeping low. He gained the shelter of a hedge. The cart rolled to a halt beside the car. Two aliens scrambled down, approached the stalled vehicle. When they were beside it, Mallory took out his cigarette lighter, fired it, tossed it toward the dark puddle forming under the bullet-punctured gas tank.

An explosive *whump* followed and fire boomed up to envelop the car in roaring heat. An alien ran across to the left, burning from heels to crown, leaving fiery footprints across the dead grass. It disappeared between the houses.

Mallory jumped up, ran toward the big frame house. He heard a harsh buzz and the lawn ahead and to his left exploded into roiling dust. He veered onto the graveled drive. As he approached the corner of the house it burst in a whine of flying splinters. A spike caught him, sent him spinning.

He was only partly conscious of struggling to his feet, stumbling toward the broached wall. He pulled himself up and through the opening into the gloom of a curtained living room. The bast had brought down plaster, filled the air with swirling dust. Mallory made his way past a toppled purple divan, stepped over a framed picture fallen from the wall, was in a dark hallway. Stairs led upward.

He mounted them one at a time as if he were carrying a heavy burden. Behind him he heard soft clacking and scraping — one of the aliens was entering the house through the same opening he had used.

He reached for the gun, felt only the empty holster. He knew a fiery pain in his left arm, just below the shoulder.

In the upper hall he halted, breathing hard. A high humming filled his head. He could hear the alien moving about below. There was a closet door beside him. With a half-formed thought of hiding, he opened it. It was crowded with cardboard cartons, garments, loose articles — tennis rackets, a pair of water skis, scuba tanks, a spear gun.

Mallory eased the lightweight

weapon from its place. Two steel tube darts were clipped in a retainer below the guide channel. He held the gun between his knees, dropped the dart into the slot. Then, bracing the butt of the stock against his thigh, he cranked back the spring-loaded cocking lever. It caught with a sharp *snick* and at once the sounds from below ceased.

They resumed — a rhythmic *rasp, click — rasp, click.* Mallory braced himself against the wall, the spear gun leveled at the head of the stairs, ten feet away. The head of the creature appeared, then the upper body, dressed in a flowered Aloha shirt. It saw him, paused at the head of the stairs. He aimed at the middle shirt button and pulled the trigger.

There was a sharp thwack of the mechanism, the stiff jolt of the recoil. Six inches of bright steel stood quivering against the bright - patterned chest. Mallory realized quite suddenly that the shirt was not a garment — it was a part of the not-man's body, molded with it.

For a full five seconds neither Mallory nor the alien moved. Then the creatured stirred, leaned sideways, took quick, tiny steps as if to catch its balance. Its legs folded bonelessly. With a jarring series of impacts it t u m b l e d backward down the stairs.

THE electric clock on the wall hummed loudly. Somewhere in the house a board creaked. Mallory felt a hot trickle across his left hand. His sleeve was wet, heavy as a plaster cast. Blackness welled inside him. His head felt huge and hot. His arm burned with a dull fire.

He skirted the dead thing at the foot of the steps, went on into the living room, peered out past the edge of the drawn curtains at the empty road. No people were in sight. He saw no aliens, no movement except the restless stir of the unpruned shrubbery below the window.

It took him an hour to search the house. He found another corpse in an upstairs bedroom, a woman with gray hair. He found a drawer that held a .22 automatic pistol. He took it and a box of hollow-point shells. The medicine cabinet in the bathroom yielded iodine, aspirin, a roll of gauze. Back in the kitchen, he drew the blinds, lit the gas range for heat and light. He got a pan of warm water, removed the bandages from his arm, carefully washed the wounds. Splinters were bedded deep in his flesh. He withdrew one, starting fresh bleeding. He used a heavy linen napkin from the sideboard to bind the arm, then ripped a tablecloth to form a sling.

He checked the refrigerator. It was still running but the butter and cheese and vegetables were mounds of dessicated corruption. A small steak in the freezer unit had remained edible. He found a skillet, put it on the gas, opened cans of peas and corn. He ate sitting at the table, forcing himself not to think of Gill, of what might have happened to her, the

children. Were they at home now?

They had survived for three months. They'd be all right for a little longer. They had to be all right. Going back now would not help them. He had to get clear of Beatrice, find help, come back with force behind him.

A thing like this could not be a secret. Alien invasion had been talked about for a century but had never really been considered a possibility. And now it was here. Why weren't the Army and the Air Force hitting back?

Good reasons probably existed but without information he could not hope to deduce them. The facts he had were meager. He had been a Worker, like everyone else, that was clear enough from his clothes, the calluses on his hands and from what Gill and Zwicker had said. But something had brought him out of the trance-like state that gripped the others. What? How was he different?

He tried to remember the last days. Early November certainly was clear enough. The tenth—he remembered that. There had been the quarterly payment on the plant mortgage. He remembered signing the check. All right, that narrowed it down. Then what? There had been the conference with the chain-store clients. That had been on a Monday.

Mallory found a wall calendar. Monday had fallen on the seventeenth and the twenty-fourth. Which had it been? There had been something — a trip, a visit to the parent company's home office, up north. He had planned to drive, because — of what?

The reason had had something to do with the Old House —he had meant to take the opportunity to stop by, check on things.

Abruptly he was thinking of Lori. He remembered that he had invited her to go along on the trip. But she had had other plans — a visit to a friend who lived outside the city.

Hodges. Sally Hodges. The Hodges house was about twelve miles out on the state road. Lori had been there when the aliens came. That was why she was not at home, had not been caught with the others. She was safe. Safe. And tomorrow he would find her.

The stairs were too steep for him to climb again. Mallory settled himself in a chair in the living room, covered himself with a throw rug, and slept.

DURING the next day flatcars twice passed close to the house. Mallory watched them from an upstairs window. Their occupants showed no interest in the house. He slept, ate. By nightfall he felt well enough to travel. He donned a fleece-lined coat he had found in the hall closet, filled the pockets with canned goods and dried fruit, bottled soda water.

He left via the back door, crossed the untended garden. He was dizzy and lightheaded but his legs felt as if they would support him for a while.

A hundred yards from his starting point, a burned-out tank rested on its side in the ditch. So the Army had fought — and lost. He plodded on, head down against the chill wind, headed north into the dark countryside.

III

MALLORY remembered the Hodges house as a pleasant old brick structure, steep-roofed, gingerbread trimmed, built among century-old elms at the crest of a low hill half a mile off the highway. It looked gaunt and forbidding in the pale dawnlight when he crawled over the fence and crossed the pasture.

He saw lights in two of the windows.

He approached the house openly via the driveway. No one moved behind the curtains. No eager farm dogs leaped forth to bark a greeting. Three pick-up trucks were parked on the rutted grass before the wide porch. A heavy-laden convertible stood behind them. The lights inside went out as Mallory reached the steps.

He halted. Air sighed through tree branches overhead. A stick cracked somewhere in the darkness off the left side of the house.

"Hello — anybody there?" Mallory called.

No one answered. He thought he heard a faint sound that might have been the hammer of a gun coming back to full cock.

"I'm a refugee from the city," he said. "I need help."

The bushes shook. A big, broad, rather heavy-looking man stepped into view, holding a shotgun ready.

"Get down on your knees and put your hands on the ground," he ordered brusquely.

"I'm unarmed," Mallory said.

"Better move fast. I'd as soon blow your guts out as look at ye."

Mallory stared at the loose-mouthed, unshaven face, the bristly black hair tufted under the rim of a new-looking yachting cap with an elaborate gold badge.

"Don't be a fool," he said.

"You're a spy." The man fingered the gun, coming forward slowly. "A damned, sneaking spy."

"Lonny, you damn fool — Can't you see he's hurt?"

A woman, heavy-hipped, bundlesome in a mackinaw, had come up behind the man.

"He'll hurt some more before I'm done with him —"

"Sure, shoot off that twelve-gauge and let everybody inside five miles know we're here."

"I'll just stomp him."

Lonny advanced, his teeth showing white in the pearly light.

"Has it occured to you that we need every man we can find?" a quiet, elderly voice said from the background.

Lonny thumbed the safety off, squinted down the barrel at Mallory's face.

"Where's Frank Hodges?" Mallory asked.

Lonny lowered the gun, grinning.

"I forgot," he said. "I aimed to stomp ye."

A girl appeared behind the big man. She was young, pretty, with a pale, big-eyed face, dark hair tied under a scarf.

"It's Mr. Mallory," she gasped. She came forward. "Mr. Mallory — how — what —"

Lonny's big hand caught her, pushed her roughly away.

"Lonny, I told you to keep your hands off her," she snapped. "And you can forget about busting this fellow." She tilted her head toward Mallory. "Sally knows him, that's plain. And like the Perfessor said, we can use an extra hand here."

"He could still be a spy," Lonny snorted.

But he stood by passively as the big woman and the girl led Mallory into the house.

A FIRE glowed in the fireplace, a kerosene lamp on the table. The girl brought a tray with hot soup and coffee to Mallory as he sat at the kitchen table.

"Lori was here when it started," she said. "Then men came here—soldiers. They shot father. Lori and I got away into the woods. We were separated. I haven't seen her since."

"How long ago?"

"We were together for a week. So it's been about three months. She was all right when I saw her last. The soldiers were gone when I came back. The house was empty. I don't know where Mother is."

"Sally — what are the — the things in the city? Where do they come from?"

Sally looked puzzled.

"I don't know what you mean."

The Professor came into the room. He was a gray-haired, worried-looking man wrapped in a muffler. The tip of his nose was red with cold.

"You spoke of 'things' in town, sir," he said. "You refer to the enemy troops, I assume?"

Mallory described the simulacra. Sally and the old man listened silently.

"They have a kind of hypnotic control over the people who work for them," Mallory finished. "They walk and talk and feed themselves—but that's about all."

"You say you worked for the, ah, creatures for three months?"

"I must have. I have no memory of it."

"Why is it you weren't affected by this hypnosis you speak of?"

"I assume I was affected — for a while. Then I came out of it."

"Why?"

"I don't know."

The Professor nodded.

"You've had a difficult time of it. You need rest and care—"

"You don't believe me."

"I have no doubt you're quite sincere, sir, but it's apparent you've suffered hallucinations. It's not surprising, considering what you've been through, alone with your dead in the ruins of a deserted city—"

"It's not deserted and it's not in ruins. It's been taken over. My facts are easy enough to check.

But where are the Army and the police? Why isn't anyone doing anything?"

"There's been a war," the elderly man said coolly. "A short war—one the United States failed to win. The country has been invaded. We're under occupation by Soviet troops."

THE elderly man, whose name was Jarvis and who was a general practitioner from the nearby town of Minneapolis, Nebraska, pulled up a chair and tamped tobacco into a clay pipe.

"I can't help wondering what you did in the city these last months, Mr. Mallory. How did you survive?"

"I've already told you, Dr. Jarvis," Mallory said.

"Your story still sounds reasonable to you in the light of what I've said?"

"I didn't say it sounded reasonable. Just that it's true."

"Mr. Mallory — you've elaborated a fantasy to spare yourself the shame of defeat by the Communists — to give yourself hope that your wife and children are merely captives, rather than dead."

"I know what I saw."

"Have you any proof?"

"Why would I concoct such a story?"

"We've all been through a terrible experience," Jarvis said softly. "Some of us survived in one way, some in another. Some by physical flight, some by a fugue of another sort."

"We're only twelve miles from Beatrice. Haven't any of you ventured near enough to see that the city's intact?"

"There's an epidemic there, Mr. Mallory."

"What about the Tower? You should be able to see it from here."

"Tower?"

"It's half a mile high, luminous green."

Jarvis raised his wispy eyebrows.

"You mean the searchlight?"

"I mean the tower. They've cleared away the houses in a quarter-mile radious around it. It's their headquarters. That's where the workroom is, where Gillian is."

"Mr. Mallory, the Russians have set up a big beacon light in the city," Sally said diffidently. "You can see it shining at night."

"The light is invisible in the daylight, of course," Jarvis said.

"You've got an answer for everything."

"Tell me, sir — since your awakening, as you put it, have you yourself had any doubts as to the reality of what you saw?"

"Of course I had doubts. Who wouldn't? The aliens aren't easy to believe in even when you've seen one. But after they've shot at you—they're hard to ignore."

"You had no gunshot wound, Mr. Mallory. Only lacerations, apparently caused by a piece of wood. There were splinters in the wounds. I suspect you had a fall, probably in a damaged house. Looking back, can you see any small discrepancies, any objects

or creatures that changed their aspect from time to time? Anything miraculous, logically impossible?"

"The door to Lori's room," Mallory said reluctantly. "It was sealed over. I had to cut my way in with an axe."

"I submit that you sealed away your memory of your lost daughter, Mr. Mallory. But behind a mental barrier, not one of lath and plaster."

"I tell you I chopped my way through it. It was solid — but not lath and plaster. It was like layers of gray tissue paper."

"I'm sure all these symbolisms would be significant to a trained psychiatrists," Jarvis said. "I'm no more than an amateur dabbler in the subject — but I've done a bit of reading. I feel sure that if you returned to your house — assuming you weren't haunting a ruin — you'd find a perfectly normal door shattered to splinters by your axe. In fact — " Jarvis' tone grew minutely animated. "That may be precisely how you acquired the wounds, forcing your way in—"

"Next you'll be telling me Lori doesn't exist. That's what Gill said. But Sally knows her. Explain that away."

"I'm sure your fantasy is built on some basis of facts. I'm merely trying to help you strip away the facade of illusion—"

"Maybe you shouldn't, Dr. Jarvis," Sally said. "Maybe he's better off believing — something."

Jarvis looked skeptical.

"Believing in alien monsters? I doubt that concept will prove to be more comforting in the long run than the reality that the Russians launched a surprise attack and won the war."

"They haven't really won," Sally said. "They must be as badly off as we are. I haven't seen a Russian soldier in months. And they haven't bothered us here. Not since the first day."

"We're too close to the plague city. And in any event — what do we have that they might want? They have the cities to loot. But they'll get around to us in time, I daresay."

"Have you actually seen these Russians?" Mallory asked. "Are you sure you're not making them up?"

"Of course I've seen them. Paratroopers dropping out of the sky. There was heavy fighting south of Minneapolis — that was why I ran away."

"I saw them, too, as close as you are," Sally said. "I'll never forget them, those baggy uniforms and the captain with his red shoulder boards — and their strange smell, the language they spoke—"

"Don't reopen the wound." Jarvis patted her shoulder. "You promised not to think of all that, eh?"

"Why here?" Mallory asked. "What military objective is there in Nebraska?"

"Possibly some secret base, a missile site—who knows?"

"What does the radio say about all this? Television? Isn't there any news?"

"No news. No television. The radio comes alive now and then, mostly in Russian. I'm afraid I don't understand the language."

The back door banged open. Lonny, coming in from outside with an armload of firewood, stared at Mallory. He thrust the door shut with his foot and dumped the wood on the floor.

"Carry that into the fireplace," he ordered. "Then go out there and cut more."

"Not with that arm, Lonny," Jarvis spoke up.

The heavy woman, Mae, appeared at that point to second him. Lonny went away, muttering.

"I suggest you mend as quickly as possible," the medical man advised Mallory. "Our Lonny is a hypochondriac, he tends to tolerate me for that reason. But he's also one of the laziest men alive. He even tried to force Sally to chop the wood for him."

"Lonny ain't so bad, when you know how to handle him," Mae said, sitting down heavily across from Mallory and tucking back a lock of graying hair. "He ain't right bright and he's yeller — so he's gotta be bullied. But he ain't no more'n a big overgrowed kid in some ways."

AFTER eating, Mallory and Sally went out into the yard. The barn door hung in pieces from its hinges, shattered by some winter storm. No animals were in sight. The place had a forlorn, decayed air. A season of neglect had done more to destroy the image of peace and order than three-quarters of a century of use.

A huge oak in front of the house had had all its lower limbs lopped off — one of the sources of Lonny's firewood. Mallory investigated the three pick-up trucks. All were new. They were loaded with merchandise — a red plush divan, heaps of cheap new clothing, boxed shoes, kitchen appliances, hand tools, television sets — Mallory counted three in one truck, four in another. Everything was rain-spotted and rust-stained. The thin veneer on the TV cabinets was peeling from weeks of exposure to the elements. The convertible's interior, though obviously new, was musty and mouldy, soaked with rain. Sodden leaves were packed in the front seat and over the fur coats and fishing rods and guns in the rear.

"There were two other men here with Lonny and Mae when they first came," Sally told Mallory. "They'd been looting all along the way here, loading up and then throwing things away to make room for more. They made trips every day for a week or so after they got here. The house is full of things. After a while they got tired of it."

"What happened to the other two men?"

"There was a fight. Lonny beat them up. I haven't seen them since."

"When did Jarvis arrive?"

"About a month ago. Lonny almost shot him but he called out that he was a doctor. That saved him."

"Why did you stay after they came?"

"Where else was there to go?"

"What about those towns where Lonny and his friends gathered in their prizes? Aren't there any people there?"

"No. I went into two towns while I was on my own—after I ran away. I saw some dead bodies, not many. Everything was intact, just deserted."

Mallory turned as a door banged. Heavy footsteps clumped on the porch. Lonny stood there, rubbing his mouth with the back of his hand. He scratched his stomach, then slouched down the steps and toward Mallory and the girl.

"I been thinking," he said. "Get on out back the house and cut up that kindling."

"He's not well enough, Lonny," Sally said quickly. "Dr. Jarvis said—"

"What do I care what that dried-up old man said? I told ye to git, dude — now git."

The big man started toward Mallory.

"Lonny, stop." Sally jumped in front of him. Lonny seized her as if to throw her down, then hesitated, obviously struck by a new thought. He pulled her close, his loose mouth searching for hers.

There was a broken axe-handle lying near the trimmed twigs. Mallory caught it up, stepped up behind Lonny, raised the heavy billet and brought it down across the man's head with a sound like a dropped pumpkin. Lonny tottered two steps, went to his knees. Mallory walked around him, took careful aim and hit him again at the base of the neck. Lonny went down hard on his face. Mallory threw the club aside.

"I've had all the Lonny I can take," he said.

SALLY came to him, clung to him, her body trembling.

Mallory held her, made soothing sounds.

"But what will happen when he comes to? Your arm —"

"I'm leaving," he said.

"Where will you go?"

"I don't know. Lincoln or Omaha. Somewhere there has to be some kind of organization, some troops holed up — something."

"Jeff — are you sure about what happened back there in town?"

"You believe Jarvis? You think I'm crazy?"

"It isn't a question of being crazy, Jeff. Just that under stress people sometimes see things that aren't there. You know it can happen. It's one of the mind's defenses. It's no disgrace —"

"When do I start believing? Now? Did I really give Lonny a concussion? Did Jarvis tell me the Russians have taken over the country? Are you real? Or am I imagining this, too?"

"I'm real, Jeff. Don't ever doubt that."

He looked down into her face. She pressed against him, warm and alive.

He let her go, stepped back.

"My God, Sally, you're my

daughter's friend. I'm old enough to be —"

His voice trailed off, unequal to the cliche.

"I'm nineteen, Jeff. I'm a woman. Certainly Lori's my friend but that doesn't — doesn't —"

It was her turn to falter.

"Sally, you're a very lovely girl — woman, if you prefer. I'm twice your age. Don't I find you desirable? Sure I do. That's the the trouble."

"Things have changed, Jeff. Jeff. Three months ago you were just a nice middle-aged man, young-looking but surely worlds away from me. Now — it's different. Maybe it's instinct. I don't want one of those thin-legged mop-haired boys. I want a man. Someone who'll take care of me Someone like you."

"Sally, all this will end some day and everything will be back to normal—"

"Do you really believe that, Jeff?"

"What would you have me do, Sally? Pretend it was all a dream and settle down here with Lonny and Mae and start enjoying a lot of leisure time?"

"Jeff." Sally took his hands. "If it's the way you say it is—what can you do alone?"

"I don't know. I have to try."

Mallory looked at the pick-up trucks, walked over the the nearest, a pale blue Dodge. He circled it, looking at the tires. Sally came up to him, took his arm.

"I'm going with you," she said.

"Don't be silly. You belong here."

"With Lonny and Mae?"

"Dr. Jarvis is here," Mallory said.

"We'd better dump this stuff out of the back," Sally said and swung up on the side of the truck.

Mallory hesitated for a moment. Then he clambered up over the tailgate and awkwardly, one handedly, began tumbling television sets over the side.

They left a half-hour later with the truck. Mae and Jarvis watched from the porch as they drove away. Nobody waved.

IV

THEY drove until dark, cruising at thirty miles an hour along empty roads. Three times they passed military vehicles stalled in the road. Two were Russian. One was American. There were no bodies around them. They passed through the town of Hickman, desolate and deserted in the twilight. A few miles beyond, they pulled off the road into a stand of hickory trees. Sally helped Mallory inflate air mattresses, rig a tarpaulin over the truck.

"It's too bad we don't have a double sleeping bag," Sally said. "I want to sleep close to you. I want to know you're here."

"I'll be here, Sally," Mallory said.

"Jeff, tell me about yourself. I want to know all about you."

"Where should I begin? With my exciting childhood in the orphanage?"

"Oh, Jeff, were you really —"

"It wasn't exactly an orphanage. More of a paying home for some lucky lads who didn't hapto have families. It wasn't bad. We were well fed and clothed and the school was good. But it was all a bit impersonal."

"Don't you have any family at all?"

Mallory laughed briefly.

"No. Not unless you want to count Uncle Al."

"Tell me about him."

"He used to come to see me. He was a big man with a big mustache and strange, colorful clothes. He smoked cigars with a wonderful smell. He'd tell me stories — all about a marvelous Old House that he was going to some lucky lads who didn't hapexcited about it. And then I'd wake up."

"Oh? You mean —"

"Uncle Al was just a dream."

"Jeff —" She clung tightly to him. "I'm no dream. I'm real — and I'm here."

"Yes," Mallory said. "And I'm glad you are, Sally. Very glad —"

THE next day they pushed north through Johnson and Otoe Counties, passing deserted farms, deserted towns. South of Lincoln they found the road blocked by a jumble of wrecked vehicles — a pile-up in the dark, Mallory guessed. He saw some dirt mounds in the field beside the road — graves, hastily dug and untended.

They back-tracked, detoured east. Just before noon, under a wet, gray sky, they came to the outskirts of the village of Alvo, drove along the potholed main street, pulled into a formerly prosperous Shell station, now overgrown with weeds springing up through cracks in the pavement. Cars were still parked on the cracked apron. Mallory cut a six-foot length from a plastic hose to siphon fuel from the tank of a heavy, dusty Cadillac, took a can of oil from a stack by the pumps. He wiped the truck's windshield, examined the tires, then broke open the door to the women's toilet for Sally.

He saw a display of firearms in a sporting goods store across the street. The door was locked but Mallory broke it open with a kick. He helped himself to a .32 caliber Browning automatic pistol in a black leather shoulder holster. He buckled an ammunition belt around his waist, opened a box of fat brass cartridges and filled the loops, dumped the rest of the box into his pocket. As an afterthought he picked up a Mauser .25, filled the magazine and a spare, slipped it into his watch pocket. He exchanged his soiled coat for a lightweight, fleece-lined, genuine leather windbreaker, took a pair of pigskin driving gloves, added a sheath knife and a small flashlight. A display of shoes caught his eye. He spent another five minutes selecting a pair of tough Cordovan climbing boots and heavy wool socks.

"You look ready for anything now," Sally said admiringly.

"And we'll probably meet it."

They drove through the town. The roar of the engine shattered utter stillness. They passed the last scattering of hamburger joints and cut-rate service stations, slowed for a railroad underpass followed by a sharp turn. As Mallory swung the corner, a man stepped into the road fifty yards ahead. He wore a baggy gray tunic and khaki pants, a flat cap with red band. The submachine gun in his hands was aimed squarely at the windshield of the truck. Mallory braked to a stop twenty feet from the man. More soldiers emerged from concealment in the brown growth of weed.

"Russians," Sally whispered.

ONE of the soldiers, an officer to judge from the shoulder boards and the holstered automatic, sauntered forward, a cigarette between his lips. He had a wide mouth, eyes that were narrowed to slits, sandy hair that needed cutting. A couple of medals were pinned to his stained tunic. He stood by the truck, looking it over, looking Mallory over, peering expressionlessly at Sally.

"Get out, please," he said in a conversational tone and stepped back a pace. "Put both hands over your heads."

Mallory and the girl climbed down. They stood in the road, waiting. The men came, glanced at them, checked the back of the truck. At a nod from the officer, one of the men searched them, took Mallory's .32.

"I am Lieutenant Brozhny," the officer said. "Who are you? Where do you come from?"

He had only a faint Slavonic accent.

"I'm a civilian. Mallory is the name. This is Miss Hodges. We came from near Beatrice."

"How near?"

"Twelve miles."

"Why did you leave? The sickness?"

"There isn't any sickness."

"You are aware this area has been designated off limits?"

"I could see it was deserted."

"You do not believe in following orders issued by competent authority?"

"I never heard of the orders."

"The woman is your wife? Mistress?"

"Mistress," Sally said promptly, taking Mallory's arm.

The officer pursed his lips.

"What did you observe in the vicinity of Beatrice?" He shifted his gaze from Mallory to Sally, back again, watching their expressions. Sally pressed Mallory's arm warningly.

"Nothing," he said.

The officer nodded as if this were the answer he had expected.

"I must ask you to accompany me to my headquarters," he said. "This is a matter for the colonel to deal with."

"You don't have to arrest us. I told you were were noncombatants —"

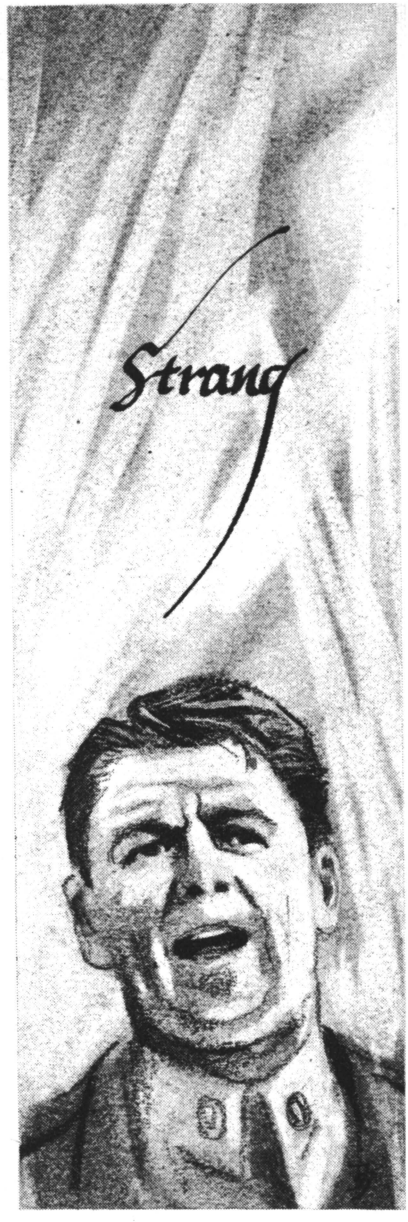
"There are no noncombatants," the lieutenant said. "Please get into your vehicle. One of my men will drive."

Mallory and Sally climbed into the cab. A grinning, thick-featured youth with a goaty odor pushed in under the wheel, started up with a grinding of the starter gears. Fifty feet along the road a six-by-six Studebaker truck rolled out from the shelter of a tattered and sagging billboard. The other men swarmed aboard it.

The pick-up did a U-turn and followed the bigger truck back toward the town limits of Crete. They drove through the three-block business district, past another block of houses of diminishing grandeur, turned left into a farm road. It led for a mile across flat prairie. As it topped a rise Mallory saw a vast encampment spread across the fields below. There were acres of tents, miles of muddy catwalks, a score of jeeps, trucks, command cars, bearing the white star of the U.S. Army, some the red Soviet star. Men by the hundreds gazed out through the barbed-wire that encircled the bivouac.

The pick-up braked beside a large farm house near the center of the camp, under a stand of sycamores.

Sally held Mallory's hand as they climbed down to follow the Russian officer toward the house. The men standing by stared at the girl as they passed. The lieutenant conducted them through a former living room from which all the furniture had been removed, with the exception of some straight chairs and a library table. A uniformed girl sat at the table,



typing. A large map of the state and the adjoining area was taped to the wall. Colored pins were stuck on the map in no discernible pattern.

"Wait here," Brozhny said.

He went through a door and closed it behind him.

Through the curtainless windows men could be seen wandering across the yard.

"They don't seem to be worried about the American prisoners causing any trouble," Sally said. "They let them wander around loose—not even guarded."

The door opened. The lieutenant beckoned. Mallory and Sally entered the adjoining room. It was a former parlor. A man lounged in a swivel chair behind a large desk. He played with a pencil held in blunt fingers. He was big, with a tough, square face short reddish hair. He wore a green uniform with three rows of ribbons and the silver eagles of a U.S. colonel.

HE LOOKED at Mallory and the girl.

"I'm Colonel Strang," he said. "Brozhny tells you claim to have come from near Beatrice. That right?"

Mallory nodded. "Clear up one point for me, will you, Colonel? Who's in charge? You or the Russians?"

Strang stared at him. Brozhny laughed.

"You thought the dreaded Reds had invaded Nebraska?" the lieutenant inquired in an amused tone.

"Invaded, hell" Strang said and laughed without humor. "We invited them in. They're our allies. We've been invaded, all right—but not by Russia."

"I'm glad you realize that," Mallory said. "Nobody believed my description. I was about to to be convinced I was seeing things."

"What are you talking about, man?" Strang frowned up at Mallory.

"I'm talking about the creatures that have taken over Beatrice."

"Creatures?"

"You said you knew we'd been invaded."

"And so we have," Strang said grimly. "By the Chinese Communists."

"They hit us on the morning of the twenty-third of November," Strang said. "A day that will live in infamy beside Pearl Harbor and the sinking of the *Maine*. We underestimated the Chinese — underestimated them badly. They had stuff we'd never dreamed of. They came dropping straight in from extreme altitude at velocities our radar people couldn't believe. We launched everything we had — and they picked it out of the air. The Air Force scrambled — but there was nothing for the fighters to fight. The bombers were called back when word came down on the hotline that the enemy wasn't the Russians. Then our radar went out. All of it, all at once. But

we knew where they were grouped. We poured in the firepower, low-level bombers, strafers, armor. None of it got anywhere. Aircraft went out of control and crashed. Vehicles stopped dead. Guns wouldn't fire. That was when we called in the Red Army. And then, of course, the Sickness hit us. We had to pull back and regroup."

"Is the fighting still going on?"

Strang frowned. "There hasn't actually been any fighting as such. The Chinks are an elusive enemy. We can't even make contact, damn it." The Colonel's fist hit the desk. "But we've got 'em stalled, bogged down. They bit off too much. They can't chew it."

"That was three months ago," Mallory said. "What's happened since?"

"We've taken advantage of the lull to consolidate our positions, prepare our counterattack."

"If you haven't made contact — how do you know it's the Chinese?"

"Who else would it be?" Strang came back. "And how is it you know nothing of all this?"

"He's been sick," Sally spoke up quickly. "He's had amnesia."

Strang grunted. "You claim you were near Beatrice. You saw nothing?"

"I haven't seen any signs of the Chinese," Mallory said carefully.

Strang nodded. "What did you do in civilian life, Mr. Mallory?"

"I'm an engineer."

"Good," Strang nodded. "I need engineers. I need everything I can get but qualified men most of

all. Mallory, I'm prepared to offer you a commission in my army."

"Your army?"

Strang gave him a hard stare.

"That's what I said. I raised it, I provision it, I give the orders. My army."

"What does Washington say to all this?"

"Not a damned thing." Strang said softly. "Or Moscow either. Better readjust your thinking, Mr. Mallory. The old organization is gone. Communications are gone and with them the old government, the old economy. The sooner you realize that, the better chance you'll have of surviving under the new conditions."

"What's happened to all the people?"

"I took the able-bodied ones, of course. The rest have been evacuated outside my perimeter. Why?"

"I just wondered how they fit into the new order."

"Forget them, Mallory. There are matters of more immediate concern. As an officer, you'll have the best, of course. I've scoured the countryside, stockpiling supplies. You'll find we live pretty well here. Not that we're settling into complacency. Let the enemy get the impression that we are. All the better when I'm ready to make my move. They've put their necks into a noose, concentrating as they have. Panicked, no doubt, after their first unexpected successes. Like the Japs after Pearl Harbor, they'd wiped out the U.S. Navy and didn't know what to do next." Strang rose, paced across the room and turned. "Damned shame you saw nothing in the Beatrice area. I need Intelligence, Mallory — need it badly. I'd give my left arm to know what the yellow bastards are up to." He smacked his fist into his palm. "But with it or without it, I intend to hit them with everything I've got — and wipe the city of Beatrice off the map."

"Colonel — there are no Chinese in Beatrice," Mallory said.

"And how would you know?"

"I was there — two days ago."

Strang walked around behind his desk and seated himself. He opened a drawer and took out an automatic pistol, laid it on the desk before him.

"Tell it from the beginning, Mallory. This time tell it all."

Mallory gave a terse account of everything that had happened from the moment of his awakening until his departure from the city. Strang eyed him disgustedly when he finished.

"Your brains are scrambled," he said flatly.

"Colonel, try to keep an open mind. Consider what I'm telling you. Everything you've said fits in with what I've told you —"

"Poppycock."

"Have you seen a Chinese soldier? Even a corpse?" Mallory demanded.

"I've explained to you —"

"You're wrong! There are thousands of people trapped in Beatrice. You can't bomb the city, Colonel. It would be mass murder!"

(Please turn to page 160)

To The Last Rite!

PERRY CHAPDELAINE

All brain from birth, he had to learn about heart!

ONE-GIRK-TWO sadly shivered against the cold of this strange, possibly hostile, alien world. Fingers of light probed between the mountain depressions ahead, signifying that morning had come and that the time had arrived to awaken his whole body, in this, his life's greatest trial.

The swirled yellow-in-blue snappers around his boulder had finally quieted, some of the wounded dying while the more aggressive ones had scuttled away search of other prey. One-Girk-Two stared at the remining horde below, shivering with the thought of how close those razor-sharp claws had come to his soft, organic form. How fortunate he had been to respond in terror to their noisy click-clack during the dark of the night and to have scrambled to his present safe perch. From the number of injuries and deaths below, they must have slashed one another in wild displays of temper and frustration during the night.

Was patience a necessary solution against the dangerous elements of this planet? Was it a necessary characteristic which he must possess to advance from a Two to a One?

He did not know.

Whatever the case, he was thrilled by the opportunity to strive for the mighty advancement of himself from a Two to a One. The fact that all of his kind had similar chances — or perished — made no difference to him. Instinctively and consciously his tiny body cried for the right and rejoiced at the situation's potential.

Every One-Girk longed to be a One-Girk-One for that was the nature of his genetic heritage as well as his purpose for being.

Actually the symbols One, Girk and Two were quite literal transcriptions of an otherwise alien viewpoint most difficult for human understanding. Though necessarily such symbols are vague approximations of their true meaning, human analogues exist which correspond and are useful. The first One stood for the fact that One-Girk-Two was composed primarily of neural tissue whose ultimate function might be that of providing the drive and decision-making function of the Unit — a composite of many Girks, each of different but coordinated function.

The Two stood for the fact that this particular One-Girk had achieved success in passing every civilized test for his species — fourteen in total number — except the last. Should he pass this last test, consisting partially of his ability to survive in a strange and hostile environment and partially upon an as yet unknown set of criteria, he would automatically raise himself to the rank of a One-Girk-One, with all of its rights and privileges assigned.

Which simply meant that this particular Girk organism had been approved by the standards of his society and that he was fit to coordinate the activities of the complete, composite organism which made up the Girk Unit.

Though his tiny eyebuds still roved over the torn and slain

snappers, One-Girk-Two's busy thoughts actually reflected the lessons he had learned during his early period of trail successes. Being a Unit was the highest ideal. Noting and understanding relationships is a great achievement. To appreciate interrelationships fully, however, one must be a Unit. The fragments of instinctive concepts within the range of One-Girk-Two were awesome and overshadowed all feelings of fear during his present hideous test.

HE GLANCED toward the horizon noting the thin, dull streak of light reflected through the morning clouds. Dew had just fallen, leaving glistening spheres everywhere. One - Girk - Two stretched his surface membranes, the better to absorb the moisture.

Turning back to the snappers below, he considered their relationship to the flora and fauna around. Without predators of some kind the fertile grasses and forests would soon be overgrazed and overburdened with herbivorous life forms. Then, life's balance destroyed, all would wither and die until a new balance came into being.

He recognized the last thought as fragmentary, far below the Unit knowledge level of interrelationships. With the snappers, proper toll was taken of the herbivorous life forms, food of another kind was returned to the grasses below —and this was as far as his present knowledge reached. Every cycle had other cycles interlaced — the rain, the grass, the minerals, the animals — perhaps, even as a lowly One-Girk-Two, if he were to concentrate sufficiently long and hard he would be able to see how the very planet's motion cycled and interlaced with the ultimate purpose of the snappers.

The thought was one to muse on. But now the light had become stronger and he knew that the day would bring a new set of trials, a new set of tests — perhaps even his death. It was nevertheless a joyfully encountered time — for it could bring him closer to Unit status.

His appendages were weak, developed primarily for locking into Unit position for life. His tools were primitive — a heat gun, a food converter, a signal generator. Somewhere during the night a change in attitude had taken place in his makeup. Unable at first to use the heat gun against life forms even in self-defense, One - Girk - Two had scrabbled away from the snappers and found safety above their clacking claws. He had rationalized the action to himself as unwillingness to use up the charge.

But the night's changes in his attitude now caused him to unlimber the heat beam, take aim at the still living, dangerous snappers and press the button. Steam

sizzled upward from the rocks below until they were covered with charred and smelly snappers no longer capable of action against him. He was truly relieved — their sharply lined mouths and their clutching, curling foot pods, too, were gone.

Another attitude had changed. Patience is good. Death, too, may serve a purpose — that another might live. . .

Would this thought endure for him to bring back? He did not surface? He did not know.

His immediate danger over, he still held back to think through his next move. The light would soon be stronger. The ship, which was most certainly monitoring his every movement, would probably expect him to move soon. Would his test be valid without his moving constantly over the planet's surface? He did not know.

Probably inaction would mean automatic failure. And, having failed the test, this particular One-Girk-Two would be eliminated — killed as useless, of no purpose in the cycle of things in his present form. He would be destroyed — returned to ashes of ordinary chemical compounds to be spread over the single broad sea of the home planet.

How civilized the test was! Tens of thousands of years ago the Two - Girk - Ones (bodies), Three - Girk - Ones (mobiles), along with the One - Girk - Ones (brains), were assembled into Units by trial and error caused by the play of wind and wave. How long it must have taken before civilization created a sensible set of rules for the making of Unit selections.

The value of each assembled Unit was a matter of the selection process, too. He knew that should he survive the current tests he would become a part of a very important Unit indeed. Great inward pleasure swept through One-Girk-Two as he contemplated the future.

The sun's rays probed his soft flesh. He pushed out his almost atrophied, fine - line appendages and used them to move himself from the rock. Gravity was stronger here by an eighth than on his home world. Simple movement was slow and time-consuming. He woke his body and put every cell to the effort of traversing the long, grassy valley. His senses were alerted for the tiniest sound which might indicate movement of snappers. His eyes and tympanic membranes were especially alerted for dangers of unknown size and type.

Ahead he could see waving strands of blue-green grass. To his right were low-lying hills, browned and dusty in the morning sun. On his left was a creek bed and beyond the creek bed he could see a thick forest of dark blue-green.

Immediately ahead he could spot the double humps of nesting insects he had found numerous and painful. On the day of his arrival he had walked unknowingly into similar humps to be stung again and again. He gave these two wide berth.

He arrived at the dry creek bed. He was careful not to dislodge gravel or rattle the dry, noisy brush as he slipped down to the bottom.

The creek bed followed the edge of the forest and One-Girk-Two noted that a cleared space on either side of the bed gave him easy view of possible dangers. His only problems were the sharp-edged stones and pointed sticks that every now and then gouged into his tender flesh. Travel was not too hard, however.

THE sudden sounds of scrambling rocks and the sliding of many feet slowed, then stopped him. He edged his slight body under the roots of a tree at the edge of the creek almost without thinking. The thundering noise rapidly turned to billows of dust and the outlines of gigantic animals. One-Girk-Two raised his heat beam to face the great bulks in the event the beasts chose him for their target. He did not think the beam would have much effect on their thick hides, however. He hid quietly.

The herd thundered past without noting the little intruder. One-Girk-Two eased out to the middle of the bed again. He looked downward to find his signal generator gone. Without the ability to signal his position he would never be picked up by the ship. That was the same as failing the test!

He backtracked anxiously, heaved a mental sigh when he found the equipment hanging to a root in his earlier hiding place. He carefully placed it back on his body by means of its loose strap, checked his food converter and retraced his path.

The creek bed finally turned away from the forest. One-Girk-Two painfully pulled himself over the steep bank on the forest side. He did not want to go among the trees. Many unknowns could hide there. Still, the sun beat hot and heavy against his thin skin and the heat plus lack of moisture were major determinants in his next decision. He eased himself into the shadows of the vegetation, laboriously pulling himself along by means of brush and clumps of tough grass.

Presently he stood before a giant black-boled tree fringed with delicate blue-green, lacy stringers. He looked up and saw thick branches and gnarled limbs linked with gossamer webbing. Birds? Insects? Plants? He did not know.

He stepped gingerly forward, took another step, then suddenly felt himself caught and spun

up and forward. His tiny appendages were held tightly. He could not reach for his heat beam; his body was held almost equally tight.

He could not budge.

II

STRANDS of sticky fibers closed in on One - Girk-Two, wrapping him in a nest of crisscross lines. He reflected on his position, noting other bundles like himself hanging from other tree branches.

One bundle jerked and bobbed, swinging. The creature in it must have been stubborn — its motion never stopped nor decreased in intensity. The bundle jerked and swung for what seemed like hours. Suddenly upon it loomed a huge amorphous organism of generally spherical shape. And One-Girk Two could see that the new being had no observable appendages but somehow was able to cling to the jerking bundle.

A fold extruded from the creature and stretched over the jerking bundle, wrapped around it. Soon the jerking decreased in intensity.

One - Girk - Two sensed the odds were heavily against his survival. A deep depression struck him. Then, as swift as thought, his spirits soared as his imagery focused on his potential for reaching Unit status.

He acted swiftly, massing all of his neural tissue together, linking each cell to the others and pushing his thoughts inward toward a central, hard core of being that demanded, over the random pulses of each tissue layer, attention to the central problem of escape.

His associations flowed in a disciplined manner, searching and discarding possible solutions to his present plight. Finally the most probable line of approach appeared and was seized upon by more and more clusters of his neuronic boundaries. — His massive intellect tested the thought, explored bypaths and finally resolved to try the idea.

One - Girk - Two refocused part of his tissues on the animal ahead, primarily to keep up his guard. Then, with other parts of his body, he began the simple process of secreting liquids through his external membrane. The weak, watery acid was rapidly absorbed by the vegetable-like fibers holding him and capillary action moved the fluid evenly throughout the network. The webbing sagged, broke open. A nearly dehydrated One - Girk - Two fell clumsily to the ground.

He knew a swift surge of pride and happiness, not at the thought of his own cleverness but at the thought that he was still eligible as a Unit component.

Turning his attention back to the surrounding jungle, he care-

fully bypassed the webbing structures, slowly making his way once more through the tangled jungle.

His external membrane slowly absorbed moisture from the rising humidity beneath the thick foliage, restoring his body fluids. Hunger came. But a mere moment's effort was needed to drop organic materials through his food converter and change them to a thin paste his body could ingest.

He rested on the trunk of a fallen tree before moving on.

PART of One - Girk - Two's conscious thought dwelt on the environment around him, comparing and classifying sensations and shapes into safe, possibly safe, possibly dangerous and dangerous categories. The vine now ahead of him, for example, appeared as safe as thousands of others he had seen.

Another part of this thought process, like some small, irritating insect, considered the principles or philosophies he was expected to formulate and present during the final testing. So far he had changed his pattern of behavior by killing other life forms. It followed that his attitude and orientation toward himself and the universe were also changed. Was the change in the proper direction? He did not know.

Certainly the development of utilizing his whole mass of neural tissue when confronted with an otherwise unsolvable problem was in the right direction. Everything he instinctively knew about his hoped-for and ultimate goal spoke of even higher, almost godlike, powers of concentration that would be his as a Unit.

The vine ahead of him waved but so did all the other vines hanging nearby. The wind reached the vegetation through a cone in the jungle roof. One-Girk-Two passed under the dangling plant when, without any warning at all, it twisted and curled itself around him.

One - Girk - Two contracted his body and slipped out of the coils. Unfortunately his heat beam was jerked from its carrying strap and crushed.

Shock struck One - Girk - Two at his loss. Could he survive this hostile environment without the heat weapon?

He did not know.

BY THE time One-Girk-Two had pushed his way up the steep ridge beyond the first section of jungle, daylight was no more than a faint, gray line stretched along the horizon. He figured that the last of it would be gone in moments.

His passage had been slow and difficult. Deep shadows smoothed the ground around him while beneath him he could still feel the occasional pain from loose rocks

and dead branches which often masked treacherous holes and low places.

Twice he fell into such holes, making no outcry. Each time he carefully appraised his position, then pulled himself out in the most logical and expeditious manner. The unfamiliar gravity was beginning to take its toll, too. His body seemed to sag and his appendages, never very strong, were slower and slower to respond to his mental demands. With each step he became more aware of a weakness in his plans. How could he have decided simply to move on and on across this planet with no purpose to his direction? Perhaps he should have waited first to develop his philosophies.

Whatever the case, his present need was to rest the night on the ridge overlooking the thick forest below. There he would at least, be safe from snappers. What else might lie in wait for him was unknown and unknowable — hence, must be risked.

He reached the end of the narrow, tablelike plateau along which he had traveled. Light was growing steadily weaker. In a very short while he would be on top of the ridge and would command his body to rest while part of him kept watch.

A dry stick crackled and One-Girk-Two again plunged suddenly downward. This time his fall was more severe due to a longer distance. His body flattened outward, forming a thin membrane stretching precariously over rough, sharp rocks. More slowly than other times he pulled himself together and heightened his other senses.

He could hear a low, muted air-sound at the end of his cavernlike trap. Assuming the sound to be the breathing of some kind of unknown, burrowing animal, he concentrated his senses on the walls surrounding him.

The hole through which he had fallen had straight walls from top to bottom, showing no projections whatsoever. He had landed on tumbled rocks and organic debris, most of which had probably been sucked through the same hole that had caught him. But even in the dying light One - Girk - Two could see a tunnel lined with jagged rocks, probably created by ancient earth processes of long ago. The breathing came from somewhere in the darker portion of the tunnel.

One - Girk - Two pulled himself into a corner of the pit and waited, every sense alert. The breathing seemed to rise and fall in decibels, depending upon how close he pinpointed its source. To test his conjecture he pushed his body toward the noise. The breathing quickened, grew louder.

One - Girk Two permitted his tissue to rest while part of his thoughts dwelt on the breathing phenomenon. The animal might

or might not be dangerous. It could also be more frightened of him than he of it. In either case, his tissues needed rest and, until some light found its way into this new prison, his best judgment was that he should now rest.

Morning arrived. Slim streaks of light found their way into his hole. The animal in the tunnel proved considerably smaller than One - Girk - Two. Dark fur covered its whole body. Its peering eyes were sunk beneath folds of fur, showing large black centers for the collection of the dim light.

He could make out small forms under the animal's body and realized that these were young and that the fur-covered parent probably would never leave until he did. He congratulated himself for having chosen to wait during the night before — even harmless animals will attack when their young appear to be threatened.

One-Girk-Two surmised that the tunnel was the animal's normal entranceway to the cavern. He decided to bypass the nest in any effort to make his way to the outside world.

He grasped a rocky shard, held it between himself and the frightened animal as he moved toward and alongside the nest. beast bared its rows of teeth, repositioning itself always to face the intruder.

One - Girk - Two sidled past, pressing toward the opening.

He let himself down into a narrow gash, shallow and barely wide enough to accomodate his bulk, yet a lucky opening, maybe, to the outside world. He worked his way down slowly, finding descent surprisingly easy — until his good fortune ended.

Above his head was a crevice too high to climb. Through it came a spear of light illuminating a steep opening at his lower appendages. He could not leap across the gap.

HE PUZZLED over the impasse for a moment, then put all of his mind to work on the problem as he had learned to do when caught by the tree-webbing. Time stretched out for him while connections and cross-connections were forged. Every possible solution to his difficulty presented itself and was discarded for one reason or another — including the retracting of steps to secure bridge-building materials from the burrowing animal's nest.

The only solution was no solution at all—rather, it was a gamble. He must attempt the jump. His brain estimated that his death was probable, regardless of which alternative he took. It told him that the probability of his successfully jumping the crevice was small — as little as, perhaps, 0.00001. Yet to do nothing was also certain death, for it meant failure.

He glanced down again, noting the sharp projections of rocks along the sides of the crevice. He could not see the bottom. He did hear a light sibilance — a breath of air or maybe an echo of running water. Perhaps his brain had estimated a choice based upon subliminal impressions — perhaps there was water below.

He set himself for the jump. He gathered together his various appendages and pushed them all in the same direction against the floor, arching clumsily over the center of the crevice.

He did not make it. He fell swiftly.

III

THE fall was long. One-Girk-Two believed that his body could not repair itself after a fall of such a distance. The noise of coursing water became plain, however, and just after drifting into deep despair, he found himself plunging deeply into a cold, swift stream. His body pushed through the water and pressed itself lightly against the stream bed before the effects of the fall stopped.

Naturally buoyant, his body rose to the surface of the stream where, bobbing around and up and down like a piece of tree bark, he rode the stream's swift, dark flight.

One - Girk - Two adjusted his metabolism to both the dark and the cold. He realized that his food converter was gone. He reached into the surrounding water in search of it but to no avail.

The stream's pounding through rocks and narrow crevices was now audible. One - Girk - Two was heavily battered at every turn. The stream arched outward in a long, sweeping waterfall which he rode down, plunging once again to the bottom.

The tunnel walls widened and his ride became more even and slow.

Light showed at the end of the tunnel. Like a leisurely and pleasure-seeking vacationer One - Girk-Two finally floated out of the tunnel's mouth and into sunlight.

He was too exhausted to struggle from the river to the bank. He rested most of his body but let his remaining neural tissue dwell on whatever random stimuli came to it. Inevitably his thoughts raced back to the beginning of his present plight and the conflicting emotions he felt over it.

He was still alive, hence certainly still eligible for One-Girk-One status. Were his signal generator to be activated now, signaling the end of this portion of the final test, he would still be lacking those essential principles required for the true Unit status. What could they be? He did not know.

Cover was scant along the stream's banks. There was only a litter of rocks that had—in storm-ridden times past—scoured muddy grooves down the mountainside and had come to rest along the foot of its scrubby, thinly grown foothills.

Such plant life as existed had managed to sprout and to maintain itself on barren ground in the heat-blasted summers and extremely bitter winters. Scorching heat, even now, caused visible steam to rise from the river's surface.

One - Girk - Two had passed through a steep mountain range which divided this land into two climate zones. He almost wished for a return to the more comfortable but probably more dangerous jungle zone. Only his signal generator remained. Food there would be plentiful for him to absorb through his membrane. Here, without his food converter and heat-beam, his nourishment would probably have to come from raw blood of small animals. He shivered at the uncivilized thought.

By now the sun had reached its highest point. One - Girk - Two, using only a portion of his tissues, made the decision to stay in the water. It had slowed to a sluggish, muddy river.

He let his body rest, closing down even more of his conscious processes until only slight attention was placed on the surrounding environment. The river swept slowly around snaky bends, moving him as much as five miles in curvilinear distance for every mile of linear.

Trees, tall and stately, began to appear along the banks of the river. The sun passed its zenith and crept downward and the trees cast longer shadows. Another turn in the river and a net fell over One - Girk - Two, entangling him and stimulating his tissue to full wakefulness.

PRIMITIVE animals in hollowed-out logs, had surrounded his floating form and thrown a net over him while he had rested. They appeared to be bipedal with two arms, two eyes, two ears and coverings of purple, silky, hair-like growth. Their mouths were rounded and, as they made what seemed to be talking noises to one another, he could see vicious-looking, needle-sharp teeth.

One jabbed at him with a wide stick probably used to propel a log through the water. One-Girk-Two let his membrane stretch to absorb the blow.

His appendages were busy below the waterline, testing and searching every strand in the net for some access route or weak link. He found none.

The net was drawn together more tightly and, without further blows from the floating animals,

he was hauled into one of their hollowed logs. Here their inspection became more detailed and more painful to One - Girk - Two. Two of the animals, using sharpened sticks, prodded and poked him in every possible spot.

Again and again he adjusted his membrane to absorb the blows but even his remarkable stretching capacity was finally not enough. One animal turned noisily to another, then prodded the stick almost through him.

His outer membrane punctured now, his fluids leaked out. Excruciating pain overcame him.

He shut off the aching parts of his body, placing them to sleep, then continued to dodge other prods from the short sticks.

Soon almost every part of his brain-tissue anatomy was compartmented and One-Girk-Two fell unconscious.

FROM One-Girk-Two's cage various tribal members could be seen in various positions of sitting, squatting or walking around the community fire. Twisted fibers from a tough tree root formed the bars of the cage. He had already learned that his weak body acids would not burn the bars. Most of his body tissues were closed off, preventing the continuous pain from searing through his consciousness.

Water was never offered to him and he had to absorb what liquids he could from the humidity of the atmosphere — a pitiful quantity, barely allowing his normal biological functions to proceed. Food consisted of scraps of garbage thrown by amused bystanders and only through trial and error had he learned which scraps were sufficiently fine-grained to be absorbed by his external membrane.

Some food had to be washed by exudations of his body fluids, breaking down their cellular structure further so that he could absorb some of the nutrients. Other particles had to be left to rot until microorganisms had sufficiently broken up the materials. All these ways to provide himself with life-giving nourishment were new, invented by himself out of necessity.

Though all these primitive conditions for survival were painful and burdensome, nothing hurt One-Girk-Two so much as the loss of his signal generator. Without that precious device, life itself was unimportant—for without the opportunity to become a member of a Unit he was nothing.

A spark of hope continued to linger within him. He could see the signal generator hanging on the chief's neck. It was a rugged mechanism and might still be operating in spite of the daily abuse it received.

One-Girk-Two often directed the total mass of his tissues into

search for a solution to his present plight. A slight suggestion of escape — a bare, tenuous possibility — offered itself. To that possibility, he devoted every bit of conscious neural tissue.

Evening was the time for peaceful tribal social gatherings. At that time, fishermen, hunters and their trainees, the children, relaxed. Sleep was not far away. Daylight was nearly gone and few daily activities remained to be performed.

Females of the tribe usually enclosed the very young in brilliant red skinfolds to protect them from the cold. The older children, more self-sufficient, followed the footsteps of their assigned teacher or formed into larger groups for games.

Frequently a group of youngsters would assemble outside One-Girk-Two's cage to prod him with sticks, throw pebbles, sand or garbage or simply to stand quietly and stare from large unblinking eyes.

One of the primitive alien children in particular had sustained a curiosity unusual for the group. He had never teased or thrown objects. He had come night after night to stare and seemingly to study One-Girk-Two.

One-Girk-Two always looked forward to this event — for in that small alien's behavior lay the tiny, almost insignificant possibility of his survival. He had determined to learn the tribe's language and to develop facility in it. The small, unblinking male child who was such a frequent visitor was his major key to the effort.

There were always children surrounding the cage who prodded or teased; the opportunity to contact this particular male child was not easy to come by. The strategy finally developed was s i m p l e. Whenever the thoughtful male child appeared, One - Girk - Two would immediately sidle over to him, placing his body as close to the child as possible. There was nothing more he could do until he learned the language.

Meanwhile he absorbed noises and patterns of behavior associated with his captors' speaking modes. Had his body not been so totally injured and compartmented he might have learned far more rapidly than he did. But he did learn.

The day finally arrived when persistent use of his remaining integrative functions brought the language to his abnormally small conscious portion and, with the exception of some ambiguities here and there, he knew that he was ready for his initial speech attempts. He tried them on his prospective friend when other children were not around.

THE noises were not too easily recognizable as speech, for One - Girk - Two's

membrane was not capable of imitating sounds struck from needle-sharp dentures. At first the child to whom they were directed was delighted with the new phenomenon and invited everyone to hear the sounds. Prodding by sticks increased until he and the others learned that One - Girk - Two immediately shut off the sounds under such circumstances. Then, for many weeks, all prodding ceased and One - Girk - Two rewarded their behavior by attempting his peculiar speech patterns at every opportunity.

Visiting tribesmen from other geographical regions were fascinated with One-Girk-Two and soon great status was associated with the tribe that possessed him. His speech improved slowly. He rewarded Sutic, the young male he had chosen for a friend, by reserving for him a true description of his origins.

"I am One-Girk-Two from another world beyond your sun. I am here to complete my apprenticeship before becoming a One-Girk-One when, should I pass the final test, I become a member of a Unit."

Such concepts as Unit and One-Girk-Two were exceedingly difficult to communicate to the primitive alien and were perhaps never made clear. The idea of a "world beyond your sun" was not quite so difficult to convey, for Sutic was familiar with worlds beyond the desert, beyond the mountain, bevond the trees, beyond life and so on. And soon Sutic's special knowledge of the captive raised him in the esteem of his elders.

In as short a time as possible One - Girk - Two made his request.

"I must have the box hanging around your chief's neck. Without it I will not continue to live," he pleaded.

"My grandfather places much *sebble* on the box. He would never part with it."

One - Girk - Two was unable to translate the word *sebble*. He inferred that it represented prestige or magic.

Cold weather set in, causing One - Girk - Two to place his major efforts on maintaining his body temperature. He assumed the shape of a sphere in order to conserve the maximum amount of heat. He explained to Sutic, who acquired for him a place nearer the ever-present campfire and caused animal hides to be placed inside his cage. But One-Girk-Two continued to be unable to shake Sutic's reluctance to approach his grandfather on the subject of the box.

His watchers, high above, surely knew where he was and what was happening to him for they had broad and mysterious powers belonging only to the Unit level. But the rules for trial were clear and specific. He must main-

tain signal contact with them and be ready to respond to their signal at any time they initiated the contact. Soon, he knew, he would be stranded among these aliens should he fail to maintain his proper signal in the generator.

He might already be stranded. There was no way to tell. During the period of time that his signal generator had been worn by the chief, signals may already have come and passed him by. If this were the case, all his efforts to retrieve the box were already too late. He did not know.

Slowly One - Girk - Two became part of the tradition of Sutic's tribe, the Corogers. The cold season passed; the windy season passed and was followed by the hot season. The sun blazed mercilessly. One - Girk - Two was given his physical freedom as a pet of the tribe.

He found many excuses to remain by the chief's side and near the signal generator. One was that part of his mission might prove to be to acquire a thorough knowledge of the tribe — and what better observation post? Another was that an opportunity to use the signal generator might come.

He learned that the tribe's life was stable in both births and deaths. Food was easy to reach in the streams or in the foothills and deserts. The climate was not too immoderate for the Corogers' genetic heritage and their tempers, though savage, were for the most part even. The tribe lived an unassuming life — and within this pastoral but primitive framework the more civilized but incomplete One - Girk - Two watched and waited.

He reflected on the lessons he must learn on this venture, their possible content, their significance with respect to Girk life, evolution and development, and his particular future role in his culture's matrix.

IV

LIFE to any Girk is simple though it may not appear so to an outsider. Each Girk is born of the apparently undifferentiated parent mass of cellular tissue that once covered the floor of his planet's single ocean.

Variations in temperature and nutrients surrounding the parent tissue cause a differing in the type and kind of budding which, when pulled out from the parent, becomes a particular kind of Girk. Usually the One-Girks stem from the hotter, equatorial regions. The Two-Girks — the bodies — usually come from the slightly cooler regions. The Three-Girks — the mobiles of various sizes and shapes — come from even cooler regions.

The Twelve-Girks — tiny reproductive cellular clusters which might eventually return to the

parent body at some point distant in geography and time — usually come from the coldest regions of all.

One-Girk-Two quite often reflected on the early beginnings of his race — the complexities and simplicities, the beauty and rightness. He contrasted his race's evolutionary path against that of his captors, the Corogers, noting their strange incompleteness and nonunified nature — they were almost like single Girks for life. Yet he often marveled that they had brains, body, legs and arms and other characteristics which operated with singleness of purpose much like a Unit.

Thousands of years earlier One-Girks, Two-Girks and all other Girk components, separated from parent, were tossed and moved by the winds and the sea currents more or less at random across the planet's single ocean. They intermingled, one kind of component with another until, by chance alone, a complete Unit was created and civilization evolved. The early Units, though defective in philosophy and behavior, managed to create a more advanced developmental stage, opening to their more mature senses and thinking capacity many secrets of the physical world.

Eventually the application of science to the formation Units brought about the design of a selection process whereby only those components — One - Girk - Ones, Two - Girk - Ones and so forth —which were most fit, became part of the completed Units.

One - Girk - Two reflected on the precision and desirability of the tests. The Girk culture had become immensely improved in the period of only one generation. Subsequent refinements of the tests had brought it to greater heights. One - Girk - Two had been subjected to hundreds of tests which measured his ability to utilize both inductive and deductive reasoning as well as his ability to solve intuitional and associational insight-action problems.

What was the exact extent of his powers?

He reflected on his latest change in knowledge and behavior. He had killed. He had suffered great pain, indignities and humiliations at the hands of primitive, backward, alien beings. Yet, he had striven, in a sense, to join his tormentors. Did this mean that he had little by little realized that these beings, too, had a right to grow and to evolve in their own manner?

He examined the principle of cooperation between alien species —himself and the Corogers.

One - Girk - Two was able to teach his captors some simple things. One of these was the idea and use of the wheel. Another was simpler in technique but re-

sulted in more praise—how to make fire. This second benefit freed the primitives from constant flame-guarding.

Such was the value placed on this bestowal that Sutic's grandfather, in great ceremony and in front of the whole tribe, said, "You have made us a gift of much value. We no longer have the right to retain that which you desire so strongly. Take the box as a gift in return for your gift of fire-making to us."

One - Girk - Two was overjoyed. He checked the box and found that his Girk monitor was still watching and observing his behavior. Strapping the signal generator once more to his form with animal thongs, he proudly made his way through the tribe, knowing a feeling of oneness and love for these strange beings. Somehow, in some way, this primitive group of aliens had to be componentized. That, he thought, should be his greatest and best gift to them.

He could work from several different levels. Already these primitives had a well-developed social structure which tended to specialize activities within a unitary whole. It could be improved upon. And biological unitization could be made to take place at another level — but what would be the end result? If he changed these creatures — would they still be his friends and he theirs?

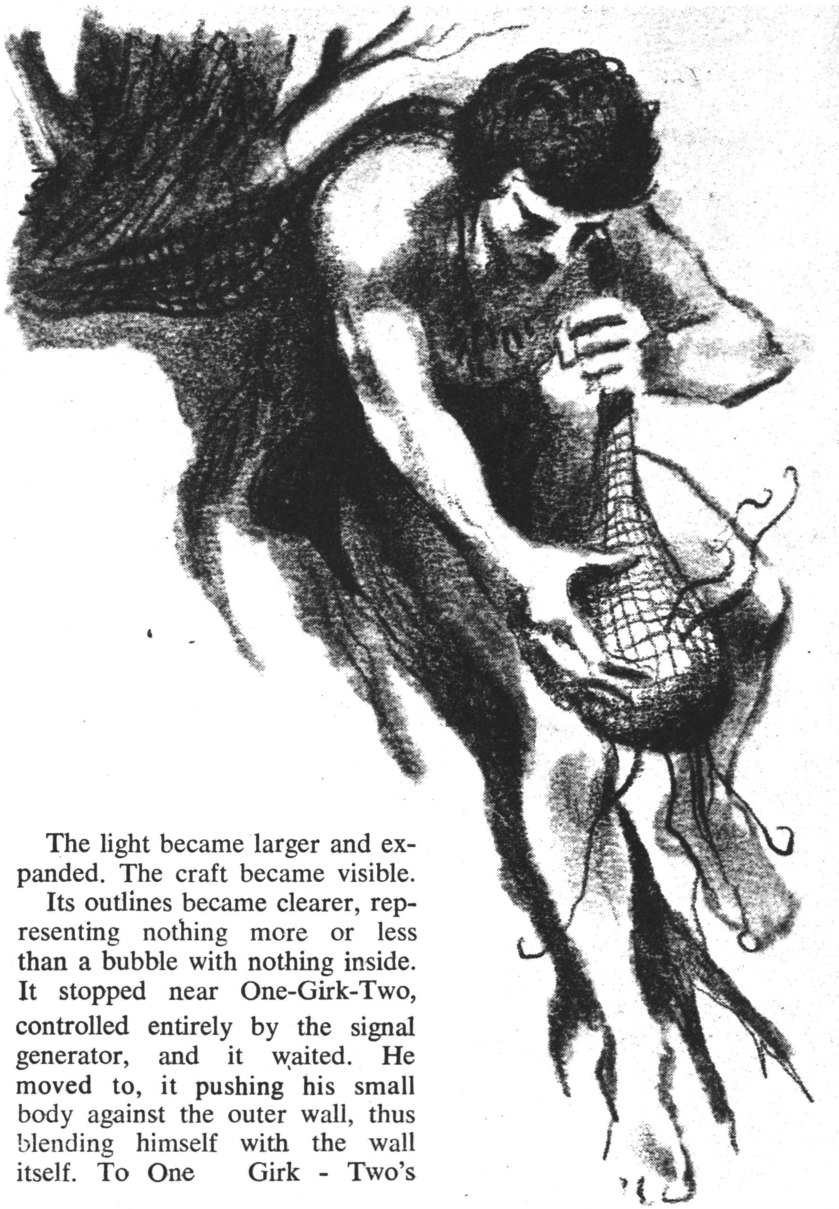
One - Girk - Two contemplated in silence the mightiest task that had as yet occurred to him — if he could accomplish it. To change the biological nature of a life-form —was that not a kind of destruction, death, no matter what the reasoning behind it? Would he not be using on his friends a weapon deadlier than the heat-beam he had lost? After long, quiet evenings of thought he finally formed a conclusion.

Though minor help, like the wheel and the fire-making, could be given to less developed beings than himself, it was not his place to change their natural organic integrity.

AS THOUGH triggered by that very thought, One - Girk - Two's signal came. Strangely, he was unexcited and ready for it, as could easily be determined by the deliberate manner in which he pushed the return signal in proper code sequence. Then he waited.

High in the sky, like a crystalline jewel sparkling brightly in strong sunshine, hung the energy-balloon. It would be operated by a Unit from the ship overhead, just as it had been on his arrival upon the planet's crust so many months before.

As the bright point of light became even bigger and brighter, the activities of the Corogers ceased.



The light became larger and expanded. The craft became visible. Its outlines became clearer, representing nothing more or less than a bubble with nothing inside. It stopped near One-Girk-Two, controlled entirely by the signal generator, and it waited. He moved to, it pushing his small body against the outer wall, thus blending himself with the wall itself. To One Girk - Two's

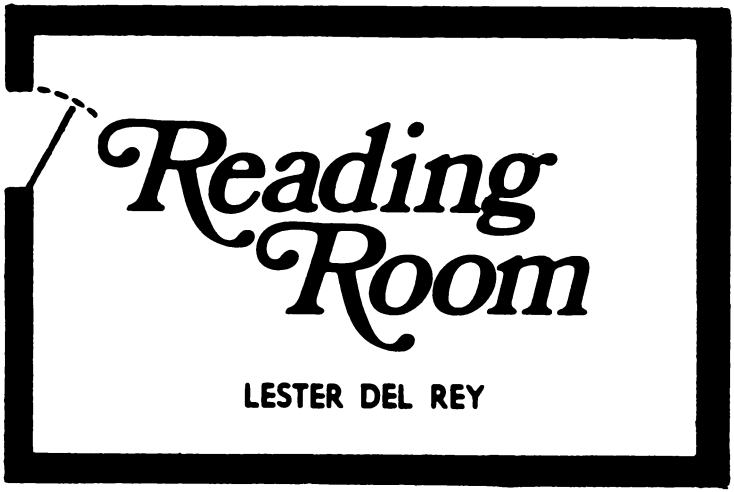
primitive friends it appeared as though he had walked through the bubble's walls.

One - Girk - Two turned to watch the tribe from inside the hollow sphere. This was truly a parting, for he would have to wait for them to come to the Unit stage — or its equivalent — in their own time and in their own peculiar manner.

Sadly he removed his signal generator, pushed it through the bubble's wall and dropped it at the feet of Sutic, the first friend he had known anywhere. A great noise rose from the mouths and throats of the tribe.

One-Girk-Two knew he had passed the physical survival portion of his test. Had he also passed the philosophical, unknown portion? He did not know more than that love in all its forms must represent great risks and he had just taken all of them. What did this mean?

The Unit guiding the bubble of forces upward would give him his answer. ●



LESTER DEL REY

Most pulp-magazine publishing came to an end some twenty years ago because of what might be termed "Gresham's Law" of popular literature: Bad fiction tends to drive out the good from the market place. If a good magazine became popular, fifty cheap imitations were rushed to the stands. This syphoned off some sales of the good one and also disgusted many readers who might have liked such stories if they had found good examples.

So far, this hasn't happened to science-fiction magazines. But there is some evidence that a trend in that direction is developing in the books that bear our label. Science fiction is a marketable commodity; it may not sell in vast quantities, but books carrying the term prominently do rather better than many other categories. And consequently, the men who ride trends are beginning to issue almost anything on which they can put the words that seem to draw readers.

The latest—and to my mind, most flagrant—case is *Holding Your Eight Hands, An Anthology of Science Fiction Verse*, edited by Edward Lucie-Smith (Doubleday, $1.95). There are some examples of the work of science-fiction and fantasy writers included: Aldiss, Disch and Lovecraft among them. There are also a number of pieces from poets that deal with subjects now in the news which were once used

n science fiction — and which were whipped to death back in the dim days of the beat poets. Anything goes. While Robert Conquest writes of science fiction in genuine verse, George MacBeth fills much more space with a bunch of folksy prose paragraphs about Herman Kahn's theories. There's little here to gladden the heart of either a science-fiction fan or the general reader. Yet it will probably get better reviews than most science fiction; and because of the label, it may well sell more copies than most books of poetry today. Ah, well...

The poets of the day,
Banging on wash-tub bottoms,
Sing in cacophony
Sans scan, sans rhyme, s a n s reasons.
They write of archetypes,
Speak atom bombs and fission.
And when the market's right
They call it science fiction.
Their critic daisy chains,
In quid pro quo ovations,
Extol their latest fads
—And fraud them publication.

Such an attempt to ride the market trends is a little exceptional, of course. A more normal trick is to dig back through old magazine issues to find something that nobody else wanted and to hail it as a classic — or to put it out as if it were something fresh from the writer, in some cases. Often, such works aren't even given a superficial revision to bring them into line with current events.

THE ROSE, by Charles L. Harness (Berkley, 60¢), is an example of the "great lost classic" ploy. There's no effort to conceal that this is from the volume *Authentic Science Fiction* of 1953. Instead, the publishers boast of the fact, as if they were doing us a great favor in bringing us this rare jewel that no American magazine had the exquisite taste to publish. The point is further emphasized in a foreword by Michael Moorcock which indicates that this is a landmark novel by one of the greatest of science-fiction writers.

I have no quarrel with his rating of Harness. The man established himself as a major writer with a single short novel, *Flight into Yesterday,* some twenty years ago. And despite a meager output, his reputation has deservedly remained high.

Even the best writers, however, may lose perspective on some story dear to their hearts, with results that should best be forgiven and forgotten quickly.

The Rose has all the complexity for which Harness is noted, but it has very little underneath to justify all the themes and counterthemes. Instead, it seems to fall back on artiness—a grave danger to any story which tries to talk

about art as something more than a product of man's emotions. Much of the basic idea bogs down in an attempt to equate Art with the functions of science and mathematics as a means of controlling whatever Reality may be.

The story is loaded and overloaded with symbolism. There's a Dancer and a Poet at the center of it all. Both are crippled and tortured; both are tools of folly. There's an unfinished ballet that must be performed, which will then do what all of science has failed to accomplish. And there's naturally a somewhat tragic mood of love. But most of it is as unconvincing as the description of the dance, which is so obviously impossible as a ballet that everything seems a little ridiculous.

The whole thing comes off as an unhappy bit of what I can only call adolescent fiction. It takes on the vague profundity of an adolescent's first struggles for a sense of values and importance — with everything in capital letters to conceal the fact that too much of the fury involves nothing but empty symbols — the Reality of Art, the Meaning of Existence, and such. There's a great deal of color in some of the scenes, but the scenes take place to fill empty spaces, rather than giving us any true picture of what is happening

Anyhow, it isn't a novel. The book is padded out with a number of shorter pieces to bring this novella up to publishable size. None of the stories are Harness at his best.

THE RING OF RITOURNEL, by Charles L. Harness (Berkley, 60¢), is another matter. This is an original novel — full-length and current. Many of the themes that are vaguely hinted or heavy-handed in the older story are given the treatment they deserve. Art is still with us, but now it is in context with the worlds of science and religion. The texture and complexity of Harness' writing comes through much better. And the characters are more than mere symbols. The poet, in particular, emerges in twisted brilliance through the eyes of the main character, his brother.

Like much of Harness' work, this isn't always easy to follow. But there is a fascination to it, and a feeling in the end that the events have justified the effort required to understand them.

Perhaps the most unwisely reprinted writer in our field has been Edmond Hamilton. Over a course of four decades, he has steadily improved his vision and his craft; today he is among the best writers of adventure science fiction, and any new book by him is one I buy automatically.

Publishers normally list the date and source of the original appearance on the copyright page, so it shouldn't be too hard to

determine whether a book is a reprint from the morgue of our beginnings despite title changes. Yet most readers aren't that sophisticated. I've heard Hamilton damned by fairly perceptive readers on the basis of work done forty years ago, when the writing standards of the whole field were much different.

Now there's a new batch of novels by Hamilton that don't represent his best efforts.

There was nothing wrong with the Captain Future stories when they appeared in the magazines twenty years ago. They were meant to be series stories based on a mechanical formula, like many other series characters from the pulp era. They were fast-action novels in which the plotting was almost as fixed as the choreography of a traditional ballet. Hamilton turned them out at regular intervals. His writing was honest for the purpose, but was never intended to represent anything but formula work.

Now the publishers of Popular Library — who own the original copyright from the magazines — are issuing the Captain Future stories as soft-cover books. There is no attempt to deceive, of course; the copy on the back cover clearly identifies each book as a Captain Future novel.

That is fine for the readers who already know who and what the Captain was. Unfortunately, of the book-buying science-fiction public, this probably represents less than 20%. Any unaware reader who picks up Hamilton's *Outlaw World* (Popular Library, 60¢) is risking disappointment if he expects a story of the quality of other work by the same man. The characterization is skimpy and routine, because the Captain and his rather contrived crew are little more than easily identified pieces in a regular game. And the story is skimpy because it was written to length and to schedule, rather than as a tale to stand on its own merits. It's good fun for those who know and like the rules of that game, but not for the unaware.

TO SEE how far below Hamilton's current standard the Captain Future stories are, one need only turn to his latest series, such as *World of the Starwolves* (Ace, 50¢). This is clearly labeled *Starwolf No. 3* so there can be no confusion as to its being a series, and it's a full-sized soft-cover at a rather reasonable price.

This shows evidence of having been designed for book publication, even though meant as a series. Morgan Chane, the hero, has been brought up by the outlaw starwolves and is now opposed to them. But beyond that basic situation and some parts of his character, the book shows a considerable flexibility in the choice

of situation and secondary characters. It is also an action story — but the action is keyed to a more adult audience, with leisure to build up the suspense and mood, rather than the need to spring immediately into full action. There are grays in the mood and in the characters, rather than the absolute good guys and bad guys.

Furthermore, the reader who picks up this book need not understand even the fact that it is a series to enjoy it. Hamilton has time and space to develop the basic facts of Chane's background, and the story otherwise might be any adventure novel.

The Starwolf series isn't the best of Hamilton — probably no writer can do his best work around any series situation; but it is enjoyable, and by all odds the best deliberate series I've come across in the field.

A number of books written for the teen-age market (which usually means somewhere between 10 and 14) are now appearing in soft covers, with no indication of their original purpose. In the case of Andre Norton and most Heinlein "juveniles," this doesn't much matter; they were never very tightly geared to any particular age. But in other books, the handling isn't one that will completely please an adult.

One of my books, *Attack from Atlantis* (Tempo Books, 75¢), deals with a civilization that has existed for millennia on the sea bottom until an atomic submarine discovers it. (It's not *the* Atlantis!) This was written in 1953, when atomic subs were fairly novel and before men had reached great depths. The foreword and some of the early subject matter are based on what has not yet been done, and should have been revised, along with a small amount that was deliberately written for the young reader. Yet when the soft-cover rights were purchased, no opportunity for revision was offered; nor is there any sign that the editor took the trouble to cut out a few references that were of no use and are now out of date.

It would be hard to blame an adult who decided to browse through science fiction and picked my book for feeling that the field is kid stuff. Yet such a reader, unfamiliar with most science fiction, might be attracted to the book by the use of the term "Atlantis" in the title.

It was an honest book in its original intent, I feel. But I'm a little unhappy to see it picked up by an unfamiliar reader who decided to sample this science-fiction stuff people talk about.

If these various forms of rushing almost anything called science fiction into print harm the field as a market, however, it will be only partly the fault of the publishers. The writers must share some measure of responsibility

when they control the rights. All of us — and I certainly include myself — must obviously start demanding and exercising our right to revise anything that can be made suitable for a broader or different market; and we must sometimes refuse to sell rights to stories that really should no longer be in print.

Until this Utopia arrives, the reader can only protect himself by watching the copyright notices and by doing more than read the blurb inside and on the back cover. Most stores will permit a buyer to glance over the first couple of pages of a book, if he shows signs of paying for what he likes, rather than using the store as a library. It's usually possible to tell in those two pages whether a book is of the level wanted. There's no law that forbids us screaming a bit in a letter to the publisher when we feel there was misrepresentation; but how much good that does is anybody's guess.

ON A more pleasant level, there's a book where no faintest taint of misrepresentation can be suspected. *Decision at Donna,* by Anne McCaffrey (Ballentine Books, 75¢), is an original first published in 1969. It's a book written for adults, completely independent of any others by the same author, and it includes enough information about itself in the blurbs for the reader to make a fair guess as to what he will get.

What he gets is a good adventure story. The few human colonists on Doona are struggling to make their world ready for the larger horde of settlers to come when they run into an unexpected problem. Another race is discovered on Doona — a world supposedly carefully checked to make sure it has no intelligent life. The colonists from Earth find some evidence that the aliens may even be superior in intelligence — yet they still can find no evidence for a history of evolution to intelligence on the planet.

If the aliens are natives, Earth's government is going to make the humans leave the planet — but a return to overcrowded Earth is a nightmare to these social misfits up there. On the other hand, if it turns out that these aliens come from some other world (despite their seeming lack of space ships), the problem is one for which there is no clear answer, but one which each government bureau will decide to take over in absolute and conflicting authority.

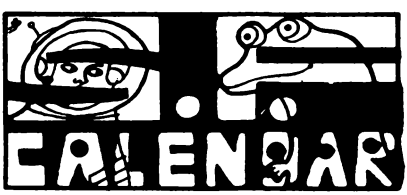
It's a nice situation, well handled, and with aliens that are sufficiently believable and interesting to add greatly to the story.

Anne McCaffrey has avoided the too-easy trap of typing herself, I'm glad to see. Her previous work has been almost exclusively

told from the point of view of a female character — dragonrider, singing ship, or what have you. Here she uses a male as her protagonist. She slips into the masculine attitude easily and convincingly, and her female characters are seen as they would be viewed through the eyes of a man.

She has also depended mostly on usihg characters with singular powers, such as telepathy or the cyborg awareness of her ship. The people on Doona have no such tricks up their sleeves; they have to depend on normal human resources, except for one boy who shows a bit too much and too easy empathy with the aliens. (That's a minor kick, though the child does skirt painfully close to being too much of a wonderchild.) She gets by very well without the crutch of extra-normal abilities to sharpen her insights.

The idea of a first contact with an alien race isn't as fresh as McCaffrey's best-known other works. But it's handled with enough originality to breathe life into it. •



October 30-November 1, 1969. SECONDARY UNIVERSE II and SECOND ANNUAL CONFERENCY OF THE TOKIEN SOCIETY OF AMERICA. At the University of Wisconsin, Green Bay. The Secondary Universe is open to the first 300 registrants ($5.00 fee); the Tolkien Conference is open to all (1.00 fee if not a member of the Tolkien Society of America). For information: Ivor A. Rogers, University of Wisconsin—GB, Green Bay, Wisconsin 54302.

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. . *November 15-16, 1969* PHILCON. At Warwick Hotel, 17th and Locust, Philadelphia, Pennsylvania. Principal speaker will be Anne McCaffrey. Membership: $2.00. For information: Tom Purdom, 4734 Cedar Avenue, Philadelphia, Pennsylvania 19143.

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March 27-29, 1970. SFCon '70. At Hilton Inn, San Francisco Airport, California. Pro Guests of Honor: Miriam Allen de Ford and E. Hoffman Price. Fan Guest of Honor: Felice Rolfe. Memberships: $3.00 now, $4.00 after January 1st, $5.00 at the door. For information at the door. For information: Quinn Yarbro, 369 Colusa #5, Berkeley, California 94707

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July 3-5, 1969 WESTERCON XXIII. Will be held in Santa Barbara, California. Guest of Honor: Jack Williamson; Fan Guest of Honor: Rick Sneary. Memberships: $3.00 through June 22; $5.00 at the door. For information: Westercon XXIII, Box 4456, Downey, California 90241.

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THORNS by Robert Silverberg. Duncan Chalk, master pain peddler, skillful and sophisticated, lives in a time when reading tragic headlines no longer provides the necessary sensations. Into Chalk's sinister hands falls Lona Kelvin, orphaned, mother of 100 children, yet without a soul; and Minner Burris, starman, whose butchered body was put together by aliens, a walking horror. What fun to mate these two and watch them wallow in their mutual torment. But somewhere, something went wrong. Discover what happens when the puppets begin to pull their own strings in this imaginative, chilling book.

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MACHINES THAT TEACH

FREDERIK POHL

PERRY A. CHAPDELAINE, whose stories you've been reading in these pages for some time, is clearly a writer with an imaginative and original mind. He's not only a writer — the rest of his time he works as a mathematics professor at Tennessee A. & I., a land-grant college in Nashville, and in that capacity he also shows a lot of imagination and originality. His latest exploit is to install and direct one of the first and most complete research laboratories in Computer Aided Instruction — C.A.I., for short — in the country.

Recently we had the privilege of visiting Tennessee A. & I. and went back to school one morning. Our teacher wasn't human. In fact, our teacher wasn't even in Tennessee. Teacher was actually a PDP-10 computer located on the campus of Stanford University, some thousands of miles away in California. A smaller and somewhat dumber PDP-8 computer sat humming and winking at us in the classroom but its function was only that of a sort of mechanized telephone operator. It took the messages involved in our own math lesson and those of the other students sitting at a score of teletype consoles in the room, combined them and passed them on to California.

We've "talked" with computers before — played 3-D tic-tac-toe and have done prime-number problems with the Project MAC array at M.I.T. We've shot pool against that RCA program in Princeton, N.J. — but this deal was different. This was not a demonstration program or a game. This was the real thing. We were actually being educated. (High time, too!)

YOU arrive in the classroom at the appointed time and sit in front of the teletype. You type out your number and your first name. Two thousand miles away the computer recognizes you and types out your last name to prove it, along with the drill number for your current lesson and a short statement of what it's going to be about. ("This is a lesson on common and decimal fractions." Or, "This is a lesson on addition.") And it proceeds at once to give you a problem.

It types out: 84 × .9.

Then it waits for about ten seconds. If you give it the right answer, it goes on to the next problem. If you don't give it any answer at all, it repeats the question. If you give it a wrong answer, it types, "No, try again." If you still give it a wrong answer, it types, "No, the correct answer is 75.6, try again," and then repeats the question. And at the end of the drill, consisting of maybe 35 problems, it grades you and bids you farewell: "22 Apr. 1969. 35 problems with 54 percent correct in 683 seconds. Goodbye, Frederik. Please tear off on the dotted line."

(One thing. We really do know how much 84 × .9 is — at least most of the time. The score we got we have faithfully reproduced but we feel we should mention it was a bum rap. It was that low because we kept deliberately giving wrong answers to see what the machine would do. Actually, we could have easily gotten at least 60.)

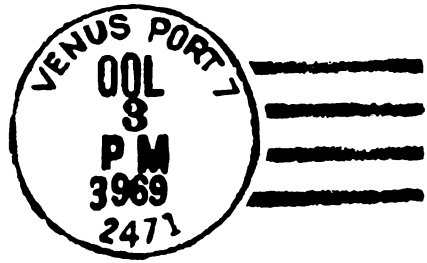
Now, all of this will never replace the teacher, a fact well known to Perry Chapdelaine, to his Dean of the Department of Physics and Mathematics, Dr. Sadie Gasaway, to his Administrative Assistant, Mrs. Deitra Taylor, to Dr. Patrick Suppes, Director of the Institute for Mathematical Studies in the Social Sciences at Stanford, who developed the program in the first place, and to all the other intelligent and able people involved. What it will do is make it possible for teachers to teach.

The CAI computer program is unbeatably patient and reliable and so it is unbeatable at drill and review. It has no personality hang-ups. It doesn't take a dislike to any student because of his color, creed or length of hair. It has no tendency to show off in front of the English teacher across the hall, or to take time out for a lecture on why marijuana will rot your brains. It will just keep on giving you problems and checking your answers. If it finds you are getting them right it will move you up to harder problems. If it finds you're missing most of them it will slip in an easier set. And it will stay right with you for as long as you are willing to sit there and learn.

And so if you come to college and realize you goofed off on a little too much of your high-school math, CAI is your best friend — and your teacher's. For you it provides remedial instruction at your own level. For your teacher — he doesn't have to hold up the whole class while he drills you in what you should have learned four years ago.

Fellows, meet the computer. Computer, meet the human race. You might as well get to know each other. You're going to be working very closely together. •

HUE and CRY



Dear Editor:

In your editorial to the May If *you stated that much of the "New Whatchamacallit s c i e n c e fiction" was concerned with "petty antiheroes who whine over the lot of mankind but do nothing about it." That may be true of mainstream fiction, but it is hardly true of even New Wave science fiction, and I believe that you realize that as well as I. I've read a fair sampling of New Wave, and most of the protagonists are no John Carters or Kim Kinnisons, but they fall under the heading of heroes. They are not the perfect human beings the aforesaid two are, but they are not meant to be. They are meant to be fallible, ordinary men, and they illustrate the hero in us all. Sam in* Lord of Light, *Michael Valentine Smith, and certainly Jack Barron did not want to be heroes. They could have copped out but didn't. They did what they had to do. Even the characters of Harlan Ellison have the touch of greatness in them.*

Science fiction is proud that it works away from the mainstream. S-f fans do not need mainstream heroes like Hemingway's Jake Barnes because mankind does not need Jake Barnes. Because certain writers introduce new techniques into s-f writing, the fans and writers have become afraid that Jake Barnes will become the model for heroes. So they condemn New Wave as a whole, and then praise Ellison, Disch and all the rest as individuals. Then they overlook the fact that "The Holmes-Ginsbook Device" is as New Wave as can be, wih superb statements on human motives. Asimov's story is concerned with anti-heroes, and his story is a classic, but there is no indication that his glory-hoggers will become models for protagonists. The fans and writers are, in reality paranoid about the entire issue, just as many are paranoid about sex in a story or elements of fantasy. You would think an s-f fan would be more rational.

The plot of a story dictates whether or not one is a hero or an everyday human being, and there will be stories in which anti-heroes will have to be used, and they will be good stories. But no one writes science fiction because he feels there is no hope for mankind. I respect your talent as an editor and a writer, but your statement shows that you have been caught up in the same unreasoning fear that many fans have been caught up in. It is false. The New Wave thinks as much of mankind as the Old Wave—it's just

that the heroes must overcome, on top of their villains, their greatest foes—themselves. And they do. —Arthur Cover.

Who ever told you that Roger Zelazny was a New Wave writer? He denies it vigorously. Who ever hinted that Heinlein (even in "Stranger") was New Wave? If those were the New Wave writers, we'd be out in front of the cheering section Furthermore, Sam in the Zelazny story showed every sign of wanting to be a hero — in fact, even a god! Come to think of it, he was a god, which is hardly an anti-hero; and neither he, Smith, nor any others on your list spent any time we can remember whining, but they did spend quite a bit of time doing something about the lot of mankind.

And if you think Isaac Asimov is a New Wave writer, you're about to make a mortal enemy of him. The "Holmes-Ginsbook" story was a lampoon — a takeoff on a very successful book about the deliberate use of science to get a Nobel prize. The protagonists are already there, and they're the model for Asimov's satiric characters.

Our biggest objection to the anti-hero is that he doesn't try to overcome either the villain or himself; he doesn't change or try to change. Once a man starts to work on himself, he's out of the whining rut and he's trying to do something — and we're then very much for him.

Our biggest objection to the New Wave comes when it's neither new nor waving, but is simply the old slough where weak winds and wan waves labour nor any wind blows free, to steal a phrase from the best New Wave poet of the last century. Most of the time, it certainly isn't bucking the mainstream, as you imply; it's trying to use old mainstream tricks of pseudo-experimental writing and hopelessness to take over science fiction.

Happens we're very much opposed to science fiction being taken over by anyone. We'd like a free market, where every story stands or falls on its own merits, and be damned to the mainstream or slipstream. Science fiction has kept going when most popular fiction died because it used interesting characters to deal with things that make good stories. When it picks up any other phony construct of how to write and what to write, it's going to join the dodo and the Sports Story. It's the job of critics to read the writers; when the writers start reading the critics for examples, someone has to yell. So we yelled. But of course, if you like it with namby-pamby anti-heroes given the job of making a tough planet (even Earth) habitable, well...less power to you, in New Wavese!

Dear Editor:

You mentioned a particle called a tachyon, a theoretical particle which cannot go slower than the speed of light. According to my information, it has a rest mass of the square root of minus one. In one of Heinlein's novels, Citizen of the Galaxy, *the hero explains the mathematical complexities of faster-than-light flight thusly: "So far as we are concerned, it's just a mathematical concept, like the square root of minus one..." This to me is very remarkable.*

In the last few years, science fiction has been infected by what is called the "new thing" or "new wave." Personally, I define the "new wave" stories as ones attempting to confuse the reader, being shocking,

using anti-heroes or having the prime object of style rather than content, though style is the means rather than the end. According to John J. Pierce, there is a movement called the Second Foundation which is for the preservation of true science fiction and the elimination of the "new wave" type of anti-science fiction, with Lester del Rey as the First Speaker. Whether Mr. del Rey sanctions this or not, I think this is a very good choice; anyone who says 2001 *was boring is all right by me.*

As a subscriber to If *and* Galaxy, *I feel that you have let these magazines deteriorate over the past couple of years. I think Larry Niven is the only good regular writer you have, although I don't see why he keeps on with you. — Matt Hickman,* 708 20*th St., West Des Moines, Iowa.*

According to the best information available on the tachyon, there is no rest mass, just as normal particles could have no assigned mass at infinite speed. The tachyon approaches infinite mass as it slows toward the speed of light. But so far, it's pretty much just a mathematical concept, as Heinlein apparently foresaw. As to the "Second Foundation" of John J. Pierce, Lester del Rey gave his permission for his name to be used with the honorary title of First Speaker; since he's been speaking against the attempt to impose any one set of standards on science fiction for years now, he felt he couldn't deny being Speaker whether first or early or whatever.

Sorry you've been disappointed in what we have felt to be some fine issues of the magazines. But stick around, Matt! We're busy making a lot of improvements which should soon be showing up. And the reason Larry Niven — for whom we share your admiration — keeps on with us, perhaps it's because we're happy to let him write the kind of science fiction he wants to write.

Dear Editor:

I don't know if I'm going to be a new science fiction fan or not! I picked up a copy of If *for the first time and, among other fascinating stories, stumbled across Perry Chapdelaine's "Spork of the Ayor."*

The man undoubtedly is mad. If his attendants in the white suits will let him turn out more "Sporks," I hope you print them. Mad or not, he can really write — and he just might turn me into a permanent science fiction fan if they don't take away his pad and pencil and put him on basket weaving. — Pat Harris, 3210 *Mexico Drive, Nashville, Tenn.*

We'll be printing several more stories about Spork, so rest content. And we hope you'll find the other stories so much to your liking that your fandom will become permanent. Incidentally if you're really concerned about Chapdelaine having to weave baskets, you might check up on him, since you can't be too far from his home. He certainly made a hit with the readers in Tennessee, judging by the mail we receive from there recently!

Dear Editor:

What is the status of Worlds of Fantasy? *Is it still extant? It has now been something like six months since I purchased the first issue and, while I have been diligently searching through all the magazine stands, my efforts have been unrewarded.*

I've over-rationalized myself into being Conan the Barbarian, Mid-

Twentieth-Century style. That's not good, but it's better than nothing. Kurt Vonnegut once wrote that we are only what we pretend to be, so we all should do the best job of pretending we can. — P. T. Blaine, Cambridge, Mass.

It could be argued that children learn to be adults by pretending they are, and some of their games would support the idea. Lately, though, it seems quite a few adults are trying things in reverse.

We're happy to say *Worlds of Fantasy* is coming out again. Trouble with distribution and other technical difficulties prevented our doing more than one issue until now, but the magazine is still extant, and a second issue should be on the stands this fall, with more to come.

Dear Editor:

Maybe your Mr. del Rey can supply an answer to a problem that has been bothering me, since he seems ready to speculate on almost anything in his column. (But please don't use my real name, since another teacher here reads your magazine.) One of my students noticed that the water level in a toilet bowl rose and fell whenever there was a high wind. I checked, and he was right. But there is no way for wind to get into the system to make waves, and I can't believe there could be ground vibrations without our feeling them. This is probably silly, but it annoys me. Can you tell me what causes it? — Puzzled.

We passed your problem along, and here is what Mr. del Rey says will explain it: "Plumbing codes require vent pipes from bath fixtures, terminating in the standpipe you can see sticking up the roof of most houses. These form a huge cavity, or resonant chamber. When the wind supplies energy enough, pressure waves are set up in this cavity, just as sound pressure waves are set up when you blow across the mouth of an empty bottle. In this case, the system is so large that these pressure waves cannot produce audible sounds; it would probably be on the order of only two or three cycles or vibrations a second. But the pressure still transmits its effects from the air in the cavity to the water, which then rises and falls with the system frequency."

Dear Editor:

I would like to compliment you on the excellence of your magazine Worlds of If. *No one can say science fiction is dying. On the contrary, science fiction is on its way up with* If *setting new trends.—Jurgen Heidenreich,* 4220 146th *Ave., S.E., Bellevue, Wash.*

We like your sentiments, naturally—but we're using them here to show what happens. Matt Hickman thinks we're slipping badly, and you think we're on our way up. We get a lot of both kinds of comments, proving only that each of you is right—for himself. All we hope is that both find our fiction moving up from now on—because we're going to try even harder. And while we like both types of criticism, we like it even better when you let us know which stories you felt were the ones going up and which ones indicated your idea of a decline. Maybe with that type of information, we can find stories you'll both like more often.

Which reminds us that with slightly more space from now on for a letter column, we'll need your comments. You set the tone here and provide the interesting topics for others to discuss. So let's hear from you.

(Continued from page 22)
no longer numbered. An impractical separation, individual from individual, furrowed this crowd of strangers. They were no longer starched and ironed in their souls.

Hesitantly Wheat sent a tongue of awareness questing inward, sensed the absence of the Machine. The ritual formulas were gone. The sloth and torpor had been peeled away. He tested the feelings of hatred, of passion, malice, pride.

"It's dead," he murmured.

He led the race back into the town, then, rushing along streets where the artificial lights flickered and behaved with a beautiful uncontrolled randomness.

With Wheat leading the way the mob plunged down into the screened openings which had kept them from the nether world of the Machine. The scene was one repeated all over the world. People swarmed through the dark tunnels and passages, celebrating the pleasures of freedom along these once forbidden paths.

When the last golden wire had been torn out, the final delicate glass shape crushed — when the tunnel girders no longer clanged with pounding metal — an unreasonable silence fell over the land.

Wheat emerged from the earth into white shadows of moonlight. He let a strange length of plastic fall from his hand. It glowed with pearls of dewlight along its length and had illuminated his rush through the mind passages of the Machine. Wheat's collar was loose and he felt a peculiar sense of shame. His eyes peered into sooty places. Shadows and dust were everywhere. He realized he had played the buffoon just as the Machine had done. A thing had happened and he recognized it in the way of a prophet.

"We think we're free of it," he said.

Somewhere in the wild collisions beneath the ground he had cut his left hand, a jagged slash across the knuckles. Exclamation points of blood fell from the wound into the dust.

"I cut myself," Wheat said. "I did it to myself."

The thought ignited a searching sensation that coursed all through him. Wheat carried the feeling all the way home to his wife who hobbled beautifully out of their doorway and stood waiting for him in the feeble flickering of a streetlight. She appeared abashed by all the confusion and the unfixed feeling at the center of her life. She had not yet learned how to fill out the areas the Machine had denied her.

Wheat stumbled toward her, holding his injured hand out as though it were the most important thing that had ever occurred in his universe.

"You're drunk," she said. •

NONE BUT I *(Continued from page 52)*

the Jann agreed. "But I delayed for a time, that thou shoudst realize it for thyself. None but I shall do thee die, no animal, no entity, no microbe, no act of nature. But it shall be a kind demise, and it shall come in exactly fifty years, as thou requesteth. I shall always be near thee, to see that mine oath stands good."

"Great!"

So the Jann was in fact a bodyguard, perhaps the most competent in all the galaxy, preserving him from all dangers until he was ninety-two. Its oath had not, technically, required that it kill him soon; only that no one else be allowed to kill him.

"Well, come on, Jann," Dillingham cried, remembering something current. "We have a student strike to deal with, back at the University. Oyster will kill me if I don't relieve the siege before all his files are gone." •

THE SEEDS OF GONYL *(Continued from page 124)*

Strang drew a breath as if to yell, let it out slowly.

"Mr. Mallory, you've had a bad time of it," he said flatly. "It's affected your mind. I can understand that. You were away from home when the attack came. You returned to find the city barred to you, your family dead. You couldn't take it. Your mind let go under the strain and you invented these zombies of yours to enable you to believe your wife and children are still living. I'm sorry for you — but I can't let that interfere with military necessity. I need men — and women. I need them badly." Strang glanced across at Brozhny. "I can't see that his delusions will prevent him from performing basic military duties, Lieutenant. Put him in D company, First battalion. And keep a sharp eye on him."

"Just a minute, Strang —"

"That's Colonel Strang to you, private!"

"Colonel, I don't have time to play soldier in your private army. My family's in that town —"

"Forget it," Strang said. "You're not going anywhere." He lifted the pistol as Mallory took a step toward him. "I'm warning you for the last time, private. The penalty for mutiny is the firing squad."

"The colonel is quite serious," Brozhny said and took Mallory's arm. "Come along. You're not the first man to be drafted into the army in wartime."

(TO BE CONTINUED)

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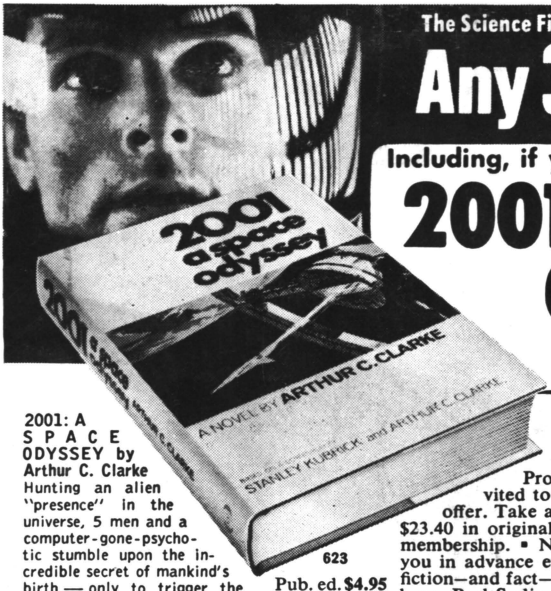

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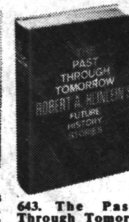

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