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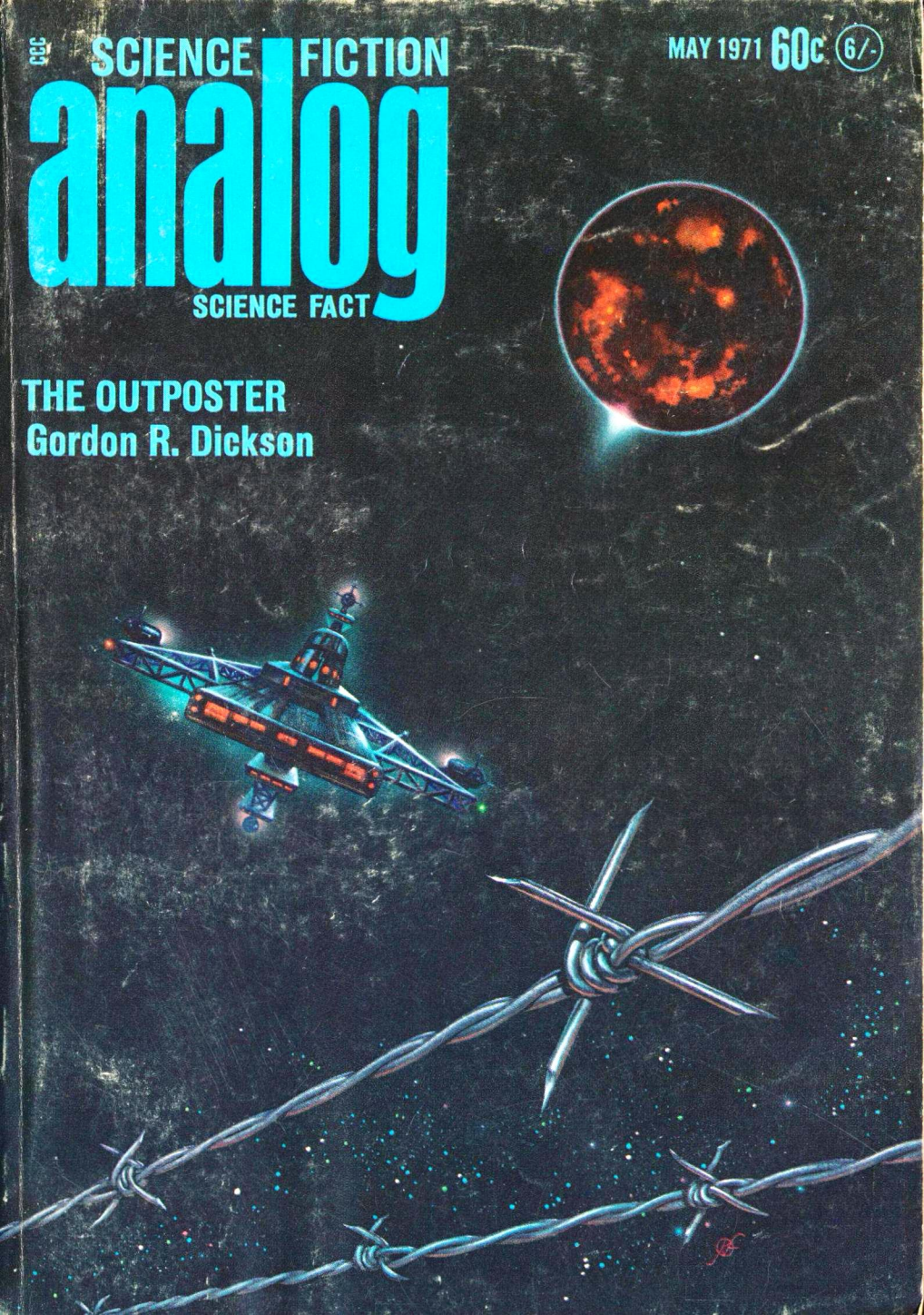
THE OUTPOSTER
Gordon R. Dickson



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pollution paranoia

an editorial by
JOHN W. CAMPBELL

Someone writing a letter to *Chemical & Engineering News* came up with a definition of three kinds of pollution—"actual, political and hysterical." The gentleman is obviously correct.

The extent of the hysterical class of pollution has made the subject of immense emotive force leading to almost unlimited political pollution. The vote-getting, publicity-achieving possibilities lead to the Instant Authority syndrome in hundreds of would-be-important nonentities.

And that is a major disaster; there *is* real pollution, and, with the flapping loud-mouths of the hysterical pollution boys at work, curing it becomes enormously harder because of the wolf-crying about unreal pollution. Energies are diverted from real problems to unreal and meaningless pseudo-problems.

The latest example of hysterical pollution was the recent hoorah set off by discovering mercury in canned tuna fish. A certain fact was demonstrated: canned tuna fish contained quantities of mercury up to and beyond the Federally allowable limits set by the Food & Drug Administration. (The FDA, of course, has been known to go off half-cocked before this.) This fact was immediately widely publicized, and thousands of dollars worth of canned tuna were declared toxic, forcing canners to recall their product, food merchant operations to go into high-speed reverse, and worrying people all over the country.

And, of course, increasing the political pollution about those awful, wicked, selfish, uncaring manufacturers who knowingly dump their poisonous wastes in our seas.

Now I know a number of people have the impression, for some odd reason, that I'm a rock-ribbed—if not rock-headed!—Conservative, a pro-Establishment lackey, and a hide-bound Traditionalist. (Why that would be true of someone who has spent forty years giving the Establishment headaches and needles isn't quite clear. My profs at MIT were much annoyed with my "prostituting my science" writing those "pseudo-science fantasies about rocket ships and atomic power," and I've been annoying Established scientists ever since with psi machines and dowsing rods, when I wasn't panning the FDA, the AMA, and/or any other Establishments that seemed to me to need de-stuffing.)

The fact of the matter is I'm a firm believer in the Pragmatic philosophy, expressed by that "Schwartzberg test" I discussed recently: "The measure of the rigor of a science is

the index of its ability to predict." Or, "If it doesn't work, there's something wrong; and if it does work, there must be something right."

Now the use of adenosine triphosphate (ATP) as an energy-carrier in living organisms is strictly traditional; it's a tradition now some 3.5 gigayears old, and every living entity on Earth uses the mechanism. If it be true that "old tradition" automatically means "outworn, fossilized and wrong," then certainly the use of ATP takes a Class A One prize for outworn and fossilized. Some of the fossils they've found indicating the stuff are five million times older than the oldest human history.

When something works, and works efficiently, I tend to be willing to accept that there's reason to use it, and demand demonstration (not argument!) that a new idea is better before I drop the one that works. When something *doesn't* work, I'm not interested in arguments as to why it's really a great idea.

That makes me very "arbitrary, autocratic," et cetera, with other terms of approbrium. The real world, friends, is exceedingly arbitrary, and overwhelmingly autocratic. It's also inhumane, has no conscience, lacks heart, refuses to listen to reasoning, and is absolute in its power and its justice. It can not be argued with.

To live, and to live well, in the real world, the laws and absolutistic, autocratic dicta of that real world must be understood and accepted. It is absolutely impossible to cheat the Universe.

BUT—the Universe is *not* simple, and there will be no real-world instance in which one, and only one Universal Law applies. They're all interactive, with the result that a desired end, which is blocked by Universal Rule 231-B, can be achieved by applying Universal Rules 743 and 114-B, and paying the necessary cost of energy and time. Example: While the Law of Gravity says unsupported objects heavier than the surrounding medium will fall, the laws of aerodynamics, thermodynamics and mechanics can be applied to permit airplanes to function—provided you supply the energy input required.

You can't get something for nothing, and you can't break any Universal Law—even if you do hold it to be unconscionable injustice, and evil oppression of human rights. The Universe is not interested in your opinions.

You are, however, always free to learn enough about the Universe and its Rules to be able to balance one set of rules against another, with the usual operating fee of time and energy.

You just can't get something for nothing.

Now the above comments I report as a witness; they're things that I believe I have observed, and observed carefully. And an honest witness, by definition, is one who will not change his story for love, money, or blackmail—i.e., he's immune to argu-

ment or "reason," whether the "reason" is financial or emotional.

It does make him seem autocratic, unreasonable, Conservative and a few other things that are, understandably, irritating. The honest witness is not always a lovable character.

You prefer, maybe, dishonest witnesses whose testimony can be changed by "reasoning" with him?

The problem of pollution is a problem which demands some very honest witnesses—and a recognition of that fundamental law of the Universe: *You can not get something for nothing.*

In the effort to solve pollution problems, a second fundamental law of reality must be recognized; you can get what you want, if you can pay the necessary cost—but you *will* pay that cost, like it or not, willy-nilly, if you try to take what you want. And the cost may bankrupt you—and the bankruptcy penalty imposed by the Universe is Disaster. A great and arrogant star, burning its hydrogen fuel profligately at 10,000 times Sol's rate, can shine bold and dominant for a while; bankruptcy in this case is called "a supernova explosion." It leaves a shriveled remnant ten or so miles in diameter called a neutron star, a shrunken corpse rapidly cooling into cold death.

You can't get something for nothing.

You can get what you want, provided you can pay for it in the Universe's terms of time and energy; if you can't pay the fee, Disaster collects.

Therefore, it's essential that judgment be used; you've got to balance the cost and the gain, and forsake the hope you'll get it for nothing.

The elephant's immense size and strength means he need not fear lions, tigers, or other carnivores—but it also means he cannot cross a six-foot deep ditch, because of that size. He can't stand a six-foot drop, and if the ditch is wider than he can stride across—he's helpless.

A mouse, on the other hand, can stand an unlimited fall—a fall from 20,000 feet wouldn't damage him appreciably. His small size and weight mean that air resistance to his fall will allow him to land at a speed within the shock-absorption capability of his bones and muscles. Of course, he does have trouble with owls in the air, and cats when he lands.

You pay for what you get, in other words.

And if you don't use judgment, the payment is almost certain to be Disaster.

But the essence of judgment is to balance all the factors—*not just the ones you like.* You *must* get both sides of the question, or all sides, for many times there are far more than two factors.

The FDA and the political polluters joined in with the hysterical polluters on that mercury-in-tuna

business without making even a half-hearted effort to get the full story before blasting off in all directions.

The thing looked decidedly fishy to me from the start—and I don't mean just tuna-fishy. Item: mercury has been used in medicines for centuries. Item: sodium cyanide is terrifically deadly, and this does *not* mean that sodium is poisonous. Item: methyl mercury, it has recently been discovered, is highly toxic, and is produced by living bacteria in contact with metallic mercury. Item: there is, and always has been, mercury in seawater—and it's known that mercuric chloride is highly toxic. With some 35,000,000 tons of mercury in the sea, and the sea full of chloride, the sea remains "the mother of life."

Just because mercury is in tuna does *not* automatically mean that it must be toxic; there's sodium in tuna, too, and, as I say, sodium cyanide is terribly poisonous. I'll even go further; sodium cyanide is made up of sodium, carbon and nitrogen, and they're *all* in your tuna-fish salad sandwich!

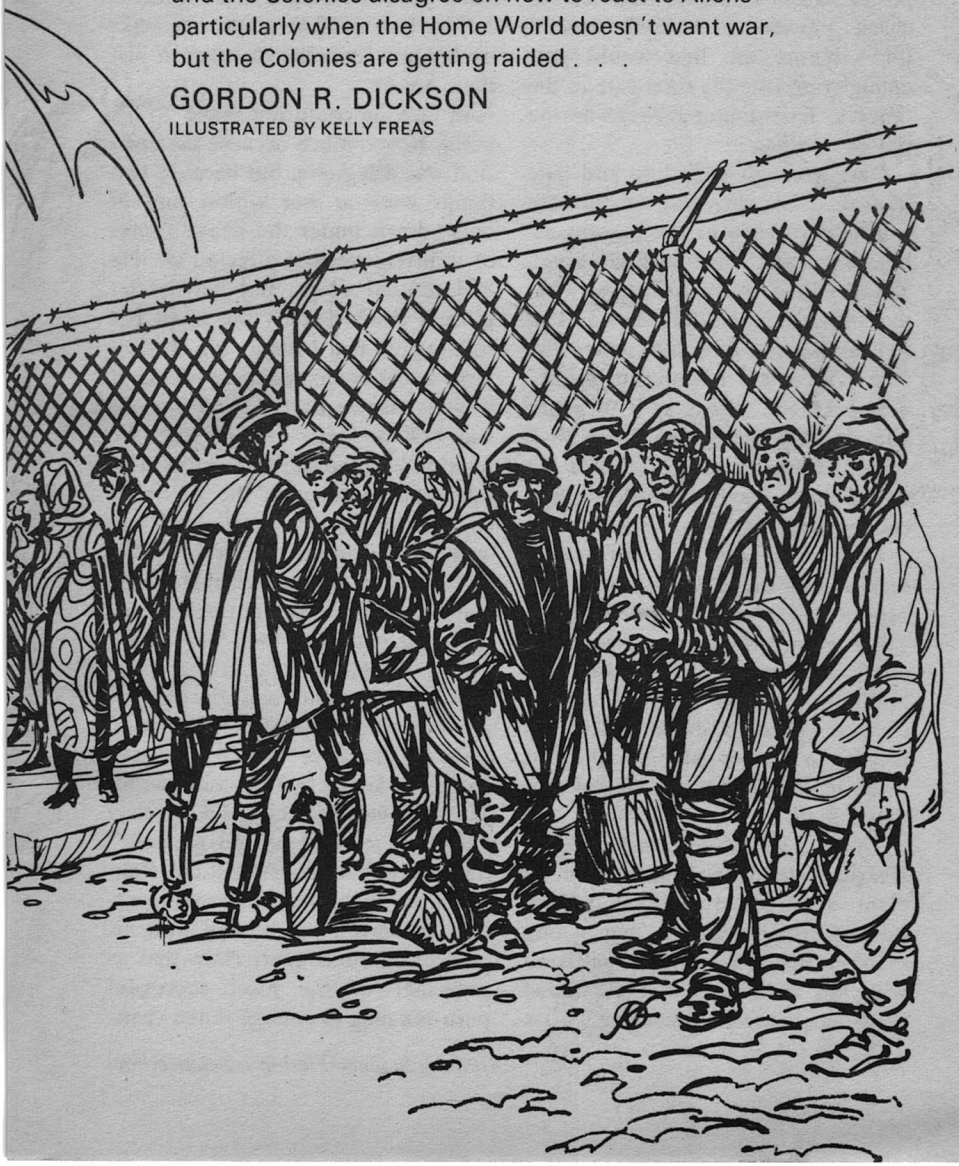
Perhaps the most familiar mercury medication is Mercurochrome—which has been used as a systemic antiseptic by direct injection into the bloodstream. Mercurous chloride—

continued on page 175

The Outposter

First of Three Parts. It's inevitable that the Home World and the Colonies disagree on how to react to Aliens—particularly when the Home World doesn't want war, but the Colonies are getting raided . . .

GORDON R. DICKSON
ILLUSTRATED BY KELLY FREAS



The line of those cast out of Paradise was three miles long. It stretched along beside the tall wire fence in the drizzling rain; and the unit driver delivering the newly graduated Outposter to the transport ship had to check blowers and honk several times before the line would part enough opposite the final gate in the fence to let the unit through to the passenger side.

Once through both line and gate he turned and drove up on the safe side of the fence to the passengers' boarding stairs. The line closed again where it had opened. The gate relocked itself. None of those who had moved bothered to look after the unit. There was a common numbness on them. It was as if the dark autumn day under the cloud-thick skies had washed all the color of life out of them, leaving them drab and chill as itself.

There were now no tears to be seen among them. They moved like people too stupified for weeping. Those who were going as partners, either because their numbers had both been drawn together, or because a wife or husband had volunteered to accompany a lotteried mate, held to each other's hand. But that was all.

There was almost no talking. Nearly everyone in the line, from the eighty-year old lady with the twisted, arthritic fingers to the big young man in the red-and-gold half-coat with the wide, fashionably padded shoulders, carried something . . . a small overnight case, a brown paper envelope, or a box gift-wrapped with bright paper and colored ribbon. The big young man in red-and-gold carried a bottle of sixty-three year old cognac, holding it in both hands before him as if he could not make up his mind whether to open it just then, or not.

In fact, he could not make up his mind. Not so much because the decision was a big one, but because two things were at war within him at once, down under the heavy fumes of indifference that affected all. He had refused drugs; but he had let himself drink heavily the night before, which had been as big an evening as he could make it, seeing it was his last on Earth. Therefore, he was sick and vise-headed with the pain of a hangover; and one part of him wanted to open the bottle of cognac to get at the liquor that would help him feel better.

The other part of him that was in conflict with this, however, was something to do with his name, which was Jarl Rakkal. It was a very well-known name and during the previous three days of indoctrination some of the other drafted Colonists had come up to him for autographs. They had stopped coming when they began to see that he got no better treatment than themselves. The Rakkals were well known in banking circles on Earth; and he had won his own recognition apart from that as publisher of the most successful parti-fax mag to emerge in ten years.

He still did not know how his political connections had failed to keep his number out of the lottery. By name and position he should have been doubly secure. Of course, it could have been the doing of his relatives, who had disliked and been ashamed of him. But that did not matter now. What mattered, now that it was too late, was that being who he was he should be above needing any kind of artificial solace or anesthesia—even to help a hangover as bad as this one—on this boarding day. He was a winner, and should not need comforting—even self-administered comforting.

So, he moved along in the slow line, at moments remembering his hangover and instinctively starting to unscrew the top of the bottle, then remembering who he was and checking the twisting fingers.

Up ahead of Jarl Rakkal in the line were some eight people including what seemed to be a child, a young girl perhaps eight years old. But there were no children among the lotteried. Actually, what appeared a small girl was a midget; and unlike Jarl she was not at all wondering about how she had ended up in the line. Her wonder was that she had not landed in such a line many years before, since variations from the physical norm had a habit of being caught in the lottery more often than average people. Her name was Lily Betaugh; and she had set out to be a university teacher of philosophy of such stature that she would be voted exemption from the lottery.

She had in fact become a full professor of philosophy, at the University of Belgrade; but she had never become either popular or famous enough to be voted exemption; and sometime during the last few years she had realized that she never would. She was brilliant—very, very, brilliant. But not the best; and only the best got exemptions.

Some thirty yards farther—almost up level with the unit from which newly graduated Outposter Mark Ten Roos was now alighting on the far side of the fence—was Age Hammerschold. He was a master cabinet maker, overage for union protection but still by a year and a half young enough for the lottery; and now his chief thought was a continual repetition of congratulating himself that his wife had died three years before. The thought filled him with something like glee—it was as if he, personally, had successfully cheated the authorities out of one body and one soul by having a wife who died before he himself could be drafted. He waited his turn on the boarding ladder leading to the Colonists ship entrance almost with indifference. He was close enough to hear what they were saying on the other side of the high fence with the barbed wire top; but he paid no attention. As far as he was concerned, the regular passengers were like so many exotic animals with which he had nothing in common.

". . . Miss," the shorter of the two ship's guards on the far side of the fence was saying, "you don't understand."

"Oh, I understand," answered the girl passenger he was talking to. She extended a slim right arm and pulled back the cuff on its semitransparent, black sleeve. Strapped to her wrist was the small matchbox shape of a wrist gun. "But I've got a weapon."

For the first time, Mark Ten Roos, the young Outposter who had just arrived, took a close look at her. She was no older than Mark, tall and slimly athletic with a shoulder-length mane of black hair, bound with a silver band, that held it back from the delicate oval of her face. Her eyes sparkled now, just on the edge of an explosion of anger; and the little wrist-gun had a pattern of red and green jewels set in its case.

"Yes, Miss," said one of the two gate guards, "I know. But that's not the point. Ship's regulations are for all passengers to wear *side arms*—" he held up the ship-issue belt and weapon he had been offering her, as if she were a judge before which he was presenting evidence. "It's captain's regulations, Miss . . ."

It was curious, Mark thought, that the guards were being so unusually patient with the girl. He wondered who she was. No salesman's wife would have received such kid-glove treatment—and in any case she looked too young to be one of the embarking wives. But even a member of the staff of a Captain-General, like the one named on the ship's transport schedule Mark had examined earlier, was hardly likely to rate such patient handling.

He made a mental note to find out who she was once he was aboard; and turned back to his examination of the Colonists and the spaceship.

She was a hundred and fifty thousand ton vessel, the *Wombat,* scheduled for takeoff to Garnera VI in two hours. Right now she lay on her belly in her berth on Spaceport, South Pacific—that great, floating pad of concrete five hundred miles due north from the Marquesas.

Her cargo—according to the transport schedule—consisted of machine tools, instruments, weapons, and some two thousand Colonists. Her officers were Space Navy Reservists or Reservists-Trainees; and her passengers included the Captain-Admiral of Blue I at Outer Navy Base with his personal party of seven, and twenty-three manufacturers' representatives or salesmen, four with wives. Also, three Outposters including Mark himself.

Mark caught sight of his reflection in the tall silver case of a plasma power generator awaiting loading. The figure that looked back at him was of a tall, lean, rather long-faced youth, with dark and penetrating eyes, in the utilitarian boots, jump suit and short jacket of the experienced Outposter. A side arm rested openly in a topless gray hol-

ster fitted flat to the belt around his narrow waist and clamped to the gray cloth of the pants-leg over the outside of his right thigh. Clamped likewise around the gray-sleeved biceps of his left arm was the black metal band-and-seal that proclaimed his Outposter rank. If it had not been for the youthfulness of his features, there would have been no reason for the slightly startled look on the face of the guard at the outer gate of the spaceport's closed field area, several minutes ago.

At the memory of that look, a cool breath of humor blew for a second across Mark's mind. It would not be a usual sight for the guard to see someone as young as himself wearing gun-and-gray, like a veteran of the Outpost stations.

Newcomers to the Outposts, as Mark knew, were more likely to resemble the Colonists, themselves. That thought drew his attention back to the long line of figures some twenty yards away, beyond the wire fence, streaming slowly aboard the ship through another hatch. Men and women alike, they moved without protest. But their faces were somber; and not a few of them were pale with inner fear, or a hangover. Only, here and there, was a zombie-like figure helped along by a friend or a wife; someone who, for his own emotional relief, or because he had caused trouble in the staging area, had been put under heavy tranquilization.

At this moment they looked like an ordinary batch—a simple cross section of humanity from the Earth-city. But in their present stage of shock it was impossible to tell. Right now their minds were full only of the fact that they were being sent out. Later, when the shock wore off, it would be possible for the Outposters aboard to weigh and judge them, to read their characters and take advantage of being on shipboard with them to put in priority claims for the more likely ones.

Mark continued to watch them come, now, for his own reasons. Whether by accident or design, most of them had chosen to dress themselves in colors as dark as their faces. Only, far down the line approaching the ship, was there one flash of brilliant color—a big man dressed in a half-coat of scarlet and gold, with calf-high boots of dark blue and a golden cap.

The argument at the foot of the passenger's gangplank, just in front of him, drew Mark's attention once more from the Colonists.

". . . I don't see why!" the girl was angry now. "My gun is just as lethal at short range as that."

"But part of the point is in showing the weapon, Miss," said the guard she was facing, earnestly. "It's part of the necessary early conditioning for the Gar . . . the Colonists."

"The what?" The girl stared at him.

The guard's face reddened. The

word had almost slipped out; and any explanation now would simply make matters worse. Mark examined the guard with new interest to see how he would handle the situation.

"The . . . Colonists, Miss," he stammered. "You see—"

"But you started to call them 'Garbage'!" exclaimed the girl, staring at him. "That's a terrible thing to say!"

"Well, it's not them, so much"—the guard was now sweating lightly. "We . . . they just call them that because the Earth-city's got to get rid of . . . well, what it doesn't want—"

The other guard, noted Mark, was prudently staying out of it. From social error his partner was now sinking into near-treason; and this before someone who, by evidence of the unusual respect they had shown her, might well be closely related to someone in the Earth-city Government. Mark felt a twinge of sympathy for the guard. Rescue should not be too difficult. What was needed was a diversion.

He glanced back at the approaching line of Colonists. The big man in the scarlet and gold clothing was now almost opposite them. Seen up close, it was obvious that his wearing apparel was every bit as expensive as that of the girl's—but wealth alone was not always enough to keep someone from being lotteried for the Colonies. The Colonist's heavy-boned, good-looking face had a wild, pale look; and there was the glint of sweat on his broad forehead. Mark guessed him to be suffering not only at being where he was, but also from a drug, or alcohol, hangover. Mark stared at the man, hard; and after a second, with the sensitivity of the watched, the big man looked around. Through the wire mesh of the three-meter high fence their eyes met.

Mark smiled at him, deliberately—with the mocking, smile of one on the right side of the barrier.

For a second Jarl Rakkal only stared back. Then, his face spasmed into a white mask. Suddenly he was running toward the fence.

Shouts from the other Colonists interrupted the girl and the now-babbling guard. Both guards swung about, as the big man went up the far side of the fence like a tiger cat, his hands clamping fiercely on the wire ends that topped the fence, and coming away bloody as he flipped his body over the top and down on the passenger side.

The guard, who had not been in trouble, had his gun half-drawn. Mark reached over and knocked it back down into the holster.

"I'll handle it," Mark said.

He turned and took three steps to meet the charging Colonist. At some six feet from him, the scarlet and gold figure suddenly bent double without breaking stride and launched itself like a missile—right arm stiffly outstretched, hand open and fingers up, the butt of the palm leading at an almost impossible angle with the wrist.

It was a *ki*-stroke; by one who was more than a casual amateur in that school of unarmed combat. The advantage of momentum and angle were all with the attacker, as the staring guards—if not the girl—knew. The counter was as simple as the *ki*-stroke, itself—but like the *ki*-stroke, its success depended upon that sort of split-second timing acquired only by monotonous and countless hours of practice.

In the fraction of a second before the lethal palm-butt touched him, Mark fell stiffly off to his left side, catching himself on his outstretched left arm and levering his right leg up and out stiffly in a sideways kick. The rising bar of his leg slammed into the flying groin of his attacker and flipped the body in mid air, to land heavily on its back a few yards beyond. The big man, stunned, tried momentarily to rise, then fell back unconscious.

The guards were upon him immediately, pinning the unresisting arms and legs; one of them producing a hypo-gun loaded with tranquilizer, the other speaking rapidly into the phone on his wrist and calling for extra guards. Mark walked over to them as they finished their several tasks.

"What's his number?" Mark asked. "I may want him."

The guard who had just finished using his phone, reached for the tag around the tanned throat of the unconscious Colonist.

"Sixteen hundred and twenty-ninth, of yesterday's date," the guard said.

"Thanks," said Mark.

"Not at all, sir." The guard who had answered was the one who had been talking himself into trouble, with the girl. He looked at Mark now with gratitude mingled with a new respect that ignored Mark's youthfulness. "That was pretty, that counter."

"Thanks," said Mark. He turned and went back over to where the girl was still standing, staring now at the fallen man.

"You see," he said to her, "a pellet from a little wrist gun like yours won't stop a charge like that. But a heavy slug from a side arm will. It's got more mass—and so more stopping power."

Her head came around slowly. She stared at him incredulously for a second. Then—instinctively he took a step backward and his face felt the little breeze of the open edge of her hand lashed by it.

"You—"she choked it off. "Did you have to hurt him like that? You . . . Disposable."

She turned and ran to kneel by the still unconscious figure.

"Take him in to my cabin!" she ordered the guards, busy on both sides of her.

"I'm sorry, Miss—"began the guard who had argued with her about wearing the side arm.

"Did you hear me? I said, take him in to my cabin! Don't you know who he is? He's Jarl Kakkal!"

Official patience finally gave out.

"I wouldn't care if he was your father!" snapped the guard. "Who he is doesn't mean anything here. I know what he is—and that's a Colonist. He goes back on the other side of the fence and lucky that's all that'll happen to him. Now, get out of our way—and put that side arm on before you try to enter the ship!"

The guard turned his back on her and spoke to his mate.

"Lift, Harry."

Together, they picked up the limp body of Jarl Rakkal between them and carried it toward the little gate in the fence between the two landing stairs. The girl was left on her knees, staring after them. For a moment Mark hesitated, gazing at her. Then he turned away and mounted the passenger stairs himself. He stepped into the entry lounge and paused there at the desk of the duty officer to show his papers and give his name. The duty officer accepted them with one hand, meanwhile looking past Mark's shoulder at the scene down by the foot of the stairs.

"Captain-General Jas Showell's kid," he said, looking back at Mark. "Daddy should explain a few things to her." He glanced at Mark's papers, then at Mark's face. "First tour as an Outposter?"

"But I was born out there," said Mark, quietly.

"Oh," said the duty officer. He stamped Mark's papers with the ship's signet and passed them back to him. "You'll be in Stateroom K14. Oh, by the way, here's a message just came for you. To be held for your arrival on board."

"Thanks," said Mark.

He took the small, gray tube of the message cartridge and went on past, turning left down the long corridor gleaming whitely with the plastic surfacing that in this forward part of the ship hid the bare metal work of its structure. He passed the first circular ladder he came to, but mounted the second. At the first level up, he paused to sniff at a strange, flat scentlessness of the air. Then he continued up one more level to a narrower, carpeted corridor along which he found the numbered door of his stateroom.

He touched the blue latch button in the conclave white, outer surface of the door and stepped through as the door slid aside. It shut noiselessly behind him; and he looked about the twelve by seven-foot cubicle typical of a first-class accommodation on a ship like this. Two inflated armchairs, a table and a short couch had already been extruded from panels in the walls, ready for his waking-hours occupancy. Other panels, still closed, held the collapsed structures which would transform the day-lounge appearance of the compartment into a bedroom for sleeping, when he was tired. He made a routine examination of the room, its equipment and storage cabinets, before taking out a message player, and extruding a side table by

one of the armchairs to hold it.

He sat down in the armchair, inserted the message into the player, and flicked on the switch.

Abruptly, the appearance of the compartment was gone from around him. Instead, he appeared to be seated in a room he knew well—the library-study of Wilkes Danielson, Mark's tutor since Mark's arrival on Earth from Garnera VI, four years before. The library was unchanged, except for a new bookcase filling the corner where Mark's own study console had formerly sat, to the left of the tall window on the other side of which still sat Wilkes's own console. Otherwise, in its heavy reference files, its bookcases full of ancient, paper-sheeted, cardboard-and-leather-bound books, the old room was the same.

Almost Mark could smell the books. Wilkes was sitting in his high, wing-back chair, swiveled around now, away from his console, as Mark had seen him sit so many times in the evenings when their study periods were over, and their talk went off onto many other topics; those same talks which had grown scarce, these last few years, as Mark had become more and more involved in the training needed to qualify him for his Certificate as an Outposter.

Now Wilkes Danielson looked at him—the image of a slight, thin, man in his mid-fifties, almost bald, but with something fragilely handsome and still-youthful about him, underneath the wrinkles and the near-vanished hairline. The lips of the image moved and Wilkes's voice came to Mark's ears.

"Hello, Mark," it said, "I deliberately sent this on ahead to the ship, so that you wouldn't think I was still trying to talk you out of going."

Wilkes hesitated.

"I've done something you probably won't approve of . . . I don't know," he went on. "You've never told me exactly why you wanted to go out and lose yourself there among the Colonies when what everyone else wants—a secure home here in the Earth-city—could be yours almost for the asking. There are only ten Trophy-winners in any academic year. With your trophy and my recommendation it'd be only a matter of time until you made enough of a success for yourself, in any one of half a dozen fields, to be voted permanent exemption from the lottery. But we've gone into this before—"

Wilkes's eyes wandered. Once more he seemed to search for words.

"I've never challenged you about your going Out," he went on, after a few seconds, "because I knew there was no point in asking, if you didn't want to tell me. Ever since your foster father first sent you to me—a thirteen-year-old fresh from the Outposts— I've known two things. One, your mind isn't going to be changed on anything you set out to do; and, two, whatever it is, if it's humanly possible, you'll end up doing it."

He hesitated.

"You're too intelligent to dedicate yourself to getting revenge for your parents—even if revenge were possible. How could anyone ever track down a Meda V'Dan ship that burned an Outpost eighteen years ago? But what bothers all of us who've known you here is what other reason could there be for burying yourself in the Outposts and Colonies? You're something more than just a Trophy winner, Mark. I've tutored Trophy Winners before— which is why I've got my own exemption from the lottery. But in twenty-four years, Mark, I've never turned out one like you—"

The thin, little man made a nervous gesture with one hand and dropped the subject in mid sentence.

"Never mind that," he said. "You'll be wondering when I'll get to the point, and what the point is. Briefly, it's that I've gone ahead and recommended you for the Anthropology post at Almagordo—just as if you were staying on Earth. And when they start to process it and find you gone, I'll continue renewing my recommendation—as long as I live."

He straightened up and looked more directly into the recorder that had taken down the message.

"Which won't be long," he said. "I've had a new assessment of my sickle anemia. A year and a half, they say now, at the most. After that, you'll always be able to come home to the Earth-city like any other Outposter; but your chances of starting a career that can lead to lottery exemption are going to be close to zero. In a year and a half there'll be two new classes of Trophy winners, and their tutors will be still alive and pushing them for all the posts that count.

"Think about it, Mark, during the next year and a half," Wilkes said. "The Earth-city needs you—and you need it."

The message ended abruptly; and the stateroom was again visible around Mark. He reached out and took the message unit from the player, opened a wall compartment and put both message and player out of sight.

He had been close to Wilkes—as close as he had been to anyone on Earth. With an effort of will, he shrugged off the emotional appeal of the older man's message, and put both of them out of his mind at once.

Curiously, disconcertingly, he found himself thinking instead about the girl at the foot of the boarding stairs, and loneliness was like a heavy hand pressing down upon him.

II

At 0643 hours, local time, loading was completed, all outer and inner doors locked, and the *Wombat* lifted. Four hours later it broke traffic pattern from Earth-orbit and headed for open space on plasma engines. Nineteen hours after that, all doors still locked and personnel in position, it went into preparation for first transporation shift.

Twenty minutes later, with the shift successfully completed and recalculation begun, the sound of three notes chimed throughout the ship including the speaker panel in one wall of Mark's stateroom.

"The ship is now interstellar," said a voice from the panel as the last note died away. "All normal doors on Unlock. The passenger lounges and dining areas are now open for service."

Mark, who had been roused from a light doze with the sound of the chimes, rose, shaved and dressed as carefully as if he were still a trainee and going on parade. He checked his side arm, slipped it into its leg holster, and went out of his room toward the main dining lounge.

When he got there, the tables scattered around the wide, low-ceilinged, but pleasant, room were empty, except for one to the right of the door, halfway between it and a long table set against a farther wall. It was a small table set for three; and two men in Outposter gray were already occupying two of its chairs facing each other with the empty seat between them.

One was a man no more than in his mid-thirties but already half-bald, his close-cropped black hair like a tonsure above his narrow, tanned face. The other man was perhaps ten years older, tall and built like an athlete, with stubbled gray-blond hair fitting his round head like a cap. The black-haired man was eating a steak while the other was involved with a large order of ham and eggs. There was a bottle of aquavit in a bowl of ice on the table between them, already down by perhaps a sixth of its contents. Both men's side arms were drawn and laid on the table to the right of each plate.

Mark, nodding to the half-bowing dining room steward, walked over to the empty chair at their table and stood behind it.

The other two went on eating and drinking without looking up. After a little more than a minute the black-haired man raised his eyes from his plate—but only to look across the table at the Outposter opposite.

"Looks like we've got ourselves another Apprentice, Whin," he said.

"I noticed," said Whin. His voice was more tenor than baritone and slightly hoarse. He poured himself a small shot of the colorless, powerful liquor and swallowed it. Then, still without looking up, he added. "What's your name, Prents?"

"Mark William Ten Roos," said Mark. "For Abruzzi XIV station, Garnera III."

"That's Brot Halliday's station," said the black-haired man. For the first time, he glanced up at Mark and examined him briefly, before turning back to Whin. "This must be that kid who's a Trophy Winner. Chav and Lila's boy—you remember, Whin? Brot adopted him after a Meda V'Dan ship hit their Post station, seventeen years ago—that right, Prents?"

"Eighteen," said Mark.

"Second generation," said Whin with his mouth full. He swallowed and glanced up at Mark, himself. "Doesn't look much different from any other Prents to me. Want to let him sit down?"

"Don't mind if you don't," said Whin. He looked at Mark. "Sit down, Prents."

Mark drew his side arm, laid it to the right of the plate on the table before him and sat down. He did not touch the menu on the plate or anything on the table.

"Know who I am, Prents?" asked the dark-haired man.

Mark nodded.

"I checked the passenger and cargo lists before boarding," he said, "Senior Outposter, Alvin Morthar, and"—he looked at Whin—"Outpost Station master, Whinfeld Orby Proith."

"All right," said Whin. "Let him eat, Al?"

"Why not? Go ahead and order, Prents."

Mark picked up the menu, unfolded and looked at it. To the understeward who materialized at his elbow, he indicated the second line from the bottom of the left-hand page.

"Number four," he said. "Bacon, eggs, coffee."

"Coffee?" said Alvin Morthar. He reached for the aquavit bottle and poured half a waterglass-full into a tumbler before Mark's plate. "Drink that, Prents."

"Thanks," said Mark, without moving to pick up the glass. "But no, thank you."

"No?" Al's black eyebrows were suddenly straight in line above his eyes. He was not smiling. "Did you say 'no' to me, Prents?"

"Sorry," said Mark, looking back at him. "I may have duties."

"Duties?" It was Whin, breaking in. "What duties? You're not on Post, yet."

"There's a Meda V'Dan aboard," said Mark.

The two older Outposters stared at him.

"What're you talking about, Ten Roos?" said Al. "There wasn't any Meda V'Dan on the passenger list I saw."

"Probably he's one of the party of six listed with Admiral-General Jaseth Showell," said Mark in a matter of fact voice.

The other two sat looking hard at him.

"You've got something special against the aliens on account of your folks, is that it?" Whin said.

"Yes," said Mark.

"What've you got in mind for this one . . . if there is one?" said Al. "Come to think of it, if the alien's not listed, how do you know he's aboard?"

"They've got deodorizers working on Level J . . . didn't you smell the difference in the air there when you came aboard?" Mark said. "There's no reason for deodorizers in the passenger section unless it's to make it

possible for a Meda V'Dan to live with us."

Whin nodded, rubbing his lower lip thoughtfully with a long, heavy forefinger.

"Sounds like it," he said.

"I asked you," said Al, "what you had in mind for this alien, if he is aboard?"

"I just want to send a message with him to the other Meda V'Dan," said Mark.

"What kind of a message?"

"That Abruzzi XIV station's open for trading."

Al turned to Whin.

"The kid wants to be raided," Al said, "so he can kill him some aliens."

"Just so long as he doesn't plan to kill one on board here," said Whin. He turned pale, flat, blue eyes on Mark. "You aren't planning to use your gun on this Meda V'Dan?"

"Only in self-defense."

"Then there's no worry," said Whin to Al. "Whoever the alien is, he won't even talk to anyone but his own interpreter, let alone admit he recognizes an Outposter in the same room with him."

"Good enough," said Al, sitting back. He turned to Mark. "But I think, just to play safe, you better drink down that aquavit, after all."

Mark did not move to pick up the glass.

"Duties," he said.

Their eyes locked.

"Let's not push him, Al," said the voice of Whin, unexpectedly. " 'Duties' is a big word."

Al sat back again and nodded.

"All right, Prents," he said. "But you better look good every way else, the rest of this trip."

The understeward came with Mark's breakfast order, but as he picked up a fork to eat, a female voice spoke at his ear.

"Sir . . . Mr. Ten Roos? If you don't mind—?"

He turned, saw the girl of the landing stairs and got to his feet, pushing his chair back.

"Miss Showell?" he said. "Have you met Senior Outposter Alvin Morthar, Outpost Stationmaster Whinfeld Orby Proith—"

"Oh . . . pleased to meet you, both," she looked at Mark. "But could I speak to you privately for a moment?"

"Of course," Mark followed her away toward the empty side of the room where the long table gleaming with silverware still waited for the ship's captain and his particular guests.

"I'm so sorry," she said, in a low voice, halting at last beside the long table, "I wanted to apologize for acting the way I did out there. The guards explained to me—they'd have had to shoot Jarl, if you hadn't stopped him the way you did. You really saved his life, doing what you did. I didn't understand."

"I didn't expect you to," said Mark.

"But that's no excuse. I should have known," she smiled up at him.

"But it's kind of you—not to blame me. Look, I'd like my father to meet you. He's . . . oh, I suppose you know?"

"Admiral-General Showell." Mark nodded.

"Why don't you have breakfast with us, here at the captain's table?"

"Thank you," said Mark, "but the captain hasn't asked me. Also, I've already ordered breakfast at my regular table."

"They can bring it over here. And don't worry about the captain. As long as you're part of Dad's party—" she broke off to turn and speak to a passing understeward about bringing Mark's breakfast order to the captain's table.

"Come on," she said, leading him up the table to two chairs near the head of it, "sit down with me here; and tell me about Outposters. It's really sad. I don't know anything about you people. I don't think Dad does, either—the way he should."

She pulled a chair out from the table. He held it for her as she sat down, then took the chair beside it she had pointed out a second before.

"Would you like a drink?" she said, as an understeward came to hover over them. "No? I'll have a rum and orange juice, Steward. Mark . . . you don't mind my calling you Mark?"

"No," said Mark.

"I asked the duty officer your name when I came on board. My name's Ulla. You can call me that, if you like—" she grimaced. "That was pretty bad of me, out there—I called you a Disposable. That's as bad as calling the Colonists, Garbage."

An understeward slid a tall, fluted glass of orange liquid before Ulla and placed a plate with bacon and eggs in front of Mark.

"The names exist," said Mark. "And everyone's got one."

"Everyone?" She stared at him, her glass in hand. "Oh . . . go ahead and eat. But there are only you Outposters and the Colonists out there, to have names."

"And the Navy. And the Meda V'Dan."

The pupils of her eyes enlarged and her face paled slightly.

"The Navy?" she echoed. "You mean the men under Dad's command at some place like Blue I—there's a name for *them*?"

"Men and officers. Everyone," said Mark, eating. "We call them Scarecrows."

"Scarecrows?" She had put her glass back down without tasting its contents. "Why?"

"Because they don't keep the Rats out of the Garbage, just by being there—and being there is all they do," Mark said. An understeward set down a cup of coffee by his plate and he stopped eating to drink. Putting the cup back down he looked directly at Ulla.

"The Rats?"

"It's as good a name as any," he said, "for the Meda V'Dan." He went back to eating his breakfast.

"But the aliens don't do anything

but trade nowadays," she said. "They don't dare with the Navy there. Oh, I understand they're different from us and one of them goes renegade, once in a long while—"

"No," he said.

"No?" She stared at him until he stopped eating once more to look at her.

"The Meda V'Dan only trade when they have to," Mark said. "Otherwise they raid the outposts for supplies. When the supplies don't get replaced in time, Colonists die."

He was looking directly at her. She stared back at him with wide, fixed eyes.

"They *die*?" she echoed. "The . . . poor Colonists."

"No," he said. "The poor Outposters who get killed when their stations are raided. If the Colonists have training, guts and energy enough, they can scratch out a living until fresh supplies come."

She shook her head slowly, watching him.

"I never heard anyone so bitter," she said slowly. "And you're only my age."

"I'm not bitter—" he began; but the sound of voices from the entrance to the dining lounge interrupted him. They both turned to look.

Entering the dining room and coming toward the head of the long table was a tall, heavy, middle-aged man in captain's uniform; a small, spare, sharp-eyed man of the same age, in civilian clothes; a tall, younger man also in civilian clothes; and a like-man in soft, loose clothing—a shirt-like upper garment in stripes of many colors with billowing sleeves coming down tight to the narrow wrists of long, grayish-white skinned hands, a broad belt holding two knives and a jeweled side arm with a twisted, jeweled butt. Loose, checkered pantlegs stuffed themselves at last into red boots that would have been calf-high on a man. Above all this color, the unnaturally narrow face of the Meda V'Dan was strangely drab and placid with its gray-white skin. Only two patches of black hair on the lower cheeks caught the eye, in contrast to the long, narrow, shaven skull. Bringing up the rear were two of the ship's crewmen, in dress-guard uniforms wearing side arms and carrying plasma rifles.

"There you are, Ulla!" called the sharp-eyed, spare little man, who was leading the group. "No, no . . . don't get up, you and your friend. We'll all be sitting in a moment."

The group came on to the table and sorted itself out. The captain took the head of the table with the small man at his right, in the chair on the other side of Ulla. The Meda V'Dan was ushered to the chair at the captain's left, opposite the small man, with the younger man in civilian clothes at the left of the alien.

"Daddy," said Ulla to the small man, "this is Outposter Mark Ten Roos—"

But Mark was already getting to his feet, knife and fork still in his hand.

"I'm sorry," he said to the table, looking around at all of them, but bringing his eyes at last to bear on the Meda V'Dan, who looked back—not directly, but at a point just past Mark's right shoulder—"the Abruzzi XIV station is always open to the Meda V'Dan for trade. But I trade with them, I don't eat with them."

He laid his fork and knife back down on the plate, the two utensils crossed, the edge of the knife toward the alien.

With an explosive sound from his throat, the Meda V'Dan was suddenly on his feet, the civilian beside him also rising hastily.

"What's this? What is this?" snapped the small man, looking from Mark to the alien.

"Admiral," said the younger man beside the Meda V'Dan, "he's been insulted."

"Insulted? What do you mean, insulted?" Admiral-General Showell stared at Mark, who did not answer, then switched his gaze back to the younger man across the table. "Insulted, how?"

"I don't know, sir . . ." the younger man's face was pale.

"You're the interpreter! Ask him!"

The interpreter turned to the Meda V'Dan and spoke for a few moments in a heavy, coughing series of sounds. The Meda V'Dan, still facing Mark and staring past Mark's right shoulder, answered, without

moving, in a rapid rolling of similar sounds.

"The Lord and Great Captain"—the interpreter switched to a series of throaty, explosive sounds that came out sounding something like *Hov'ra Min Hlan*—"whose name means Sleepless Under Oath in our primitive tongue, has been offended by an intimation that he is"—the interpreter hesitated momentarily, glancing at Ulla—"a gelded male who hides behind females."

The interpreter pointed to the crossed knife and fork.

"You see, Admiral," he said, "the knife's under the fork—"

"Guards!" It was the captain at the head of the table, on his feet also now, his heavy-fleshed face flushed. "Put that Outposter under arrest!"

Mark took one step back from the table so that he had both the two guards and the Meda V'Dan in view at once. His right hand lifted a little so that it was above the butt of his side arm. The two guards hesitated. They were men hardly older than Mark who had plainly never fired a weapon in anger, nor had ever expected to do so.

"What're you waiting for?" snapped the captain. "I said, arrest him! If he gives you any trouble—"

"All right! Hold it. Hold it!" broke in the hoarse, tenor voice of Whin; and a second later his tall, wide-shouldered figure stepped in between Mark and the two armed guards—much to the latter's plain relief.

"If he gives you any trouble," Whin said to the captain, "I'll deal with him, myself. But your tin sheep aren't shooting any Outposters, now or ever. And you aren't putting any under arrest, either, for the sake of a skin of a Meda V'Dan."

III

For a short, breathless second, no one else spoke or moved. Then the dry sound of Admiral-General Showell laughing broke the tension.

"Well, Captain," Showell said, "are you going to arrest them both, then? Or all three of them?"

"Sir!" said the captain, his face flooded with color, almost glaring down at his superior officer.

"Give it up, Juan. Give it up," replied Showell. "We don't arrest Outposters, away from Earth, and they don't arrest Navy men. We need each other out on the Colonies. Call your guards off."

"Ground arms," said the captain sulkily to the two guards, who dropped the plasma rifles quickly, butt down on the carpet, upper barrels held at their trousered sides.

"But," said the still-seated Showell, turning to look up at Whin, "I'll leave it up to you to calm down the . . . er . . . Lord and Great Captain, who's our guest."

"He's already clamed down," Whin looked across at Sleepless Under Oath, who transferred his gaze to a point just past the right shoulder of the older Outposter. "Hov'rah Min

Hlan, a ship of your people—"

The interpreter hastily began to translate.

"Shut up," said Whin. "He understands me—just as well as I understand him when he speaks his own tongue; and a lot better than he follows that hash you make of trying to talk a language you haven't got the jaws, gullet or vocal chords to handle. As I was saying, Hov'rah Min Hlan, a ship of the Meda V'Dan killed both this boy's parents six weeks after he was born, at Abruzzi XIV station. He holds your whole people under blood guilt to him. He can say or do anything he wants to you individually, without involving any other men, or Meda V'Dan."

Without changing the off-angle of his fixed gaze, Sleepless Under Oath rattled off a throaty string of sounds.

"Sure," said Whin. "Oh, sure we understand that—they were renegades; and the Meda V'Dan will punish them if found."

He turned to Mark.

"What do you say to that, Ten Roos?" the big Outposter demanded. "Or didn't *you* understand him?"

"I understood him perfectly," said Mark. "And my answer is—the day the renegades are punished before me, I'll absolve the rest of the Meda V'Dan of blood guilt. Until then, any one of them I meet may be one of those who destroyed the Abruzzi XIV station."

Sleepless Under Oath said a few short syllables and sat down, transferring his gaze to the table before him.

"All right. I don't see him, either—for the rest of this trip," said Mark.

He turned and walked out of the dining lounge. A few steps away down the corridor outside, he heard the voice of Whin, behind him.

"Hold it."

Mark stopped and turned to face the bigger, older man.

"Just a minute, Ten Roos," said Whin. "I told them in there that no guard was ever going to shoot an Outposter—but I might. What makes you think you can play games with Meda V'Dan on a Navy ship just to make yourself feel good—without counting the consequences?"

"I counted the consequences," said Mark.

"You mean you counted on Al and me to get you out of any trouble you got yourself in?" The lines on Whin's tanned brow deepened.

"I expected you to help," said Mark. "But I was ready to get myself out, if I had to."

"Get yourself out!" Whin stared at him. "You think you can take on a whole ship, even of Navy men, with one side arm?"

"Not exactly—"

"No—not exactly! Anyway, that's not what matters," said Whin. "The point you've got to learn is that the principle of every Outposter backing up every other Outposter wasn't invented just so you could stick pins in any Meda V'Dan you meet and get away without being hurt. It's a law we came up with, and proved with

the blood of some good men, so that we could at least live with a Navy that's got no more guts and principle out among the stars than a fat rabbit. And you're going to learn what that principle means. I'm restricting you to your cabin for the rest of the trip; and when you get to Brot Halliday, you'll bring him a message from me telling him to finish your education about matters like this."

"No," said Mark, quietly. "I'm not accepting any restriction; and I'll carry no message."

Whin took a half step back from him, so they were now far enough apart to have full vision of each other from bootcaps to skull-top. The big man's right hand lifted above his holster, which once more held the gun that had lain beside his plate on the table.

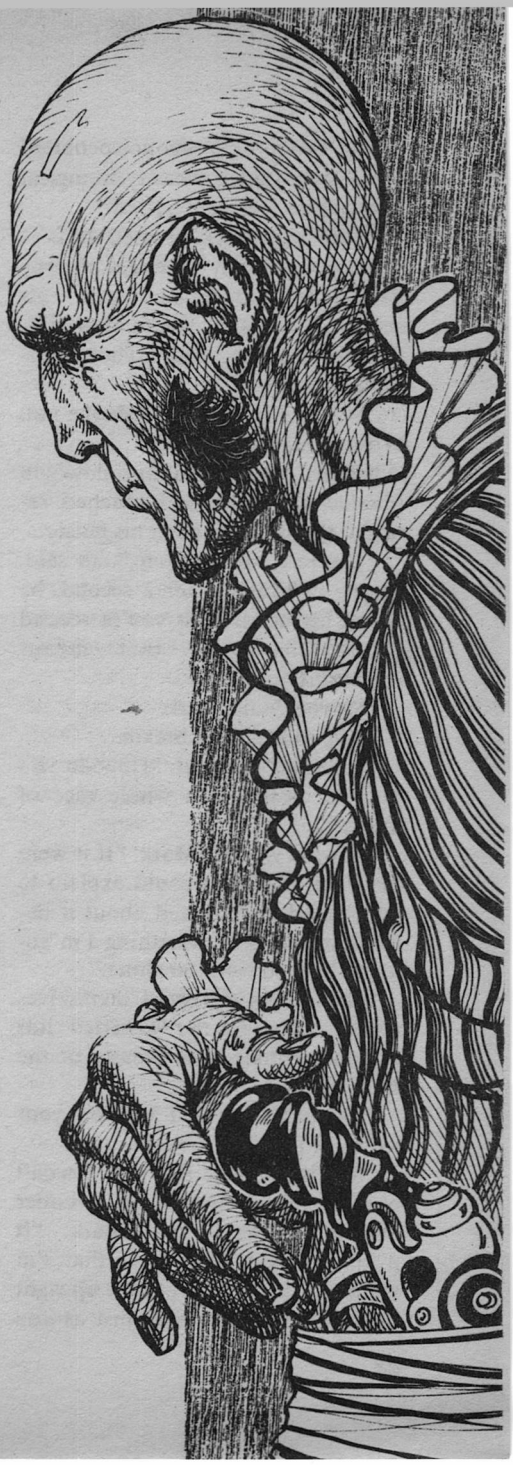
"Boy," said Whin, gently, "maybe being a Trophy winner back at the Earth-city's gone to your head. Maybe you think reflexes and marksmanship are all that matters. You want to fight *me*?"

"Not unless I have to," said Mark. "But I can't stay shut up in my stateroom this trip, or anything else. I've got duties."

"Getting revenge for your folks," said Whin, still softly, "that's something you do in your spare time; and without involving other Outposters."

"Not just that," said Mark. "I've got a bigger job to do. How'd you like the Colonies and outposts with no more Meda V'Dan?"

Whin stared at him.



"No more . . ." his voice trailed off. "You had your psychological tests before you were passed?"

"Yes," said Mark. "I rated AAI."

"And you're not out to get just one Lord-and-Great-Captain with his shipload of pirates, you're after all?" Whin shook his head. "Those tests missed for once."

"Maybe," said Mark. "Maybe not. Worth your finding out?"

Whin's spread hand sank slowly to his side, until his thumb touched, relaxed, against the side of his holster.

"You're a strange one," he said, staring at Mark. After a second, he shook his head. "But you're second generation—maybe that means something."

"Maybe," said Mark.

Whin took a deep breath.

"All right," he said. "How do you plan to clean out a whole race of aliens?"

"I'm sorry," said Mark. "If it were the kind of thing I could explain to people, I'd have talked about it before now. This is something I'm going to have to work on alone."

Whin's eyes squeezed themselves narrow between the wrinkled lids and the wrinkled sun creases of the skin below.

"I'm just supposed to take your word for it, then?" he said.

"My word—and the fact I won't confine myself on this trip—under anyone's orders," said Mark. "It means enough to me, so that I'm willing to back my freedom up right now, if I have to. And, just as you said, I know there's more to a gunfight than just good reflexes and marksmanship."

"Yes . . ." said Whin. He stood looming over Mark, staring down at him for a long moment. Then he turned and walked away.

"Mark?"

It was a hesitant question behind him in the tones of Ulla Showell's voice. Mark turned to see her standing a few feet behind him, just to the right of the entrance to the dining room. He waited and she came up to him, looking at him as if seeing him from some new, strange angle.

"Forgive me," he said, "for interrupting your breakfast."

"There's nothing to forgive," she said. She glanced back at the dining room entrance and then up at him. "Let's just walk a little way, why don't we—away from here?"

He nodded. Together they turned and moved off down the empty, cleanly carpeted corridor.

"I didn't have any idea," she said, after they had gone some little way without saying anything, "you felt that way about the Meda V'Dan. I thought you were just someone who'd picked the Outposts as a career—or to stay out of government service during your draft years. Was I right?"

"No," he smiled a little. "I'm what they call in the Outposts, a second-generation man. The children of Outposters usually get sent to Earth to finish their education; but most of

them don't stay there. They come back to the Outposts, again."

"Even when they know what it's like?" she asked. "Even when they've seen people in their own family killed, like you?"

He smiled again.

"I may have seen it," he said. "But I don't remember it. I was only six weeks old. All I know is what the Outposters from Brot Halliday's station—he's been my foster father since—told me when I got a little older."

She shook her head, looking sideways and up at him as they walked together. Her eyes were large and dark; and, happening to meet them for a second as he glanced down at her, he found her once more strangely disturbing to his mind as she had been in his stateroom after hearing Wilkes's message.

"What did happen?" she asked.

He told her.

It had been just past seven p.m., local time, of a summer evening in the Northwest Sector of Garnera VI, when the Colonists of the district saw the red light of the flames reflected on the gray-black belly of the low-hanging clouds in the night sky, overhead. But as they had known they were no match for a ship of the Meda V'Dan, they only took to the woods and cowered there until dawn; meanwhile sending a messenger with word of the raid to the next Outpost station.

So it had been nearly ten o'clock of the bright morning following—for the clouds had cleared with the sunrise—that the Outposters from the next station arrived, riding their slide-rafts above the still dew-wet grass to the burned-out station, their heavy, raft-mounted plasma rifles restlessly turning and weaving and searching the sky.

But there had been nothing there now for them to find. The ship of the Meda V'Dan had departed with the clouds and the night. And all that had been left, where Abruzzi IV Outpost station had stood, were empty warehouses and a burned Residence—charred concrete, smoking woodash and rubble—and among the rubble, a baby, crying.

"Now, why do you suppose they let *him* live?" said one of the station's assistants. He was a lean Outposter named Hubble, who had had his own station once, and lost it to the Meda V'Dan. He spoke sourly.

"Who knows?" retorted Brot Halliday, the stationmaster, scooping up the child—at which, for the moment, the baby voice had cried even more violently. "But he was Chav and Lila's boy; and he's mine now. You'll all be witness to that?"

The three station assistants had nodded. For all its informality, the adoption proceedings, with those nods, became as final as any processed before a judge back on Earth.

"All right for the boy, then," said Hubble, scowling at the still-hot and reeking woodash, "but the Meda V'Dan have done it and got away

again, in our sector. Picking up after them now won't scare them off from the next time they decide to raid instead of trade!"

"That's our problem—not this boy's," said Brot, shortly. "As I say—who knows? Maybe he'll grow up to pay them back in his own way, sometime."

Hubble had scowled again at the burned-out station. But he said no more on that subject. He had very little respect for the gift of prophecy in any man; but he was too well aware of the strength in Brot's squat body and the shortness of the fuse to Brot's temper to express whatever doubts he may have had about the orphan's future. He had kept his silence, therefore, put the matter from his mind, and did his work during the ensuing years; until he was finally killed himself, during a trading raid by the Meda V'Dan, on Brot's station some years later.

As a result of that raid, the one-time baby, now Outposter-Trainee Mark Ten Roos, under tutorship back on far away Earth, had been gifted on his eighteenth birthday by a message from Outposter H.Q., Trinidad, Earth.

The message had been short and to the point, almost brutal in its official language:

Dear Mr. Ten Roos:

It is with great regret that we advise you of information just received here concerning the serious injury of your adopted father, during a trading session at his station with two ships of the Meda V'Dan, March 32, local calendar, Garnera VI.

Regretfully, Outposter Halliday is not expected to survive; and since the question of his station and estate remain unsettled, it is the recommendation of the Outpost Sector Commander over his district that you return from Earth at once.

Transportation to Garnera VI is available by civilian spaceship, but may be arranged through this office in the case of station dependents, if so preferred . . ."

When Mark finished talking, Ulla did not immediately say anything. They walked on together to the end of the corridor and she turned right, Mark following her silently.

"It's all so hard to imagine," she said after a while. "Here, Dad's been Outer Navy ever since I was born, and I grew up back in the Earth-City never hearing about anything like that."

"Most people back on Earth don't," said Mark.

"But—"her hand went to the alien trinket at her throat, then dropped away, "it's all so unbelievable, too. I never would have believed someone like Jarl Rakkal would end up being lotteried, for one thing."

"Was he a man who was supposed to have an exemption?"

"No, but—somehow it didn't seem as if it could happen to someone like him. Someone on top of the world."

"It usually doesn't," said Mark.

"That's what I mean," she went

on, innocently. "Nearly everybody who's important *has* exemption. And most of the people Dad knew were men in the armed services—and, of course, that gave them automatic exemption as long as they stayed in long enough to put in a career quota of years. And their wives had deferments—"

She reached for the alien cube at her throat again.

"And then," she said, "suddenly nobody seems safe from the lottery any more—not even me."

He looked down at her profile as they walked together.

"You won't be eligible until you're twenty-five—and not then if you're still in school, or training for a career that might produce exemption. Or married."

She shook her head—at what, it was not quite clear.

"The Colonists," she said, suddenly. "Where are they?"

"The Colonists on this ship, you mean?" Mark answered. "With the other cargo. In the hold section, aft."

"Twelve hundred people—back there." Her fingers twisted the chain to the cube. "I'd like to see them."

"They don't let passengers into the cargo section," Mark said. "A safety measure."

"I know. Dad told me." She turned another corner and now they were headed down a short corridor at the end of which stood a heavy fire door with two Navy enlisted men wearing Guard armbands and side arms, and carrying rifles. "He said only ship's personnel could get in."

"That's right."

"But"—she looked at him suddenly and caught him studying her—"Outposters—like you. They can go in to see if they want to pick any of the Colonists for their own stations. That's true, isn't it?"

"Yes," he said.

"Don't look so grim. I just thought—"she hesitated. "You could take me in if you wanted to."

"I don't want to."

"Please . . ." She stopped suddenly, so that he was forced to stop, also. She turned to him, taking hold of his right arm persuasively. His left hand came across, swiftly but not roughly, and slid its fingers under hers breaking their grip.

"Gun arm," he told her. "Never do that."

For a moment she merely stood, staring at him, her empty hand still held out toward him, her face pale, her eyes wide.

"But I said, 'please'!" she said. "*Please.* I want to see Jarl. I have to see Jarl!"

"Jarl?"

"Jarl Rakkal. The man I just talked about—"she stared at him. "Oh, I suppose he's just a number to you! The man you stopped by kicking him into the air, out by the landing stairs when we were coming aboard!"

"That's right," Mark said. "I remember. You did call him Jark Rakkal. What is he—an old friend of

yours? Because if that's it, you'd probably be kinder to him, and yourself not to try to see him now."

"No," she said. "I just saw him once, a few weeks ago. Dad was having a weekend down in the Bahamas, and he was one of the guests. But I talked to him—quite a bit. People don't really understand him. Particularly women; and it's always been women who cluster around him. He's very brilliant and complex. And now to think of all that ending up like this . . ."

She shook her head unhappily and looked again up into the face of Mark, who had been watching her closely.

"Then you won't take me in so I can see him?" she asked.

"Yes," he said, "I'll take you in. In fact, I remember now I wanted to have another look at him, myself."

IV

He went forward toward the two guards. She hurried to catch up with him.

"How are they?" he asked the older of the two, a junior petty officer in his mid-thirties.

"Quiet," said the petty officer. "We lost twenty-eight right after lift-off; but we haven't lost one since." He caught sight of the expression on Ulla's face. "Sorry, Miss . . . but it's always like that. It's just after lift-off, when they finally realize nothing's going to stop their going after all, that a lot of them just give up."

"They kill themselves?" Ulla looked sick. "You let them?"

"Just a few . . . I mean, most of them just sort of give up and die," said the petty officer. He turned to Mark. "Isn't that right, Outposter? There's nothing we could do, even if we wanted to."

"But the others—" she said.

"These men are under orders to leave the others alone," said Mark. "There's no point forcing people to go on living when they don't want to. If you kept them alive now, they'd die shortly after they got to the Colonies, anyway. What's the cycle inside now, guard? Sleep or wake?"

"Wake cycle's got about another half hour to go," answered the petty officer.

"Get their records," said Mark. "I'd like to look them over."

"Yes, sir."

The petty officer turned to open a panel in the corridor wall and take out a small, brown microfilm box with a viewer screen in its top surface. He handed this to Mark. The other guard was already unlatching the heavy metal dogs locking the fire door. They came loose one by one with soft, thumping sounds, as they swung back against the sound-absorbent material of the corridor walls. As the last dog dropped loose, the guard swung the door open and the guard that had handed Mark the records file box lifted his rifle to cover the entrance as Mark stepped into it. Ulla pressed hastily in behind him.

"Just a minute, Miss." The other guard put his arm across the doorway. "No passengers allowed. I'm sorry."

Mark looked back over his shoulder.

"Tell them who you are," he said to Ulla.

"Ulla Showell," she said. "My father's Admiral-General Jaseth Showell."

"And she'll be under my protection, inside there," said Mark. "All right?"

The guard hesitated, then dropped his arm and stood back out of the way.

"Good," said Mark. "Lock the door behind us, then. One of you'd better come in and cover us from just inside."

"Yes, sir."

The petty officer with his rifle at ready, following, Mark and Ulla stepped through the door into a vast, brightly-lit section of the ship. They stood at the top of a flight of uncarpeted, green-painted metal stairs looking out over a long dormitory of double-decker bunks in rows under a ceiling eighty feet in height. Broad aisles between the rows contrasted with the closeness of the double bunks, which had barely five feet of space between them—just enough so that from the high landing where they stood, they could look down into the spaces between each pair of bunks, to the far end of the dormitory where a ceiling-high metal wall put an end to further space.

The top quarter of that wall was taken up by a sign. It was not a temporary sign, but a permanent fixture built out from the metal of the wall itself; with three words spelled out in letters ten feet high and two feet wide, that shone down on the Colonists' area with a light of their own.

ADAPT—OR DIE

Behind Mark, Ulla and the petty officer, the door by which they had entered clashed closed again. There was no soundproofing on this side of it; and the noise of its closing roared and echoed through the Colonists' space aboard the *Wombat.*

The sound brought all eyes from below up to the three of them. Men and women, indiscriminately assigned to bunks according to their lottery numbers, looked up from where they stood, sat or lay, forty feet below, to stare at the intruders from a higher existence they all had once shared equally. Ulla hesitated under the impact of their eyes; but Mark began to descend the open, circular staircase leading down to the dormitory floor; and after a second she followed.

Most of the conversations below had ceased with the sound of the closing door; but as they went down the circular stairs, the talk picked up again gradually until it was a monotonous buzz, echoing steadily below the high, bare-metal ceiling. Before they reached the floor, even the

clang of their feet on the stair treads was muffled by the drone of it; which seemed to hang endlessly on the slightly disinfectant-smelling air, like the toneless humming of a man locked and idle in a prison cell.

At the foot of the stairs were two lavatory doors, marked for the different sexes. Mark rapped sharply on each one.

"Back to your bunks, please!" he called.

Taking the record file in his left hand he went to the head of the two rows of bunks nearest the right-hand wall; and began to move down the aisle between them, glancing at each Colonist in turn and checking the record file for his or her personal history. Ulla followed silently behind him.

Conversations which had begun again as the two of them descended the stairs, died once more as Mark's eye came upon the talkers—so that he and Ulla moved in a little traveling circle of silence. For the most part he merely glanced once at a Colonist, then at the record file, and moved on to the next individual without a word. But halfway down the aisle he stopped before a middle-aged woman seated on a lower bunk of the row against the wall.

"Position astrophysics?" he asked.

She looked up at him with a gray, lined face in sharp contrast to the black wig she wore.

"That was my husband," she said, wearily. "He was a Positions Officer on one of the Beagrans ships—that's one of the large civilian space shippers."

"But you know something about position calculation?"

"He taught me some," she said. "I had a doctorate in mathematics. It was easy—and when he was away on trips I could plot his probable position shifts for myself and guess pretty close at where he'd be at any given time. It was just something I did when he was away."

Mark nodded. He went on down the line.

"You might talk to me," said a voice.

He stopped and looked to his left. Seated cross-legged on an upper bunk was a childlike figure.

"I'm Lily Betaugh," it said. "I was a full professor of philosophy at Belgrade; and I'll do anything to make the best of my situation."

Mark regarded her. Seated on the upper bunk, her face was a little above his; and he was close enough so that he could see the faint marks of beginning crow's-feet at the corners of the eyes in the childishly-round face.

"What do you know about the Meda V'Dan?" he asked.

"Very little," Lily said. "I don't think any human knows much; except that they trade with us and with the Unknown Races of aliens farther in toward Galactic Center. If they've got a written philosophy, I don't know about it; and that makes me doubt the Meda d'Van's claim that

they're more advanced than we are."

"A lot of their technology's more advanced."

"Stone-age savages," she said, "can fire plasma rifles. But being able to use and able to build are two different things."

Mark looked at her curiously for a moment.

"Perhaps," he said. He moved on.

Ulla followed him as he worked his way down one aisle and up the next. Every so often he stopped to question one of the Colonists, usually about some particular skill or knowledge they were recorded as possessing. He talked to a number of men and women who had picked up mechanical skills as the result of some hobby or other, an industrial chemist, a bookkeeper, two men and one woman whose avocations had been gourmet cookery, a male ballet dancer, and a brown, wiry little man whose hobby had been butterfly-collecting. The only one, however, to whom he held out any hope of being chosen for his Colonies was to a man named Orag Spal, who had been a Marine noncommissioned gun-control officer for twenty-three years before a dishonorable discharge for theft cast him out of the protection of the armed services, three years short of the retirement which would have ensured his lifetime exemption from the lottery.

"You could never be an Outposter," Mark said to Spal, bluntly. "We wouldn't have you if you could. But you still can be the next thing to it, if you're willing to work. How about it?"

"I'm willing," said Spal. He lay at full length on a lower bunk, a short, thick-shouldered man with hair only starting to gray. "I'll give you as much as I've got."

"All right," said Mark. He pressed a button on the records file that marked Spal's dossier. "I've punched you for my station. You may have to go to the general yards with the rest when the ship lands; but eventually, you'll come to me."

He went on. And in due time he came to Jarl Rakkal.

Jarl, like the Marine, was lying on his back on a lower bunk when they came to him. Unlike Spal, the big man's frame filled the bunk to overflowing and his gold boots rested with their ankles on the foot-bar of his bunk, the feet and soles projecting into the aisle. The bunk seemed doll-bed size beneath him. Ulla pushed past Mark to go to the head of the lower bunk and Jarl shifted his wide shoulders aside to make a narrow space on the bunk's edge.

"Ulla," he said. "Sit down."

"Hello, Jarl," she said softly, accepting his invitation. He looked past her to Mark, standing at the foot of the bunk with the records file box in his hand.

"Outposter, sir," Jarl said, smiling a little. "You're a good man. I came close to caving in your chest outside the ship, there, sir."

"Jarl!" said Ulla. "His name's Mark Ten Roos. You don't have to call him 'sir'."

"I might as well start getting used to it, though," Jarl said. He lifted his eyebrows at Mark. "Shouldn't I?"

"It's not going to make any difference," Mark said.

"Isn't it?" Jarl said. "Then I'll drop the 'sir' for the moment, Mr. Ten Roos. Any time you change your mind, though, let me know."

"Jarl!" Ulla looked unhappy. "It's not like you to be so bitter."

"I'm not being bitter, honey-girl," said Jarl, looking at her. "I'm not being bitter at all. In fact, you're doing me an injustice suggesting it. I've got a few more brains than to waste any emotion on the past, now that it's gone for good. I'm just out to make the most of the future."

"You can call it a future!" said Ulla. She looked ready to cry.

"As long as I'm alive, it's a future," said Jarl. He glanced at the back wall of the Colonists section, to the huge sign with its unsparing message. "And I'm planning on staying alive. I understand you Outposters occasionally take your pick of us Colonists for your own stations, Mr. Ten Roos. Want to pick me?"

"What do you know?" Mark asked.

"*Ki,* most sports, publishing, people and how to handle them," Jarl said. "But mostly I'm just better than most of these you see around you. Bigger, brighter, tougher . . . that much more for your money. I'm a fast learner, also a self-starter. I can work on my own without supervision; and I'm ambitious—but I know when to keep the ambitions under control."

Mark consulted the records file.

"Banking?" he asked.

Jarl flicked a big hand upward momentarily.

"My family's been in it for generations. I grew up with it," he said. "So, I had to absorb a lot of it through my skin during my first sixteen years or so. If you really want a banker, I can try to summon up some old ghosts, and reeducate myself."

He stopped and smiled again at Mark.

"It's the first I heard of them having banks out in the Colonies, though," he said.

"They haven't." answered Mark. He dropped the records files to his side and looked at Ulla.

"Can't you give me a few minutes?" she demanded. "Can't you leave us alone for just a minute or two?"

Mark shook his head.

"You're under my protection," he answered.

"Jarl can protect me."

Jarl laughed.

"Honey-girl," he said, "I'm one of the ones he's protecting you from. No, don't look so shocked. How do you know what I wouldn't be willing to do, if it meant making me better off as a Colonist?"

"You wouldn't—" she let the sentence run off.

"You're wrong," Jarl said softly. "Oh, you're wrong. And the Outposter's right. As it happens, you'd be safe all right with me—not only from me, but from any of these other Colonists as long as I was with you. But he's got no way of knowing that, and he's too good at his own job to take a chance on me; and that's right."

Ulla looked grimly at Mark.

"All right," she said. She turned and, bending down her head, began to talk with Jarl in whispers too low for Mark to overhear.

Mark waited patiently. The slow second hand of his watch crawled around its dial. Suddenly the overhead lights in the Colonists section faded to a glowworm flicker.

"*Sleep Cycle.*" An amplified voice spoke from overhead. "*Beginning of the eight-hour Sleep Cycle. Keep all noise and movement to a minimum, please.*"

Jarl sat up in the shadow dimness of his lower cot, gently pushing Ulla off, on to her feet.

"End of interview," he said. "Mr. Ten Roos is ready to leave. Look. We don't want to do anything that'll make him not want me for his station."

Ulla turned toward Mark, smoothing her face into an expression at least neutral; if not congenial. She stepped out between the cots and turned right in the aisle, toward the bottom of the spiral staircase. Mark turned after her.

"Just one thing, Mr. Ten Roos, if you don't mind," said Jarl behind him.

Mark stopped and looked back.

Jarl nodded toward where the big letters of the sign on the wall still glowed with their own separate light above the twelve hundred Colonists, then looked back at Mark.

"I'm going to live," said Jarl, softly. "One of the ones who does."

Mark left him and followed Ulla down the dim aisle. They mounted the twisting metal stairs to the landing where the petty officer had the door already open, waiting for them.

Back once more in the passenger section of the ship, they walked away together in silence until a turn in the corridor hid them from the two Navy guards. Then, Ulla stopped and turned to face Mark, leaning back tiredly against the corridor wall.

"You might as well know," she said, "Dad will do it if I ask. He's got a few civilian employees at Navy Base, in his Blue I Command. They do maintenance on the obsolete ships the Outer Navy's got mothballed there, in case of emergency damage to the regular fleet. I talked it over with Jarl; and we both decided to ask him to pull strings to get Jarl assigned as a maintenance man. With millions of Colonists being shipped off-Earth every year, they won't turn down Dad's asking for just one. You don't have to help us . . . just don't tell Dad you got me in

to talk to Jarl. Just promise you won't hinder."

"No," Mark said.

"No?" she stared at him. "You don't mean you *will* hinder?"

"I would if I thought I needed to," said Mark. "But I don't. It won't work. This is one string not even an Admiral-General of the Blue can pull."

"Can't pull?" she echoed. "You mean, Dad can't get *one* Colonist?"

"That's right," said Mark. "You can buy almost anything back on Earth; but the one thing that's not for sale anywhere is the Earth-city's own survival. Even one man's too many. One man's a precedent; and there aren't going to be any precedents for Colonists escaping once they've been lotteried. Earth wants these people gone—for good and without recourse. There's no single individual on Earth, the Earth-city wouldn't sacrifice to make sure the excess population it bleeds off stays bled."

She blinked at him, unbelievingly.

"You—" she ran out of words. "What've you got against Jarl? Why are you picking on him, just him out of all of them, like this?"

"I'm not," Mark said. "I'm just somewhat better educated than you are. I'm also a better judge of men. Your friend Jarl knew there was no hope in this maintenance-man idea of yours. It was his idea, wasn't it—for you to mention it to me?"

"As a matter of fact, yes," she said stiffly. "He thought—"

"He thought I might be touched at seeing you cooking up such a hopeless scheme," said Mark. "He knows better than to think that I'd be concerned about him. But he hopes I might just be concerned enough about you to add one name to my list of Colonists. What's one man among millions, you said? Well, what's one man among thousands—and there are thousands at the station I'll be taking over?"

He smiled at her again; and this time there was no doubt the smile was bitter.

"Tell me," he said. "That phrase about one man among millions—that was his suggestion too, wasn't it?"

She exploded suddenly.

"Why?" she cried. Her hands were clenched into fists and they quivered helplessly as if she longed to use them upon him, but dared not. "*Why* are you like this? There's no reason! Why?"

"There's a reason," he said; and sighed. With that sigh, the bitterness flowed out of him, leaving him empty and resigned. "I'm Disposable—actually and literally, disposable. But you wouldn't understand that any more than anyone else. Don't worry, I'll take Jarl Rakkal to my station."

"You . . . will?"

The sudden victory was so unexpected she looked at him with unbelieving eyes, hands opening and falling finally to her sides.

"But not for nothing," he answered. "It's interesting you men-

tioned that maintenance situation at Navy Base. There'll be a price for my picking Jarl Rakkal. A high price, but one you can get your father to pay; and one where the strings he pulls will work."

V

The man on the bed was little more than half a man, now. Brot Halliday's right leg was gone just below the knee, his left leg almost at the hip. His left arm was missing below the elbow; and the right side of his face and body were just beginning to recover from the temporary paralysis from the corona of the Meda V'Dan fire weapon that had crippled his two legs and one arm. He was supposed to have died, but he had not. He had refused; and now the physician that the Navy had sent out to deal with him had endorsed that refusal. It was the physician's conclusion now that Brot Halliday would live—for the foreseeable future at least.

"Mark . . ." Brot's words were a little blurred, but strong enough. He looked up at Mark's face above him, at the side of the bed. "They wanted to put me away and leave the station up for grabs. Hell, no. This is going to be your station; and I'll hold it until you're ready to take over . . ."

The burst of energy that had allowed him to string three sentences together into a single speech played out suddenly; and his voice left him. He lay, the muscles in his still-thick neck working, trying to get his vocal chords back into action again.

"Don't talk," said Mark. He had been holding Brot's paralyzed right hand. Now he put it gently back under the bedcover and let go of it. "Plenty of time for that when you're stronger. I brought you some presents. Let me take you outside and show you."

Mark reached up to touch the auto-controls at the head of the bed. The motors beneath it whirred alive; and the bed floated out through the bedroom door on its air cushion, slid across the living room and out the front door of the Residence, into the cool, air of early spring of the north temperate zone of Garnera VI.

"Look," said Mark. He pressed the button that raised the head of the bed, so that Brot could look forward. The balding round skull was lifted, the hard brown eyes stared out over the square quarter mile of cleared landing area before the Residency and the other buildings of the outpost station now in process of reconstruction. There, spaced about the area, were four small, squat Navy spaceships, tail down, nose up, and looking ready to lift at a moment's notice.

"The Navy here?" whispered Brot.

"Not the Navy," said Mark. "They're ours—mothballed heavy scoutships, released to me on lease to help scare away any Meda V'Dan who might think of hitting us again, here at Station XIV before we've got back our full strength."

Brot stared at the gleaming shapes of the obsolete warcraft. Then slowly, his chest began to heave. It heaved several times like a bellows working up to full inflation, before the fruits of its effort came forth in a series of short, hoarse coughs that were actually laughter.

"Lower me down . . ." he whispered, exhausted, when the paroxysm had run its course. "Scarecrow navy . . . really . . . playing . . . scarecrow, after all . . . Mark, you . . . boy—"

At that point, he literally did run out of the capacity for speech; and Mark wheeled him back inside to the bedroom. There, Brot spent the better part of an hour building back both his strength and his verbal capacity, before ordering Mark to drive the hospital bed into the Residency Planning Room, for a meeting with all the other Outposters, those under Brot's command at Station XIV.

The four of them were there waiting when Mark and Brot finally came in—Horace Hubble, the Assistant Stationmaster and three Senior Grade Outposters, the youngest of the four only six years older than Mark.

"All right," said Brot, when his bed was wheeled into position before the chairs on which they sat waiting, "here's Mark. And you all know . . . what I want you to do. You'll take orders from him, from now on. Even though on the rolls he's junior to all . . . of you."

Brot's voice ran out into a barely audible whisper and fell silent.

"I thought so," said Stein Chamoy.

He got to his feet. He was a tall, rawboned Outposter, almost as big as Jarl Rakkal, and second in authority after Horace Hubble at Station XIV.

"Sit down, Stein," said Horace—for Brot's neck was working as he struggled to speak.

"Sorry, Race," said Stein, looking at him. He looked back at Brot. "And I'm sorry, Brot. Quit trying to split yourself to talk, damn it! You know how I felt about this. I hung on this long hoping you wouldn't try to go through with it."

"Don't like . . . get out . . ." whispered Brot.

"That's what I'm going to do," said Stein. He turned to the doorway of the Planning Room. "I'll either retire or take a transfer. Let you know in the morning."

"Hold it," said Race Hubble. He was a thin, gangling, long-armed, brown man, with arm and leg joints that looked as loose as a marionette's. "You may not want to take orders from Mark, Stein; but you'll take them from me as long as you're on the rolls at this station. Just hold up a minute. Maybe we can talk this thing out."

"There's nothing to talk out," said Stein looking back at Race. He stopped, however, and glanced once more at Brot and Mark. "Unless

Brot wants to change his mind."

"I'll see you—"

"Easy, Brot," said Race. "Let's all stay easy about this. You've got to admit it's not a normal thing—to put four experienced men under the authority of a boy just out of school, with no experience at all."

"I say—"

"No," Mark put his hand on Brot's good shoulder, to calm the older man. "Let me talk to them, Brot. Stein, you were here at the Station when Brot carried me home. You know me."

"I know you, Mark. I like you for that matter, boy," said Stein. "But there're four hundred plus Colonists in my quadrant that need a real stationmaster here at the Outpost to keep them alive and healthy. If I can't give them that, anything else I can give them isn't worth having. You may be hell on wheels someday, Mark; but right now you're just another green kid fresh from Earth with your head full of book-learning, and my Colonists—your Colonists, Mark—can't eat books when the winter comes. As I say, I want out."

"Wait—" Race Hubble began again, as Stein turned away.

"No, Race," Mark said, "let him go. If he's made up his mind, then he's not going to listen to me no matter what I tell him. His mind's already closed. I wouldn't be able to use him. Or" —he looked around at Orval Belothen and Paul Trygve, the other two Outposters—"anyone else who's got a closed mind."

Orval Belothen, a short, round-faced Outposter in his early thirties, shifted in his chair and looked at the floor of the Planning Room. Paul Trygve, slim, dark-haired and twenty-four years old, stared straight back at Mark, but with a narrow frown line between his level brows.

"That's settled, then," said Stein. He headed for the door.

"Only . . ." Mark said after him, and Stein hesitated, looking back, "you might want to make it a transfer instead of retirement, Stein. Just in case a year from now you change your mind about me?"

For a second more, Stein hesitated.

"Maybe. All right, a transfer," he said. And went.

"All right," said Mark to the three who were left. He pulled up a chair for himself and sat down. They faced each other in a rough circle, four men in chairs and one in a floating hospital bed. "I'll tell you why I'm taking what Brot's offered me; and when I'm done if any more of you want to transfer, that's up to you. Stein's right. I'm a green kid fresh from Earth; moreover, I'm a green kid who grew up at least my first thirteen years out here and knows that there's no substitute for experience when you're an Outposter. But I've happened to come back out at a time when the whole structure of things is ready to break down. Any of you know what I'm talking about?"

He looked around at them. They all looked back wordlessly.

"I didn't really expect you to," Mark said. "The only place it can really be seen is from Earth. But it's plain enough if you look at it from there. Briefly, the whole Colony plan is reaching the point where it's ready to collapse of its own weight."

"This is *your* idea, Mark?" asked Race.

"It's the idea of a number of scholars who've taken the trouble to dig into the situation—like a man named Wilkes Matheison, who was my tutor in the Earth-city. The trouble is, people like Wilkes can talk their head off and everyone listens because of his reputation. But no one remembers what he says for five minutes, because they'd rather they'd never heard it, in the first place."

"Mark," said Orval Belothen, "are you planning to bet this Outpost and its Colony and all of us on some theory dreamed up by bookworms, away back in the Earth-city where they don't know anything about conditions out here, anyway, and don't want to know?"

"It's no bet, Orv," said Mark. "It's a case of a volcano exploding, sooner or later, and whether we're making up our minds to move now, or wait until we see the hot lava bearing down on us."

Orv nodded; but he sat back in his chair, plucking at his lower lip. Mark turned to Paul Trygve.

"How about you, Paul?"

"I'm listening," said the youngest of the station's regular Outposters.

"Then I'll get into it." Mark leaned forward in his chair. "I brought those scoutships outside for a number of reasons. But one of them was to prove something of what I'm saying. I got them all—four ships worth maybe twenty millions in credits—for doing a single small favor for the Admiral-General of the Blue. I agreed to pick one, just one, of the Colonists out of a shipped batch, for our station here. Four ships for one Colonist. Stop and think about that for a second. That's how worm-eaten the Navy's getting."

He paused.

"What's this Colonist got?" Orv exploded.

"Jaseth Showell's daughter likes him," said Mark.

Orv looked at Race, at Brot and over at Paul.

"I can't believe it," he said.

"Do you believe it?" Mark demanded.

Orv hesitated, shook his head a little, then nodded.

"I'll believe you—if you're sure you know what you're talking about, Mark," he said.

"I was the one who made the trade with Showell," said Mark.

Slowly, Orv nodded again.

"All right, then," said Mark. "The Navy's gone rotten. The Earth-city's gone rotten. The Colonist system's breaking down. The Meda V'Dan are getting more uncontrolled every

day—look at their attacking a four-man Outpost station like this. Ten years ago, they'd never have risked anything so open. They'd have known that the Navy would have had to retaliate. Now they know they can do something like this, and the Navy won't send out a single ship to hunt down the aliens who did it. How about it, Orv? Am I right about that, or not?"

Orv looked grimly at him.

"You're right—as far as the Meda V'Dan and the Navy go, nowadays, anyway," he said. "All right, Mark. Let's have the whole story. I'm listening."

"It's simple enough," said Mark. "The Colonies system is gradually bankrupting the Earth-city, economically. In theory, this shouldn't have happened. In theory the older Colonies by this time should have been self-supporting, freeing supplies, equipment and Outposters for work with the newer Colonies. It hasn't worked out that way, though, because the plan was rotten at the core to begin with."

"Now, wait—" Orv said.

"Wait yourself, Orv," said Mark. "You know it was. The theory was that since not enough people were emigrating Earth voluntarily to hold the population there down below workable limits, that we have a lottery. An absolutely fair and square lottery that would force emigration of the necessary number of people purely on a chance basis."

"It was a good theory," put in Paul, "particularly for the situation at that time, a hundred years ago. Something had to be done fast."

"True enough," said Mark, looking at Paul, "only it hasn't worked out in practice. In practice experts were needed to guide the amateur Colonists—Outposters. An armed force was needed to protect them—a Space Navy. And the people manning those organizations had to be exempt from the lottery. So did necessary Earth government figures. So did certain people necessary to the running of the Earth-city . . . et cetera. No wonder it's all ended up just the way it has. The lottery gets its pick all right—but only of the human Garbage of Earth. And Garbage doesn't make very good Colonists. Which means that Colonies founded nearly a hundred years ago still aren't able to run themselves without Outposters, or survive without supply shipments, or face the Meda V'Dan without either the Navy or us to fight for them."

"It was still a sound idea to begin with," said Orv.

"It never was sound. It was rotten. It was basically selfish," said Mark. "It was a plan with the essential unspoken purpose of making the Earth-city safe and sweet and uncrowded for an intellectual and political aristocracy that was immune to the lottery."

Paul laughed softly.

"A good thing Stein left," the young Outposter said. "He'd be call-

ing you out right now, Mark, as too dangerous a radical to live."

"If Stein would think it through, he'd realize he's as much of a radical as I am," Mark said. "The system victimizes Outposters as much as it victimizes the Colonists. That's not the point, though. The point is that it's because the system was selfish to begin with and, therefore, rotten in practice, that it's finally beginning to smash itself up."

"You said that to begin with," Paul said. "But you still haven't said how it's smashing up."

"Simple," said Mark. "The Colonies aren't becoming self-supporting because the Colonists didn't want to emigrate in the first place and because they're culls to begin with—adults only, twenty-five to eighty years old, most of whom have already failed in the society they were born into. People like that are the material for colonizing new worlds? The Colonies aren't growing up to stand on their own, but they're multiplying every week. And the cost of supplying them, and us, and the Navy is beginning to get out of hand."

"Mark," said Orv, "I don't believe that. The Earth-city's not starving. It's a long way from starving."

"No," said Paul. "There's maybe a thirty percent slack in production that can be taken out—or at least that's the way the figures ran when I left Earth six years ago—but then we'll be hitting about maximum output back there."

"Thirty percent," said Orv. "That means we can add near a third again as many Colonies before feeling pinched. That could take another thirty years to do. I don't see that as much of an emergency."

"It won't take thirty years," said Mark. "We've got the Meda V'Dan helping to wreck the structure, now."

Orv opened his mouth, then closed it again. He sat back in his chair.

"Eighteen years ago, when my folks were killed," Mark said, looking at all of them around the room, "the Meda V'Dan only hit an occasional small, two-Outposter station like theirs with a single ship, so that the rest of the aliens could claim the raiders were renegades. How many Meda V'Dan ships did it take to cut you up here at XIV, last month?"

"Six . . ." husked Brot.

"There you are," said Mark. "When they start hitting five-man stations, and with half-fleets, the old excuse about renegades is getting stretched pretty well out of believability. But you ought to know why they aren't worried about that, as well as I do."

He looked at Orv.

"The Navy's no threat any more. Sure. Those fat-bellies!" Orv took time out to swear. "I'll go along with you on that, Mark."

"All right, then, there it is," said Mark. "The Meda V'Dan hardly bothers to trade any more. It takes what it wants from Earth-produced supplies at the Outpost stations and

keeps the Navy quiet with gifts from the Unknown Races further in—only the gifts aren't worth two percent of what it takes. The Navy takes the gifts and covers up, because it doesn't want to fight. And the responsible people back on Earth help with the cover up because they don't want the Navy to fight, either. Earth is beginning to get scared of the Meda V'Dan. It's only a matter of time before they find an excuse to haul the Navy back to the Solar System for their own protection and start paying flat-out tribute to the Meda V'Dan. And that's going to be the beginning of the end. Because once the Meda V'Dan start taking from Earth, direct, they'll suck her dry."

"And," said Paul, quietly, "we'll be left out here alone with the Colonists—and no supplies."

Mark looked at him.

"If you were on my side from the first, Paul," he said, "why didn't you say so?"

"I wanted to see what kind of an argument you'd put up," Paul said. "Also, I wanted to be sure you could get through to Orv and Race, here, without me. Now, I sort of think you have."

Mark looked at the two older Outposters.

"Right, Mark," said Race, "we'll take your orders—for a while anyway; and see how things work out. Or maybe I shouldn't speak for Orv?"

He looked across at the round-bodied man.

"You can talk for me," said Orv. "I'm convinced. Only—what've you got in mind, Mark?"

"To begin with, making this Outpost and this Colony self-sufficient," said Mark. "No, more than just self-sufficient. Independent. The Colonists I picked on the trip out should be here in a few days. Meanwhile, I want a general check of local Colonists' records for special skill; then I'll have a talk with our Wild Bunch."

VI

The dozen or so Colonists Mark had chosen from those aboard the *Wombat* came in by shuttle ship from the processing center on Garnera II, two days later. Among them were Jarl Rakkal and Lily Betaugh. Also the ex-Marine Orag Spal, Age Hammerschold and the woman with the black wig who had made a hobby out of position astrophysics.

It was with this woman, whose name was Maura Vols, that Mark concerned himself first. He took her on a private tour of one of the formerly mothballed heavy scoutships the Navy had leased Station XIV. The tour ended in the navigator's compartment.

It was a tiny cubicle of a room, its walls packed with controls and telltales.

"Can you handle this equipment?" Mark asked her, bluntly.

She revolved about in the center

of the room, staring at her surroundings.

"I don't understand ten percent of it," she said. "I used my husband's position tables and rental time on a commercial computer."

But the tone of her voice was at odds with the defeatism of her words, and two spots of color had come to life on her pale cheeks.

"I could try to figure it all out, of course," she said. "Everything here has to tie in somewhere with what I learned from Tom."

"Do that, then," said Mark. "And when you can make it all work for you, check with the Colony personnel records. Pick out the four people with the best mathematical background for learning what you've got to teach. Then let me know and I'll see they're assigned to you."

He also took Orag Spal on a tour of the four ships, with particular attention to the two fixed million-pound plasma rifles, mounted fore and aft in each.

"First, are they workable?" Mark asked the ex-Marine. "Second, can you train men to handle them—and I mean handle them effectively, in action."

"Oh, they'll work," Spal said. "The only thing is, either one of them could suck the engines on one of these little boats dry if you fire it when the craft's not on balance or power-off. As for training men to handle them—give me the right kind of man and time enough, I'll train him."

"What is the right kind of man?"

"Good reflexes. Endurance. Teachable—young, by preference." Spal looked sideways and up at Mark. "But Colonists being all over twenty-five—and most of that crowd I came out with were a good deal over—I suppose we'll have to skip that."

"Not necessarily," said Mark. "We've got some second and third generation young people—particularly among a sort of semi-rebel group called the Wild Bunch—who might fit your requirements exactly. I'll be talking to them in a day or so."

"Good," Spal said. "Meanwhile I'll get busy tearing these choppers down for close inspection."

Mark went off to turn his attention to Lily Betaugh. He had arranged for her and Jarl Rakkal to be housed at the Outpost itself, instead of in the nearest Quadrant Village with the other Colonists. Now he took her to the library and records section of the Outpost; which, being underground, had escaped the fire and destruction of the Meda V'Dan raid that had destroyed nearly all the other Outpost buildings except the Residency, itself.

"It's a fairly good general library," he said. "But, more important it's got a hundred years of this Colony's history, including a lot of general information over those years about the actions of the Meda V'Dan where the Colonies were concerned. Find

yourself the best ex-psychologist, ex-sociologist and ex-anthropologist among those listed among the Colonist records; and get them to help you. I want a race profile of the Meda V'Dan, as well as you can work it up—including probable prehistoric evolution, present philosophy and society."

She nodded.

"You realize, though," she said, "there's no reason we should come up with any more information than you could get by stepping over to that encyclopedia right now and coding for its section on the Meda V'Dan?"

He smiled.

"The information about the Meda V'Dan in that encyclopedia, or any encyclopedia back on Earth, is ninety percent guesswork and ninety percent of that guesswork's wrong," he answered. "Study the Colony history, just as I said. You'll find out in a hurry that it and the encyclopedia don't correlate."

He turned at last to Jarl Rakkal. (Age Hammerschold, the one ordinary-choice Colonist he had picked from those aboard the *Wombat*, had been assigned to the Colony's one semi-successful furniture manufactory.)

"Here," he said, leading the big man, now dressed in green Colonist's work slacks and shirt, into the half-rebuilt Comptroller's building behind the Residency, "this is where you'll be working. We lost a good share of the records, but duplicates of the copies sent to Sector Headquarters for this planet will be coming in to replace them in the next few days."

Jarl looked around him, half-amused, half-puzzled.

"But what am I supposed to do, here?" he asked.

"Set up profit-making systems for the Colony; and see that the systems work," said Mark. "In particular, find me something right away that we can use to trade directly with the Meda V'Dan."

Jarl stared at him.

"You don't mean this?"

"Didn't you tell me you came from a banking family?" said Mark. "Weren't you the owner of a publishing business at the time you were lotteried?"

"Of course," said Jarl. He stared for a moment longer at Mark. "But Mr. Ten . . . look, can I call you Mark?"

"Go ahead," said Mark.

"All right. Mark, forgive me if this sounds like I'm telling you what to do, instead of the other way around," Jarl said. "But I started the most successful parti-fax publishing outlet the Earth-city's ever seen, from scratch. At the time the lottery got me, I had nearly a hundred and fifty million repro outfits in as many homes and offices—nearly a billion customers, by estimate, making up their daily reading from my broadcast items. I did that all in six years—with plenty of time out for *ki*-practice and everything else I wanted to

do. Look at me. I may not be able to handle one of you Outposter professionals; but I'll bet that out of the ten thousand or so Colonists you've got attached to this station, there's not a man who can stay in a locked room with me for three minutes and come out on his feet."

He paused, staring at Mark.

"And you still want to use me as a sort of glorified bookkeeper?"

"If that's the way you want to describe it," said Mark. "Yes."

"But—" Rakkal broke off, "forgive me again, if I sound offensive or patronizing—God knows I'm in no position to patronize anyone now, let alone you—but believe me. this one time I'm being completely honest with you when I say you can't mean to waste the sort of raw material I am on a job like that. I'm . . . a few years older than you; and maybe it takes a few more years than you've got to realize what someone like me, with my experience, could do for you. For example, I gather you might be trying to actually use those scoutships you got from the Navy. Fine, that's the way I like to think myself. Now, I've piloted civilian craft almost that size—"

"No," said Mark. He met Rakkal's eyes squarely. "You're too ambitious. I wouldn't trust you to operate a tractor, out of my sight."

"But you're putting the whole economy of this Outpost and Colony in my hands?"

"Exactly," said Mark.

He went toward the door of the building, which was at the moment only a door by courtesy—a raw, new frame of wood, open to the outer air on two sides and overhead. Jarl called after him.

"What if I deliberately mess things up?"

"If the Colony starves, you do, too," said Mark. "Remember, find me something I can trade to the Meda V'Dan—do that right away."

He went out.

It took the rest of the week to round up the Wild Bunch from their various caves and forests and the homes of relatives in the villages of the Colonies' four sections who were not supposed to be giving the nonworkers food and shelter, but were. However, the morning finally came when Mark spoke to about a hundred and twenty of the Bunch, mostly men dressed in everything from tattered green work clothes to animal skins in the landing area surrounded by the four Navy heavy scoutships.

"All right," said Mark. He was standing up on the front seat of a ground car to be better seen by all. "Each one of you knows why you're here. You're the Colony mavericks—and I'm not going to waste much time on you. This afternoon I'm going to start going around to the Quadrant villages, telling the rest of the people what this Colony's going to do. You here are getting an advanced briefing because the bare chance exists that you can be particularly useful—if you want to be."

They looked back at him. Their faces were not encouraging.

"I'm going to make this Colony independent," said Mark. "Not just independent of supplies from Earth. but independent of Earth, Navy Base, and even the other Colonies in our sector on this planet. But the changeover's not going to be easy. We'll probably go hungry this winter, for one thing. I don't think we'll have to fight the Navy; but we'll probably have to fight the Meda V'Dan—and for once this means that you Colonists are going to be in on the fighting. It's not going to be just the Outposters alone."

"Why should we?" asked an unidentified voice from the crowd. Paul and Orv, standing by, with thumbs hooked in their gun belts, ran their eyes over the crowd; but it was impossible to say who had spoken.

"To make that better life you all claim you've been after," replied Mark. "You're our rebels. I'm giving you a chance to lead the rebellion of the whole Colony against the system we've been trapped by out here for nearly a hundred years. We're going to become a real Colony—self-supporting and self-protecting. But I'm not forcing any of you to go along with this unless you want to. Those who aren't interested can go back to wherever you were when we found you—but it's only fair to warn you that if you've been depending on relatives, you may not find them as generous, once things start to change around here."

He pointed to the four scoutships.

"I need younger men to man these ships," he said. "I need older men to help me and the other Outposters lead the rest of the Colonists into the changes we have to make. I can't offer any of you anything for this—except that once we get the changes made, there won't be any distinction between Colonists and Outposters any more. We'll all be Colonists of Abruzzi XIV together; and whoever's able to lead us best will be our leaders."

He paused. They looked at him in silence.

"Well, then," he said, "it's up to you. Those who want no part of it, take off now. Those who want to lead or enlist in the Abruzzi Colony Space Navy, gather around the car, here."

The crowd slowly began to move. It broke up into two movements—the movement of perhaps a third of those there toward the ground car; and a dispersal of the rest in all directions.

"Good," said Mark; for, though the large majority of those present there were leaving, almost all those under twenty were among the group that was staying. "All right. Paul and Orv will list you and what you volunteer to do. Those who want to work with the scoutships will find an ex-Marine named Orag Spal in that ship to the right, there. He'll start training you. The rest of you follow me up to the Residency so that I can

explain the individual jobs that need to be done; and then you'll join me in my swing around the villages to talk to the rest of the Colonists, this afternoon—"

The chiming of the phone in the ground car interrupted him; he reached down to pick it up.

"Mark," he said into it.

Brot's laboring voice spoke back to him.

"Mark . . . send Orv, Paul, here."

"Send Orv and Paul?" Mark frowned at the phone. "Brot what're you doing, calling out like this? What do you want Orv and Paul for?"

"Just . . . send—"

The phone clicked out of communication. Mark looked over at the other two Outposters and found their glances troubled upon him.

"What's this?" Mark asked. "Brot's calling for both of you. Do either of you know anything about this?"

Paul's face was somber.

"It's my fault," he said, finally.

"No," said Orv. "It was all three of us decided to do it."

"But it was my idea," said Paul. "Mark, it must be Stein up at the Residency. I thought if he had a look at how things were going, he might change his mind. I asked him to come out from Sector Headquarters to look, before his transfer request went through. Race was to show him around while you were busy with the Bunch, here—"

"Orv," said Mark, dropping down into the seat behind the controls of the ground car. "You take care of them, here. Paul, come on with me."

Paul took three strides and a running jump to join him in the ground car. Mark set the vehicle in motion, swung it about on the grass and sent it sliding swiftly toward the Residency, only a few hundred yards away.

TO BE CONTINUED

in times to come

Next month's issue starts off with a new Telzey story—"Glory Day"—wherein Telzey attends a planetary celebration as (unwillingly!) a guest of the planetary government.

Now noisemakers of wildly assorted varieties are Standard Operating Procedure at celebrations—but the kind that Telzey turned loose at that celebration was strictly original—and drastic! Drastic enough to disrupt a planetary government.

It wasn't that Telzey had political ambitions, but any government that tried to manipulate our Miss Amberdon was very apt to run into serious trouble! ■ THE EDITOR

"THIS IS ENGLISH?"

Controlled variables can be referred to in any task in which they are known. However, not all allocations are known in each task. When a task is initiated, only the latest allocation, if any, of each controlled variable is known to the attached task. Both tasks may refer to this allocation. Subsequent allocations in the attached task are known only within the attached task; subsequent allocations within the attaching task are known only within the attaching task. A task can free only its own allocations; an attempt to free allocations made by another task will have no effect. No allocations of the controlled variable need exist at the time of attaching. It is not permissible for a task to free a controlled allocation shared with a subtask if the subtask will later refer to the allocation. When a task is terminated, all allocations of controlled storage made within that task are freed.

Submitted by Richard H. Karpinski

WHO'D HAVE GUESSED THAT ONE!

DOCUMENT CHANGE MEMO

AMENDMENT 1

1. Change: Limitation added to prohibit use of the grease with aluminum and aluminum alloys.

Reason: NASA National Application Problem Disposition Report 19, 1 November 1966, states that the combination of a halogenated-hydrocarbon lubricant with aluminum can ignite explosively when placed in shear. The material covered by this specification is a halogenated-hydrocarbon grease.

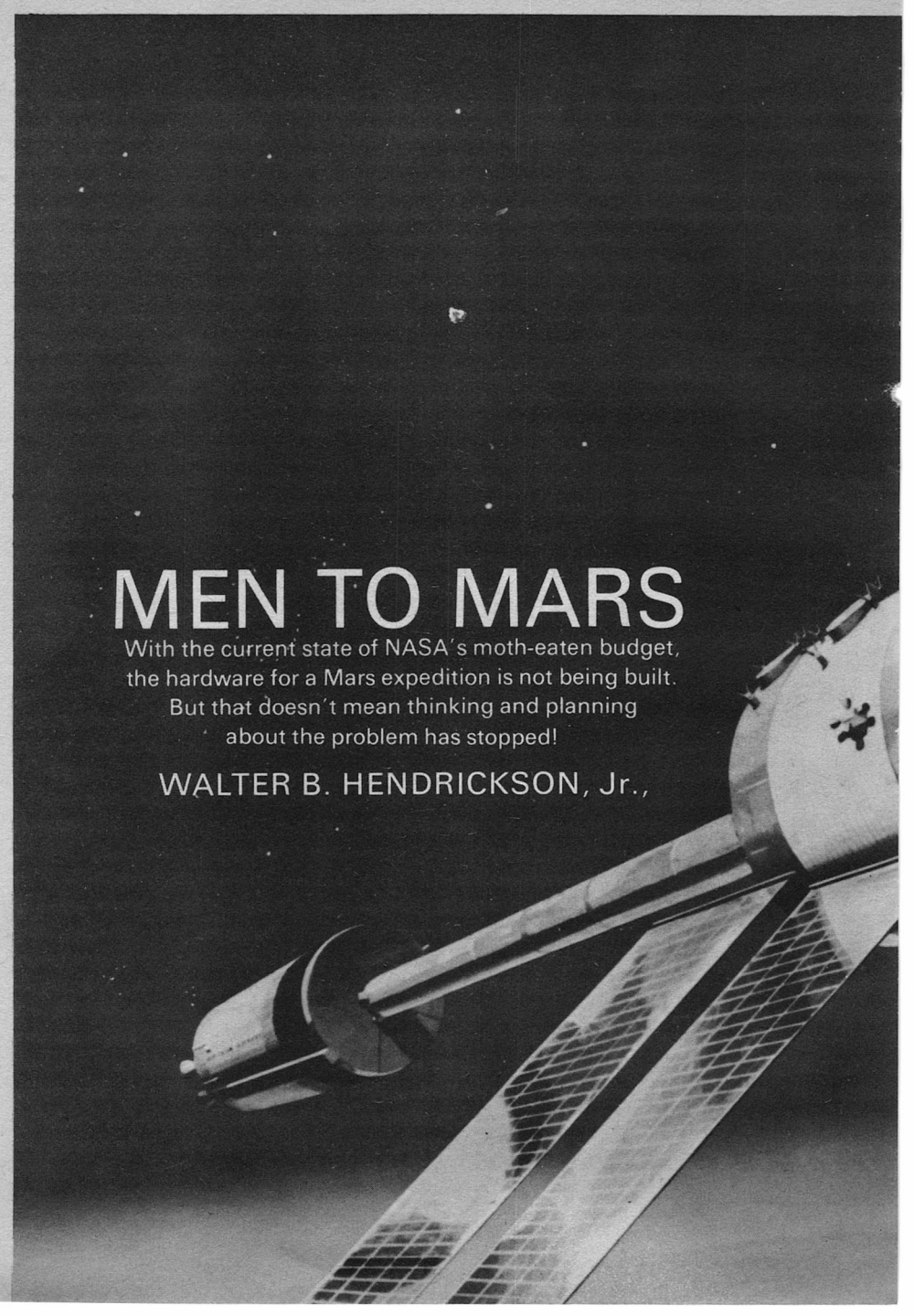
Impact: All engineering and design organizations.

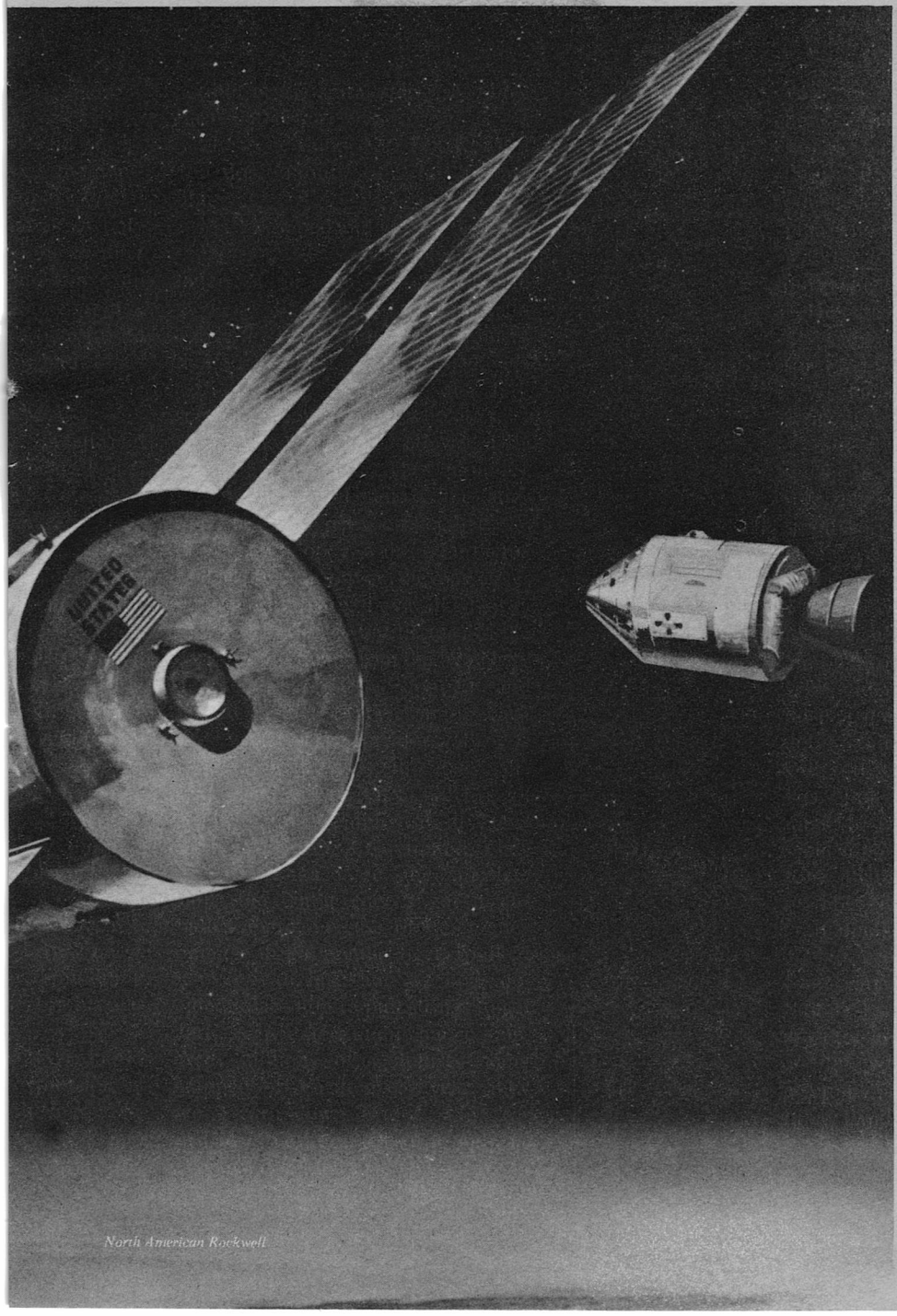
The grease is one based on polytrifluorochloroethylene—i.e., almost *a polytetrafluoroethylene ("Teflon") which is renowned for its almost absolute chemical inertness!*

Who would have guessed, from theoretical knowledge of chemistry, that that stuff could set off aluminum in violent combustion!

The unpredictable fact was discovered by hearing popping noises when tightening down aluminum nuts.

Thanks to Floyd Wright


MEN TO MARS
With the current state of NASA's moth-eaten budget, the hardware for a Mars expedition is not being built. But that doesn't mean thinking and planning about the problem has stopped!
WALTER B. HENDRICKSON, Jr.,


UNITED
STATES
North American Rockwell

MEN TO MARS

Now that the manned Moon landing has been accomplished the National Aeronautics and Space Administration—NASA— is turning its sights toward a manned landing on Mars by the end of the century. Making this trip will take as much preparation as the Moon flight of Apollo 11—perhaps even more. This time, however, the problems will all center around one thing—the sheer distance of the planet.

It is obvious to anyone who has seen this bright red-orange planet shining in the night sky that it is quite far off. For although Mars is 4,200 miles in diameter, a little over half the width of Earth, it still appears as only one of the brighter points of light at best. This is because Mars never comes closer to Earth than 35,000,000 miles and most of the time it is much farther away.

Even if we could travel straight to Mars at Earth's 25,000 mile per hour escape velocity it would take us fifty-eight days and eight hours when the planet is nearest Earth. Unfortunately, we can not go straight to Mars, or any other place in the solar system for that matter.

The reason for this is obvious, the Earth and all the other planets are orbiting the Sun at varying speeds. So going from planet to planet is like changing lanes on a freeway while speeding around a curve.

Each planet orbits at just the right speed to balance the pull of the Sun's gravity at its distance. So Earth travels at an average 78,120 miles per hour, while Mars travels only 66,600 miles an hour on the average. These speeds are averages, of course, because the planets are in slightly elliptical orbits so they travel faster when they are closer to the Sun.

Thus to go straight to Mars a spacecraft would first have to escape from Earth. It would then have to stop the 78,000 mile per hour speed it had acquired as part of Earth and climb up against the pull of the Sun's gravity to the orbit of Mars. Next it

Space Station (page 53) Concept of 12-man space station is illustrated in cutaway by North American Rockwell's Space Division, Downey, California. This spacecraft would also serve as the mission module for a manned interplanetary flight. Space Division heads one of two teams selected by National Aeronautics and Space Administration (NASA) for parallel 11-month, $2.9 million program definition studies to design and develop a space station which could fly by 1975. Drawing shows crew quarters-command and control area in upper part of station, laboratory-experiment, and physical conditioning area. Circular openings at top and bottom of station are multiple docking ports for logistics shuttle. Vehicle at lower left is experiment module placed in similar orbit to support station.

would have to speed up to 66,600 miles per hour to catch the planet.

No one has ever considered making such a trip so the amount of fuel that would be required is not known. However, it would undoubtedly be an impossibly large amount—even with the most advanced propulsion system possible.

Fortunately, there is a more efficient way to Mars. Since the planets all travel the same direction a spacecraft can take off from Earth orbit with just enough speed to reach the orbit of Mars before dropping back into an orbit around the Sun. With the use of a little more fuel the spacecraft could take a somewhat faster path that would send it curving out far beyond Mars if it did not stop when it reached its destination. In either case the spacecraft will travel on a long curving path covering hundreds of millions of miles of space and circumnavigating the Sun.

In the case of a manned flight it might be a good trade-off to use a little more fuel, cut the trip time, and thus save on the life support supplies needed for the mission. With just a slight increase in the mission velocity—the total speed changes by the spacecraft required during the flight—the trip time could be cut drastically.

With a mission velocity of 24,272 miles per hour, for example, it would take 2.66 years to make a round trip to Mars. By increasing the mission velocity just 2,561 miles per hour bringing it to 26,831 MPH, the trip time could be cut to 490 days.

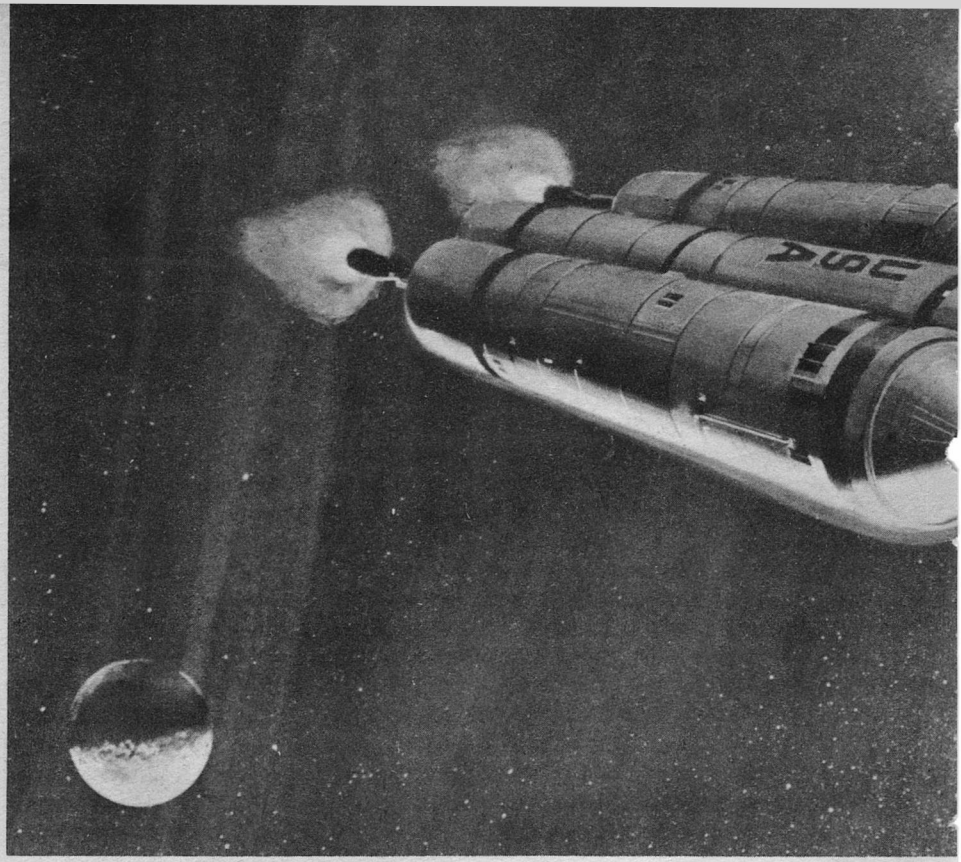
Whatever route is taken the launching must be carefully timed so that Mars will be there when the spacecraft reaches that planet's orbit. Also Earth should be as close as possible, in opposition as it's called, when the spacecraft reaches its target so that the astronauts' messages will have less space to cross. The periods which meet all these requirements, called launch windows, occur for Mars once every twenty-five months and each lasts about one or two months.

Of course, if the mission is to be a fly-by its flight path, or trajectory, must be carefully chosen and followed so that Earth will be in position to receive the returning spacecraft as it swings back around the Sun after passing Mars.

If a spacecraft's mission takes it into orbit around Mars, the craft must wait there until the planets are again in opposition then make the return flight to Earth. Here again, the fast trip has an advantage over the slow one.

On the fast trip the wait until the opportunity to return to Earth is only thirty days, while on the slower mission it would be 455 days. For several weeks during this long stay the Earth would be on the other side of the Sun and out of touch with the Mars explorers.

This would make the brief pass of the Apollo spacecraft behind the

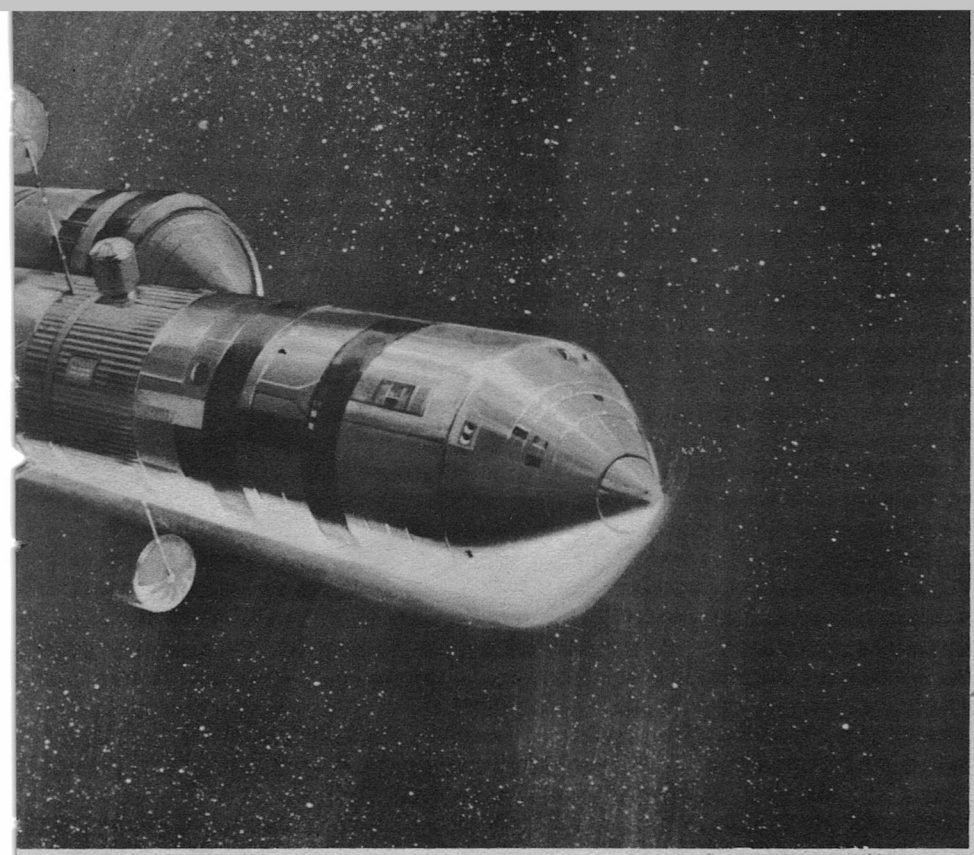


Moon seem trifling in comparison.

A curious paradox is that on the return trip a spacecraft would take less time but travel farther. This is because the return trajectory curves in closer to the Sun than the orbit of Venus. On this course the spacecraft would receive a sort of roller-coaster like ride when, as it passes sunward, the Sun's gravity speeds it up for the climb back up to Earth's orbit.

It would arrive back on Earth in about 230 days—29 days sooner than a spacecraft traveling the slower route.

Crossing the orbit of Venus offers an added bonus to an economy minded space program on flights between 1981-1983. With a few adjustments in the flight plan the astronauts could make a fly-by, or even orbit Venus on the way home. They would only have to wait in Mars's orbit about ten more days. Then an extra 150 days would be added to the return flight bringing the spacecraft back to Earth after 640 days in space. The overall mission velocity would be increased by 15,440 miles per hour to 42,271 mph.



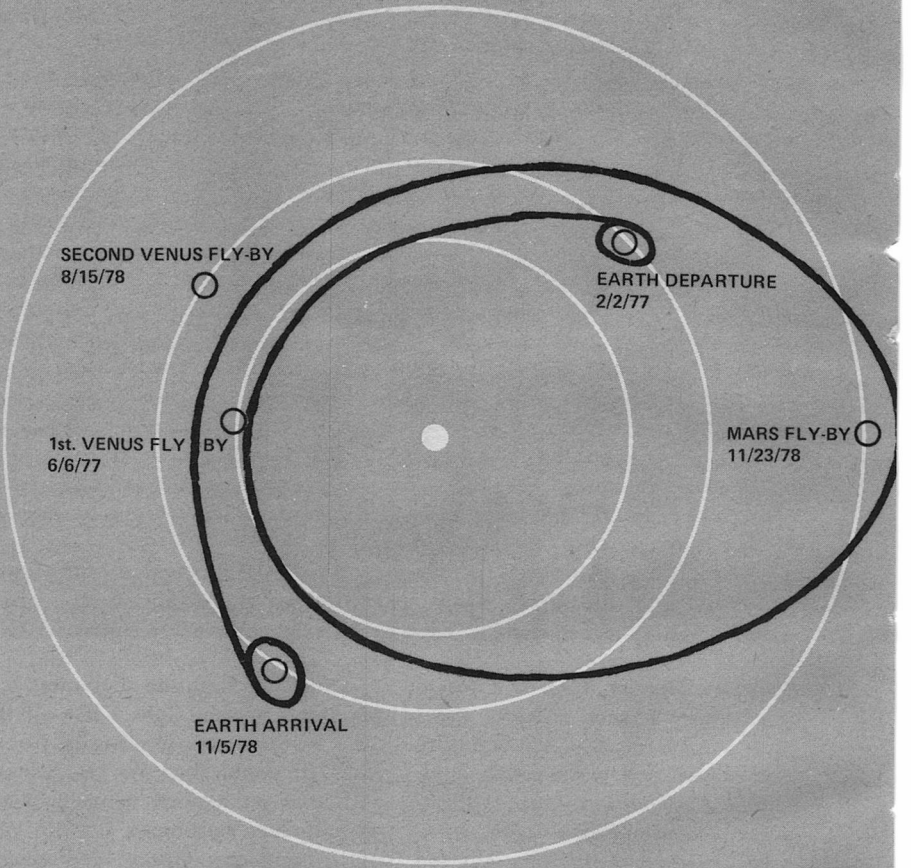
North American Rockwell

Planetary Mission Module. Concept of planetary mission module. Planetary mission module would utilize technologies and components developed for Earth orbiting space stations.

This increase in speed is required because the spacecraft will come back to Earth too fast to reenter the atmosphere directly, as it could on a flight to Mars alone. So it must return to Earth orbit from which shuttle craft would ferry the astronauts, with Mars rocks and samples, back to Earth.

Actually it might be preferable to put the spacecraft into Earth orbit even when it returns directly from Mars. It could then be resupplied and used on another mission. Reusability has become a byword of our present economy-minded space program planners. Also reentering from Earth orbit would be a good deal less hazardous than coming in at interplanetary speeds.

If separate missions were flown to Mars and Venus the total flight time would be about 1,020 days and the overall mission velocity 72,270.8



1977–78 MANNED FLY-BY MISSION

miles per hour. All of this would mean the expenditure of more costly fuel. Of course, two spacecraft would probably also be needed, or at least new boosters for the section that returned to Earth from the first mission. All this means that if the Mars expedition took a swing by Venus on the way home NASA could have a second planet for little more than the price of one—sort of an astronautical one-cent sale.

A bi-planet fly-by would be possible in 1977 as a precursor of the Mars landing. A spacecraft launched sunward on February 3, 1977, would pass the sunny side of Venus four months later on June 6, 1977. Then it would climb out from the Sun for close to six months, passing Mars on November 23, 1977. On its return to Earth it would slip past the night side of Venus in August 1978 before returning to Earth on November 5, 1978. During this entire flight Earth would always be relatively close by so it could stay in communication with the spacecraft.

Whatever the mission chosen for the first Mars landing the spacecraft is bound to be huge. If liquid hydrogen and liquid oxygen fuels, like those of the Apollo spacecraft, are used, 3,710 pounds of propellants will be needed for each pound of payload. With a solid core atomic rocket using liquid hydrogen propellant only 927.5 pounds of fuel would be needed for each pound of payload. Such a rocket is now under development by NASA and the AEC—Atomic Energy Commission—in the NERVA—Nuclear Energy for Rocket Vehicle Applications—program.

Even the propulsion systems that are still theoretical are not much help. With a gaseous core reactor the fuel needed for each pound of payload would be 462.75 pounds. A fusion-powered rocket would trim the propellant requirements to 185 pounds for each pound of payload.

In each case this is just the propellant needed to carry the mission from Earth orbit to its return. The propellant itself would be payload on the trip up to Earth orbit.

With these propellant to payload ratios the maximum weight of a ten-man spacecraft would work out like this:

1. 8,000,000 pounds with liquid hydrogen and oxygen fuel, or more than the combined weight of a fully fueled Saturn V and Saturn IB;
2. 2,000,000 pounds with a NERVA type rocket;
3. 1,000,000 pounds with a gaseous core reactor;
4. 400,000 pounds with a fusion-powered rocket.

Clearly, for the first manned Mars landing, and for many that follow, the spacecraft will have to be assembled in Earth orbit with modules sent up from Earth.

Some weight could be saved if the spacecraft were launched when Mars and Earth were moving together for an especially close opposition. Thus

a NERVA engine-powered spacecraft heading for Mars in 1986 would weigh only about 1,500,000 pounds. It would arrive at Mars in time for its July 10th opposition with Earth when the planets will be only 37,600,000 miles apart.

A little more fuel could be saved if the spacecraft used Mars's atmosphere to slow down and loop into orbit. However, this is a very difficult maneuver. If the spacecraft came in at too shallow an angle, it would skip out again and off into a solar orbit with no chance of return to Earth. If it came in at too steep an angle, the entire ship would crash onto the surface of Mars. Besides, if the rocket were nuclear-powered it would leave radioactive fallout in the Martian atmosphere.

The manned Mars spacecraft will require larger crews than the Apollo Moon landing craft. This is because the astronauts will be completely on their own for at least 450 days. They will have to be prepared to repair any equipment that fails and handle any medical problems that develop.

When the spacecraft is at its farthest from Earth Mission Control won't even be able to offer advice in an emergency. Even if Mission Control knew the answer to a question right away the Mars explorers would have to wait nearly 8.32 minutes after they asked the question to receive the answer.

To save money and add reliability the Mars spacecraft could be made almost entirely from module designs which have proved themselves in other parts of an integrated space program. Such a program was outlined by Dr. George E. Mueller, NASA Associate Administrator—Manned Space Flight, in *Astronautics and Aeronautics* (January 1970).

Since the modules will have several uses in space the commitment to make the manned Mars landing can wait until 1976 and flight could still come in 1983. This is about the earliest it could be launched under any program.

Most plans call for two spacecraft to fly the first manned landing mission to Mars. This way if one ship were disabled the crew could transfer to the other to complete the mission. According to NASA's latest plan each spacecraft would normally carry a crew of six. Provisions for carrying all twelve for part of the mission would bring the weight up to about that of the ten-man ship mentioned earlier.

The two spacecraft will be boosted into orbit one module at a time by about nine Saturn V, or Saturn V sized, rockets. Since our astronauts have found it difficult to work outside their spacecraft in space, the orbital assembly will be kept to a minimum. This will also save a little on cost since the construction equipment won't have to be boosted into orbit.

Most of the assembly of the interplanetary space rockets will be by

docking one module on another. Only where smaller parts, such as antennae, must be erected will astronauts do any spacewalking. Where a little extra force is needed, a space tug equipped with mechanical arms can be called on.

Such a device would have been helpful on the Gemini 9 mission on which astronauts Cernan and Stafford found the partly open nose cone of their docking target gaping at them like an "angry alligator."

As envisioned by Dr. Mueller and NASA, the space tug is a small, liquid oxygen and liquid hydrogen fueled rocket about 22 feet wide and 25 feet long. By the time of the Mars expedition the tugs will already have proved themselves useful many times. They will be used in assembling both Earth and Moon orbiting space stations, ferrying men and machines from supply rockets to these stations and the lunar surface. In an unmanned version the space tug could serve as a booster for interplanetary probe launchings.

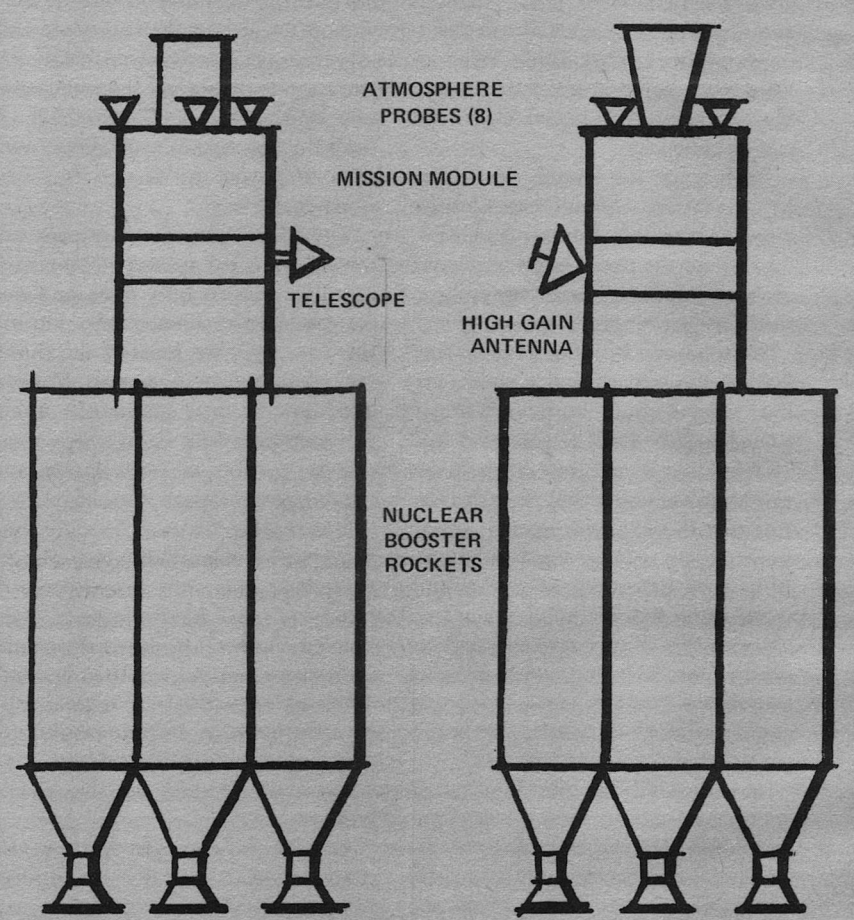
The assembly of the Mars ships should take about sixty to one hundred days. During this time the astronauts assigned to the mission will play a key role in the assembly and checkout of the vehicles, even as they do today. In fact, the instrument displays may be simplified so that the astronauts can do practically all the checkout of their vehicles themselves.

The Mars bound spacecraft will each be boosted off by two nuclear rockets diverted from the regular Earth-orbit Moon-orbit shuttle service. After getting the two spacecraft into their trajectory toward Mars the two rockets from each ship will separate and return to Earth orbit. A third nuclear rocket will remain with each to power the rest of the mission's maneuvers.

The spacecraft will then coast out toward Mars for around 300 days using their rockets only once or twice for midcourse maneuvers. During this time, and for most of the flight, the astronauts will live in Mission Modules on each spacecraft. Again this module would be of a type thoroughly proven in both Earth and Moon orbiting space stations.

Besides the Mission Module, one spacecraft will probably also carry a space tug. This craft would come in handy if any heavy repairs were needed en route. If one of the spacecraft becomes disabled, the tug could serve as a lifeboat to transfer the men to the other ship. It would also carry routine transfers of men and equipment between the two spacecraft.

One of the two spacecraft would carry a Mars Excursion Module (MEM). This MEM would be a cross between the Apollo Lunar Module and the Command Module. It would be a broad cone about thirty feet wide and weighing 95,000 pounds. Like the Lunar Module, the Mars Excursion Module would be divided into a descent and an ascent stage. Also like the Lunar Module, the



SPACECRAFT FOR MANNED MARS LANDING MISSION

MEM will save weight by taking only the equipment needed for up to sixty days of exploration on the surface of Mars.

Before going down in the MEM the astronauts will fire a series of unmanned probes to Mars from orbit. These probes will collect samples and return these to the spacecraft to be checked for biological hazards to man. Of course, the astronauts will also scan Mars from orbit as they now study Earth and the Moon.

If no undue hazards are found on Mars, six astronauts will board the MEM. As on the Moon landings they will ride to and from the surface in the ascent stage. After separating from their mother ship the astronauts will fire retrorockets and start down toward Mars. Their descent will be slowed first by air friction on MEM's broad heat shield, then by parachutes. Finally a chemically fueled rocket will lower them gently down on four landing legs.

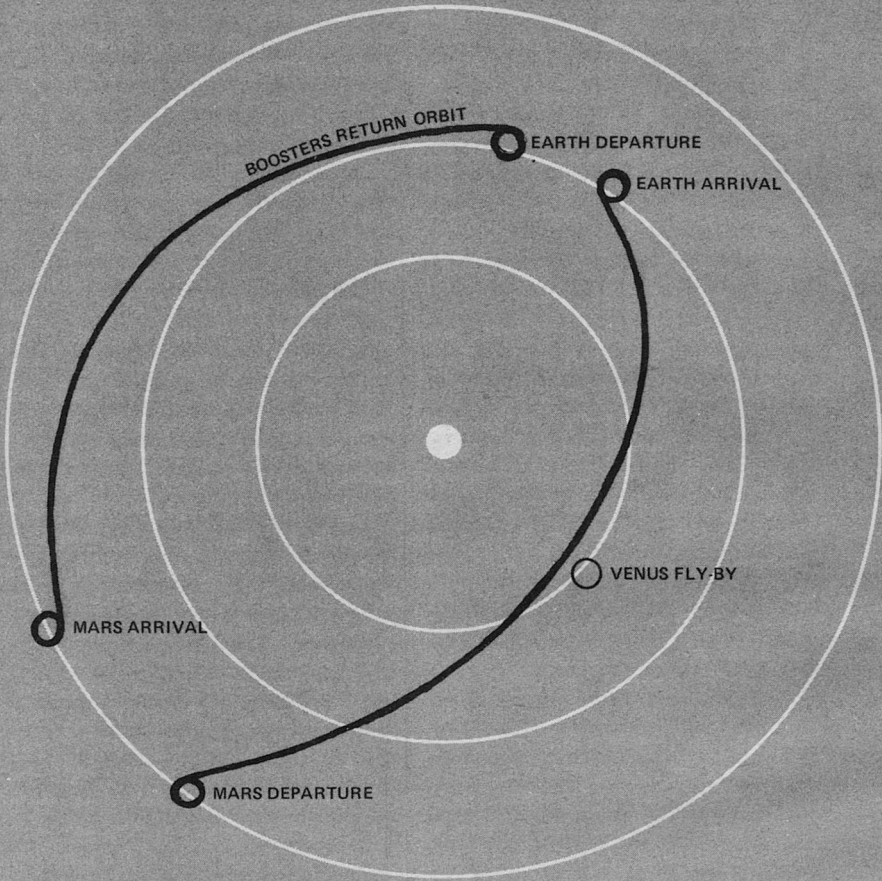
The astronauts will set up camp for forty days in living quarters provided aboard the descent stage. The men will also have a small roving vehicle much like those planned for use on the Moon. With it they can explore the terrain to a range of thirty miles. At the end of the stay the ascent stage will serve as a launch pad as the astronauts return to their mother ship with samples of Mars.

The ascent stage will be left behind as the expedition leaves Mars's orbit and heads sunward. About midway in the 300-day return flight could come a Venus fly-by. As they coast past that cloud-covered planet the astronauts will probe it with remote sensors, cameras, infrared, microwaves and so forth. They will also launch two unmanned probes to collect samples from Venus.

Upon return to Earth the two spacecraft will use their remaining fuel to go into Earth orbit as near the space station as possible. If any quarantine period is needed, the astronauts can spend it aboard the space station; if not, an Earth orbital shuttle will take them back to Earth. This shuttle will be either a winged craft, or a lifting body, used for regularly scheduled repeat flight between Earth and orbit.

The last astronaut to leave each of the interplanetary spacecraft, undoubtedly the commander, will power down the ship shutting off all equipment. The ships will then remain stored in space awaiting the next interplanetary flight. If the first visit is made in 1983, return visits will be made in 1986 and 1988. In 1988 some of the astronauts may stay behind on Mars to establish a base.

One major problem to be solved in the design of the Mission Module is whether or not astronauts can survive months of weightlessness. Serious doubt has been cast on this matter by the death of the astromonk Bonnie after eight days—out of a planned thirty days—in orbit aboard Biosatellite 3.



MANNED MARS LANDING MISSION

Weightlessness was cited as the cause of Bonnie's fatal illness and it was pointed out that eight days for the monkey were the same as thirty days would be for a human. However, Bonnie was completely immobilized whereas an astronaut, naturally, would be free to move around and exercise. Also the temperature in Biosatellite 3 was only 69°, instead of the planned 75°, quite chilly for the tropical monkey.

There is also a psychological difference between monkey and man. To Bonnie the space flight must have been a strange and uncomfortable experience which the animal could not cope with, or understand. This would plainly create anxiety.

The astronaut, however, would realize that he was on a mission to explore space and advance science—his life's work. Also, months of training would have prepared the astronaut to deal with any foreseeable emergency, and even a few unforeseen ones.

Clearly, more studies of weightlessness are needed before astronauts are committed to interplanetary flight. A start along this line will come with the Apollo Orbital Workshop scheduled for launching in 1972. On the first mission the Workshop will be used for twenty-eight days and on later flights the time will be extended to fifty-six days.

Although this is less than a tenth the time required for a manned Mars flight it could be enough. If serious problems begin to develop in this short a time, there will be no need to try longer stays in zero gravity. However, if no difficulties are encountered other space stations can increase man's exposure to weightlessness until the limit is reached.

If weightlessness does prove to be a hazard to man, a sensation of gravity can be created by turning the Mission Module into a huge centrifuge. The spinning would push the astronauts, and everything else, against the outside walls of the spacecraft.

Besides creating the physiological and psychological feeling of gravity, this spin would make possible the use of conventional equipment like that used on Earth. For example, the astronauts could drink from glasses instead of using plastic bags. Mass-produced conventional equipment would be cheaper than that made especially for space.

The simplest way to create the feeling of gravity would be to spin the entire spacecraft. However, this would mean a waste of rocket fuel spinning sections of the craft where no gravity was needed. Also the spin would have to be stopped for every time the main propulsion rockets fired, and started over afterward. This would use still more fuel.

A less extravagant method would be to spin only the Mission Module. If the rotation is kept at right angles to the thrust of the main rockets, it need not be stopped when they are fired—especially if the acceleration is kept gentle. The Mission Module

would spin around a hollow axle which would provide access to the non-spinning parts of the ship and to the outside. Even with the best lubrication friction might tend to slow the rotating section so an occasional push from the spin rockets would be needed.

A full Earth gravity may not be needed to overcome any ill effects of weightlessness. For instance, after a few minutes of familiarization our astronauts have found the Moon's one sixth gravity far easier to work in than the zero gravity of space.

The long-term effects of low gravity will be tested during longer and longer periods of lunar exploration. The stay time will be increased to a few days by the end of the Apollo program. Further exploration will increase the time to weeks then months, and eventually a permanent base may be established on the Moon.

In 1958 Ellwyn E. Angle, a research scientist in space physics, designed a space station which turned out to be just the right size to be launched by a modified Saturn V. This station could also serve as the Mars Mission Module. It is eighty feet long and thirty-six feet wide. This is three feet wider than the second stage of the Saturn V so a special widened third-stage with an adapter on top would be needed.

The station would rotate around its longitudinal axis—like a barrel rolling down a hill—at two revolutions per minute (RPM). This would give the sensation of about 25% Earth's gravity on the floor farthest from the axis of the station. On the second floor, about ten feet farther in, the gravity would be about 12.5% of Earth's gravity.

Tests on Earth have shown that two RPM is well within the limits of man's tolerances, at least for short periods. Once again, tests will have to be run in Earth orbit.

A barrel-shaped Mission Module would also provide shelter against radiation from solar flares. When warning is received of such a flare the crew could take refuge in the axle of the spacecraft. There the three floors between the astronauts

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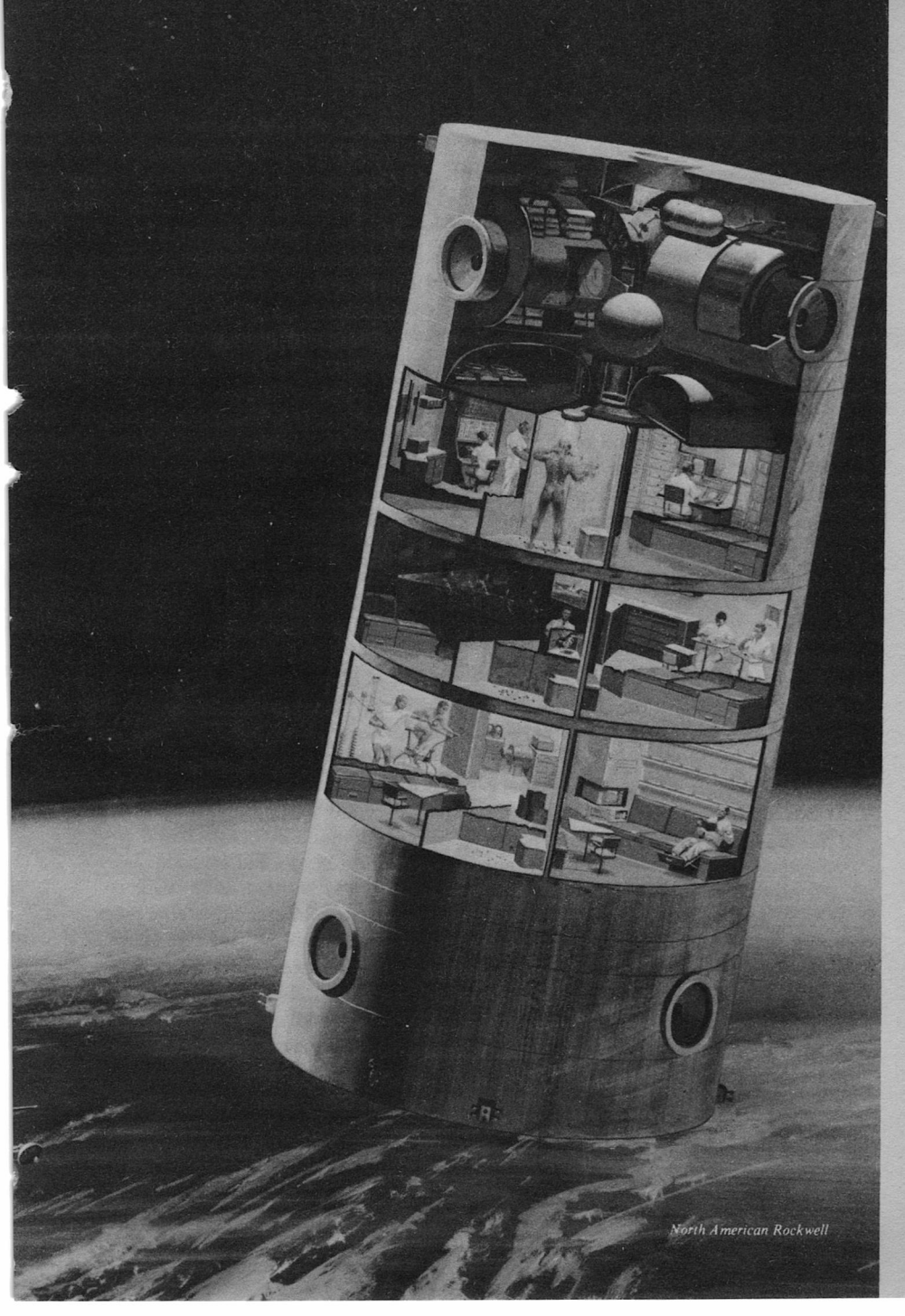
Orbital Station. Apollo spacecraft, right, flies in to dock with orbiting 12-man space station. Major components of station are core module, right, which would be outfitted for crewmen and scientific experiments; winglike solar panels to provide power for station from sun; connecting boom, and Saturn second (S-11) rocket stage. Stage would be part of launch vehicle and also a counterweight for rotating station to create artificial gravity of ½-G. Apollo command and service module spacecraft is being considered as early logistic supply craft for space station. If the aft section were a nuclear rocket, this station could serve as a manned interplanetary spacecraft. Two more nuclear rockets would push it off toward Mars and Venus.


North American Rockwell

and the outside would provide shielding against the solar storm.

During the flight out to Mars observatories on Earth and the Moon could keep watch for solar flares. However, on the swing past Venus the astronauts of the Mars expedition would have to keep their own watch on the Sun. In the process they would gain a lot of valuable scientific information about solar phenomena.

If the rotating section of the Mission Module were shaped like a wheel, or the spokes of a wheel as in most designs, the sensation of gravity would drop off less sharply. Such a structure, however, would call for more elaborate construction in space.

Another problem on interplanetary flights is providing life support for many months in space. This life support system will bear only a slight resemblance to the one presently used on the Apollo spacecraft. For one thing pure oxygen will not be used. Physicians fear that exposure to pure oxygen for a month or more will be hazardous to health. Accordingly, NASA plans to switch to a two-gas atmosphere of 69% oxygen and 31% nitrogen at about five pounds per square inch.

The open-life support system of Apollo, in which wastes are either stored or thrown overboard would be sufficient for the space tug and the Mars Excursion Module. These craft are used for only short periods of time, the tug a matter of hours and the MEM not more than forty days.

A more efficient life support system will be needed, however, for the many months of operation required aboard the Mars Mission Module. An open-life support system on the mission to Mars would require the spacecraft to carry some 80,000 pounds of "consumables," oxygen, water, and food, for life support. What is needed is a closed, or at least partially closed ecology for the spacecraft in which waste matter would be purified and reused. Such a system would cut the weight requirements down to 25,000 sounds for the Mars trip.

Robert L. Wick, M.D., Assistant Director of the Aviation Medical Research Laboratory at Ohio State University, has diagramed a partially closed ecology system which would provide the routine needs of six men on a round trip to Mars, (in "Above and Beyond," volume 8). On the mission planned by NASA three systems would be needed on each ship: one primary system, one backup, and one spare in case all twelve men had to be housed aboard one spacecraft. Special provisions would also be needed for other emergencies.

In this partially closed ecology air from the spacecraft's cabin passes first across a differential permeable membrane where carbon dioxide is separated from the other gases. A fan then blows the carbon dioxide through a greenhouse where green

plants convert it into oxygen and food for the astronauts. The plant generally used for this in similar test systems is Chlorella, a microscopic form of algae. Other plants might also be used for variety in the diet.

After passing over the membrane the rest of the cabin air is pumped through a hydraulic accumulator where it builds up pressure driving down a piston which creates some of the energy to run the system.

The gases are then ejected from the accumulator and mixed with the astronauts's feces and urine. This mixture is then passed through a comminutor where the solid wastes are pulverized. Some fresh oxygen is added to the mixture and the gases are filtered through redwood bark fibers to strain out some of the impurities. The mixture is now cooled in a heat exchanger and flows into a fish tank. Here scavenger fish eat the remaining protein wastes.

With a little chlorine added the astronauts can use this water for drinking. It also supplies nourishment to the green plants. Some of the fish provide fertilizer for the plants and others food for the astronauts. Since scavenger fish include such delicacies as lobsters and snails they can provide quite tasty meals.

In the normal metabolic process man produces a small amount of carbon monoxide. Sealed up for months in the Mars spacecraft this deadly gas could build up enough to slowly poison the astronauts and reduce their efficiency.

This carbon monoxide, and any that might occur from other sources, such as burning the fish dinner, could be removed as the cabin air is passed through the partially closed ecology system. The air would pass through a net of finely divided iron or palladium wires. These would act as a catalyst causing the carbon monoxide to combine with oxygen to form carbon dioxide. The carbon dioxide fed to the green plants would then convert to oxygen.

Other pollutants could also be a problem during the long Mars flight. Fortunately, the two major trouble makers on Earth, internal combustion engines and fossil fuel—coal, gas, and oil—fires won't be along on this trip. All the equipment will be run electrically. However, this equipment could cause an electrostatic discharge creating ozone. Silver film placed in the air circulation system would react with the ozone forming silver peroxide (Ag_2O_2) black.

Fire is another obvious source of pollution. With the extensive use of fireproof and fire-resistant materials now employed in the spacecraft and with the two-gas atmosphere this hazard is reduced. However, a small fire is still possible. It could be put out either by use of a fire extinguisher, or by sealing off the compartment and allowing the fire to smother itself.

In either case there would be an excess amount of carbon dioxide left after the fire. This could be absorbed

by lithium hydroxide as it is now on the Apollo spacecraft. Some extra supplies of air, water, and food should be carried to make up any losses during such accidents and through any leakage out of the ship.

Of course, this partially closed ecology and all its emergency procedures must be tested over many months of operation before the Mars expedition is begun. Some of the tests can be run on Earth but most will have to be run in space. For instance the effects of weightlessness on the plants and fish must be tested. How much shielding from solar radiation they need must also be determined. If the plants can be exposed to sunlight, they must be tested under the varying intensities of sunlight from the orbit of Mars to the orbit of Venus. If this variation is too much for the plants, artificial light will have to be used.

Another problem is what effect removing an organism far from Earth for a long period of time will have on the biological clock that governs its circadian—about 24-hour—rhythms. This could affect all the living things aboard the spacecraft—including the astronauts.

Some biologists think the circadian rhythms function independently of forces on Earth. Others think they are governed by some forces, such as the magnetic field or cosmic rays, which can't be completely screened out of the laboratory. Only flight in space will settle this question.

So far no problems seem to have developed, at least for astronauts. This could be because man is able to govern his activities by the clock.

One thing that will make the lives of the Mars explorers a little easier is the atmosphere of that planet. Although it is far too thin—about the pressure of Earth's atmosphere at 100,000 to 150,000 feet elevation—for the astronauts to go without pressure suits, it does offer some protection against solar radiation and meteorites. It also provides an insulation against extremes of temperature. On Mars temperatures range from a high of 70° F. during the day to a −95° F. at night—much more comfortable than the Moon. Probably a spacesuit similar to that used for extravehicular activity in orbit with a backpack life support system will be sufficient on the surface of Mars.

Mars also has an ionosphere which the astronauts may use to reflect radio signals, as we do on Earth, when their explorations carry them beyond the horizon.

We are now in the same position with respect to manned interplanetary flight that we were with respect to manned orbital flight when Project Mercury began. We know the path to Mars, the kind of power we need, and how long the trip will take—but here is where our problems begin. Both men and machines must be prepared to spend many months out where Earth is only a blue-green point of light among the stars. ■

Company Planet

Telzey was generally competent enough to take care of herself—
and her enemies for that matter!
But this time she was up against a very stacked deck indeed!

JAMES H. SCHMITZ
ILLUSTRATED BY KELLY FREAS

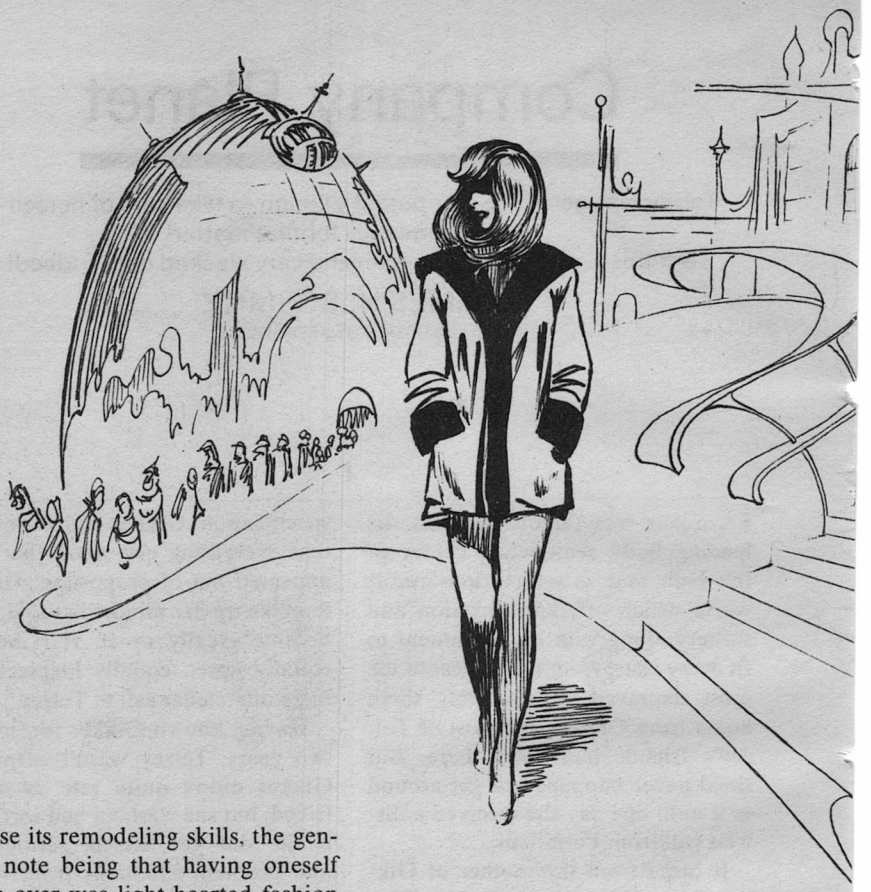
I

Fermilaur was famous both as the leading body remodeling center of the Hub and as a luxurious resort world which offered relaxation and scenery along with entertainment to fit every taste, from the loftiest to the most depraved. It was only three hours from Orado, and most of Telzey's friends had been there. But she'd never happened to get around to it until one day she received a distress call from Fermilaur.

It came from the mother of Gikkes Orm. Telzey learned that Gikkes, endowed by nature with a pair of perfectly sound and handsome legs, had decided those limbs needed to be lengthened and reshaped by Fermilaur's eminent cosmetic surgeons if she were ever to find true happiness. Her parents, who, in Telzey's opinion, had even less good sense than Gikkes, had let her go ahead with it, and her mother had accompanied her to Fermilaur. With the legs remodeled according to specification, Gikkes had discovered that everything else about her now appeared out of proportion. Unable to make up her mind what to do, she became greatly upset. Her mother, equally upset, equally helpless, put in an interstellar call to Telzey.

Having known Gikkes for around two years, Telzey wasn't surprised. Gikkes didn't quite rate as a full friend, but she wasn't a bad sort even if she did get herself periodically into problem situations from which somebody else had to extricate her. Telzey decided she wouldn't mind doing it again. While about it, she should have time for a look at a few of Fermilaur's unique restructuring institutions and other attractions.

Somewhat past the middle of the night for that locality, she checked in at a tourist tower not far from the cosmetic center where the Orms were housed. She'd heard that Fermilaur used resort personnel to ad-



vertise its remodeling skills, the general note being that having oneself done over was light-hearted fashion fun and that there was nothing to worry about because almost any cosmetic modification could be reversed if the client wished it. The staff of the tower's reception lobby confirmed the report. They were works of art, testimonials to the daring inventiveness of Fermilaur's beauty surgeons. Telzey's room reservation was checked by a slender goddess with green-velvet skin, slanted golden eyes without detectable pupils, and a shaped scalp crest of soft golden feathers which shifted dancingly with each head motion. She smiled at Telzey, said, "May I suggest the services of a guide, Miss Amberdon?"

Telzey nodded. "Yes, I'll want one." There were no cities, no townships here. The permanent population was small, mostly involved with the tourist trade and cosmetic institutions, and its maintenance sys-

tems were underground, out of sight. Much of the surface had been transformed into an endlessly flowing series of parks in which residential towers and resort and remodeling centers stood in scenic isolation. Traffic was by air, and inexperienced visitors who didn't prefer to drift about, more or less at random, were advised to employ guides.

The goddess beckoned to somebody behind Telzey's back.

"Uspurul is an accredited COS Services guide and thoroughly familiar with our quadrant," she informed Telzey. "I'm sure you'll find her very satisfactory."

Uspurul was a quite small person, some four inches shorter than Telzey, slender in proportion. Like the receptionist, she looked like something COS Services might have conjured up out of exotic mythologies. Her pointed ears were as expressively mobile as a terrier's; a silver horse's tail swished about with languid grace behind her. The triangular face with its huge dark eyes and small delicate nose was unquestionably beautiful but wasn't human. It wasn't intended to be. She might have been a charming toy, brought to life.

Which was all very well, as far as Telzey was concerned. More important seemed a shadowy swirl of feeling she'd sensed as Uspurul came up to the reception desk—a feeling which didn't match in the least the engaging friendliness of the toy woman's smile. It wasn't exactly malice. More something like calculating cold interest, rather predatory. Telzey took note of nuances in the brief conversation that followed, decided the two were, in fact, more anxious to make sure she'd employ Uspurul as guide than one should expect.

Somewhere else, that could have been a danger signal. A sixteen-year-old with a wealthy family made a tempting target for the criminally inclined. The resort world, however, had the reputation of being almost free of professional crime. And, in any case, it shouldn't be difficult to find out what this was about—she'd discovered during the talk that Uspurul's mind appeared to be wide open to telepathic probing.

"Why not have breakfast with me in my room tomorrow?" she said to the guide. "We can set up a schedule then." And she could ferret out at her leisure the nature of the interest the remodeled myths seemed to take in her.

They settled on the time, and Telzey was escorted to her room. She put in a call to Mrs. Orm from there, learned that Gikkes would be in treatment at the main center of Hute Beauticians during the early part of the morning and was anxious to see Telzey and get her opinion of the situation immediately afterwards. Mrs. Orm, having succeeded in transferring the responsibility for decisions to somebody else, appeared much less distraught.

Telzey opened one of her suitcases, got out a traveler's lock and attached it to the door of the room, which, in effect, welded the door to the adjoining wall. The only thing anyone trying to get in without her cooperation could accomplish was to wake up half the tower level. She continued unpacking reflectively.

Fermilaur didn't have a planetary government in the usual sense. It was the leasehold of COS, the association of cosmetologists which ran the planet. Its citizen-owners, set up in a tax-free luxury resort and getting paid for it, had reason to be happy with the arrangement, and could have few inducements to dabble in crime. The Hub's underworld reputedly had its own dealings with COS—bodies, of course, could be restructured for assorted illegal purposes. But the underworld didn't try to introduce its usual practices here. COS never denied reports that criminal pros found attempting to set up shop on the leasehold vanished into its experimental centers. Apparently, not many cared to test the validity of the reports.

Hence, no crime, or almost no crime. And crime of the ordinary sort hardly could be involved in the situation. The receptionist and the elfin guide never had seen her before. But they did seem to have recognized her by name, to have been waiting, in fact, for her to show up.

Telzey sat down on the edge of the bed.

The two were COS employees. If anyone had an interest in her here, it should be COS.

The tower reservation had been made in her name five hours ago on Orado. Five hours would be enough time for a good information service to provide inquirers with the general background of the average Federation citizen. Quite probably, COS had its own service and obtained such information on every first-time visitor to Fermilaur. It could be useful in a variety of ways.

The question was what might look interesting enough in her background to draw COS's attention to her. It wasn't that the Amberdon family had money. Almost everybody who came here would meet that qualification. There were, Telzey decided, chewing meditatively on her lower lip, only two possible points of interest she could think of at the moment. And both looked a little improbable.

Her mother was a member of the Overgovernment. Conceivably, that could be of significance to COS. At present, it was difficult to see why it should be.

The other possibility seemed even more remote. Information services had yet to dig up the fact that Telzey Amberdon was a telepath, a mind reader, a psi, competent and practicing. She knew that, because if they ever did dig it up, she'd be the first to hear. She had herself supplied regularly with any datum added to her availabe dossiers. Of the people who were aware she was a psi, only a

very few could be regarded as not being completely dependable. Unfortunately, there were those few. It was possible, though barely so, that the item somehow had got into COS's files.

She could have a problem then. The kind of people who ran COS had to be practical and hardheaded. Hardheaded, practical people, luckily, were inclined to consider stories about psis to be at least ninety-nine percent superstitious nonsense. However, the ones who didn't share that belief sometimes reacted undesirably. They might reflect that a real psi, competent, practicing, could be eminently useful to them.

Or they might decide such a psi was too dangerous to have around.

She'd walk rather warily tomorrow until she made out what was going on here! One thing, though, seemed reasonably certain—COS, whatever ideas it might have, wasn't going to try to break through the door to get at her tonight. She could use a few hours of rest.

She climbed into bed, turned over and settled down. A minute or two later, she was asleep.

II

After breakfast, Telzey set off with Uspurul on a leisurely aircar tour of the area. She'd explained she'd be visiting an acquaintance undergoing treatment at Hute Beauticians later on, and then have lunch with another friend who'd come out from Orado with her. In the afternoon, she might get down finally to serious sightseeing.

With Uspurul handling the car and gossiping merrily away, Telzey could give her attention to opening connections to the guide's mind. As she'd judged, it was an easy mind to enter, unprotected and insensitive to telepathic probing. One fact was promptly established then, since it was pervasively present in Uspurul's thoughts. COS did, in fact, take a special interest in Telzey, but it wasn't limited to her. She had plenty of company.

The reason for the interest wasn't apparent. Uspurul hadn't wanted to know about it, hardly thought of it. The little female was a complex personality. She was twenty-two, had become a bondswoman four years earlier, selling her first contract to COS Services for the standard five-year short-term period. People who adopted bondservant status did it for a wide range of reasons. Uspurul's was that a profitable career could be built on bond contracts by one who went about it intelligently.

She'd chosen her masters after careful deliberation. On a world which sold luxury, those who served also lived in relative luxury, and as a COS guide she was in contact with influential and wealthy people who might be used for her further advancement. Her next contract owner wouldn't be COS. She was circumspect in her behavior.

More was done on Fermilaur than

cultivating an exclusive tourist trade and cosmetic clientele, and it wasn't advisable to appear inquisitive about the other things. COS didn't mind rumors about various barely legal, or quite illegal, activities in which it supposedly engaged; they titillated public interest and were good for business. But underlings who became too knowledgeable about such obscure matters could find it difficult to quit.

Uspurul intended to remain free to quit when her contract period ended. For the past year, she'd been on the fringes of something obscure enough. It had brought her a string of satisfactory bonuses, and there was nothing obviously illegal about what she did, or COS Services did. As long as she avoided any indication of curiosity it seemed safe.

She still acted as guide. But she was assigned now only to female tourists who appeared to have no interest in making use of the remodeling facilities. Uspurul's assignment was to get them to change their minds without being obvious about it. She was skillful at that, usually succeeded. On a number of occasions when she hadn't succeeded, she'd been instructed to make sure the person in question would be at a certain place at a certain time. She'd almost always been able to arrange it.

Now she was using the morning's comfortable schedule to keep up a flow of the light general chatter through which she could most readily plant the right notions in a hesitant visitor's mind.

"I was thinking I might have a little remodeling myself while I was here," Telzey remarked, by and by. She took out a small mirror, looked into it critically, arching her brows. "Nothing very important really! But I could have my brows moved higher, maybe get the eyes enlarged." She clicked the mirror to an angle view, pushed back her hair on the left side. "And the ears, you see, could be set a little lower—and the least bit farther back." She studied the ear a moment. "What do you think of their shape?"

"Oh, I wouldn't have them change the *shape!*" "Uspurul said, thinking cheerfully about another easy bonus. "But they might be a tiny bit lower. You're right about that."

Telzey nodded, put the mirror away. "Well, no rush about it. I'll be looking around a few days first."

"Someone like you doesn't really need remodeling, of course," Uspurul said. "But it is fun having yourself turned into exactly what you'd like to be! And, of course, it's always reversible."

"Hm-m-m," said Telzey. "They did a beautiful job on you. Did you pick it out for yourself?"

Uspurul twitched an ear, grinned impishly.

"I've wanted to do *that* since I was a child!" she confessed. "But, no—this was COS Services' idea. I advertise for the centers, you see. A twenty-two thousand credit job, if I

had to pay for it. It'd be a little extreme for the Hub generally, of course. But it's reversible, and when I leave they'll give me any other modification I want within a four-thousand credit range. That's part of my contract."

She burbled on. Telzey didn't have the slightest intention of getting remodeled, but she wanted Uspurul and COS Services to think she did until she was ready to ship out. It would keep the situation more relaxed.

It remained a curious situation. The people to whom Uspurul reported were satisfied if a visitor signed up for any kind of remodeling at all, even the most insignificant of modifications. That hardly looked like a simple matter of drumming up new business for the centers, while the special attention given some of those who remained disinterested was downright on the sinister side. The places to which Uspurul steered such tourists were always resort spots where there were a good many other people around, coming and going—places, in other words, where somebody could easily brush close by the tourist without attracting attention.

What happened there? Something perhaps in the nature of a hypno spray? Uspurul never saw what happened and didn't try to. When she parted company with the tourist that day, there'd been no noticeable effects. But next day she'd be given a different assignment.

Of course, those people weren't disappearing. It wasn't *that* kind of situation. They weren't, by and large, the kind of people who could be made to vanish quietly. Presumably they'd been persuaded by some not too legal method to make a remodeling appointment, and afterwards went on home like Uspurul's other clients. They might all go home conditioned to keep returning to Fermilaur for more extensive and expensive treatments; at the moment, that seemed the most probable explanation. But whatever the COS Services' operation was, Telzey reflected, she'd simply make sure she didn't get included in it. With Uspurul's mind open to her, that shouldn't be too difficult. Back on Orado then, she'd bring the matter to the attention of Federation authorities. Meanwhile she might run across a few other open minds around here who could tell her more than Uspurul knew.

The man she was meeting for lunch—a relative on her mother's side—was an investigative reporter for one of the newscast systems. Keth had his sharp nose into many matters, and exposing rackets was one of his specialties. He might be able to say what this was about, but the difficulty would be to explain how she'd come by her information without mentioning telepathy. Keth didn't know she was a psi. Nor could she do her kind of mental research on him—she'd discovered on another occasion that he was equipped with a

good solid commercial mind shield. Keth doubted that anyone could really see what was in another person's mind, but he took precautions anyway.

The remodeling counselors at the Hute Beauticians center had told Gikkes Orm quite candidly that if she was to be equipped with the leg type she wanted, overall body modifications were indicated to maintain an aesthetic balance. Gikkes hadn't believed it. But now the cosmetic surgeons had given her a pair of long, exquisitely molded legs, and it seemed the counselors were right.

The rest of her didn't fit.

"Just look at those shoulders!" she cried, indicating one of two life-sized models which stood against the far wall of the room. They showed suggested sets of physical modifications which might be performed on Gikkes. "I love the legs! But—"

"Well, you might be a little, uh, statuesque," Telzey acknowledged. She studied the other model. Sinuous was the word for that one—a dancer's body. "But, Gikkes, you'd look great either way, really! Especially as the slinky character!"

"It wouldn't be *me!*" Gikkes wailed. "And how much work do you think I'd have to put in to *stay* slinky then? You know I'm not the athletic type."

"No, I guess you're not," Telzey said. "When did you first get the idea that you wanted your legs changed?"

It appeared Gikkes had been playing around with the notion for several years, but it was only quite recently that it had begun to seem vital to her. It was her own idea, however—not an obsession planted on a previous trip to Fermilaur. Telzey had been wondering about that. The solution shouldn't be too difficult. Off and on for some while, Telzey had made use of suitable occasions to nudge Gikkes in the general direction of rationality. It had to be done with care because Gikkes wasn't too stable. But she had basic intelligence and, with some unnoticed guidance, was really able to handle most of her problems herself and benefit from doing it. Telzey picked up the familiar overall mind patterns now, eased a probe into the unhappy thought muddle of the moment, and presently began her nudging. Gikkes went on talking.

Twenty minutes later, she said ruefully, ". . . So I guess the whole remodeling idea was a silly mistake! The thing to do, of course, is to have them put me back exactly as I was."

"From all you've told me," Telzey agreed, "that does make sense."

Mrs. Orm was surprised but relieved when informed of her daughter's decision. The Hute staff wasn't surprised. Remodeling shock and reversal requests weren't infrequent. In this case, reversal was no problem. Gikkes's experiment in surgical cosmetology probably had reduced her life expectancy by an insignificant fraction, and the Orm family was out

a good deal of money, which it could afford. Otherwise, things would be as before.

A level of the Hute center restaurant was on Keth Deboll's private club circuit, which in itself guaranteed gourmet food. It was a quietly formal place where the employees weren't trying to look like anything but people. Keth's bony inquisitive face, familiar to newsviewers over a large section of the Hub, presumably didn't go unrecognized here, but nobody turned to stare. He deliberated over the menu, sandy brows lifting in abrupt interest now and then, ordered for both of them, rubbed his palms together.

"You'll like it," he promised.

She always did like what Keth selected, but this time she barely tasted what she put in her mouth, chewed and swallowed. He'd mentioned that top COS executives patronized the place, and that he rather expected to be meeting someone before lunch was over.

She'd been wondering how she could get close enough to some top COS executive to start tapping his mind . . .

She was sliding out discreet probes before Keth had placed his order. After the food came, only a fraction of awareness remained in her physical surroundings. Keth would eat in leisurely silent absorption until the edge was off his appetite, and she might have her contact made by that time.

Several minds in the vicinity presently seemed as open to contact as Uspurul's. None of them happened to be a COS executive. Something else was in the vicinity—seven or eight mind shields. Unusual concentration of the gadgets! Her probes slipped over them, moved on, searching—

"You might get the opportunity," Keth's voice was saying. "Here comes a gentleman who could arrange it for you."

Awareness flowed swiftly back to the outer world as she reoriented herself between one moment and the next. Keth had reached the point where he didn't mind talking again, had asked . . . what? Ah, yes, had asked that she was hoping to get a look at some of Fermilaur's less publicized projects. Who could arrange it?

She looked around. A handsome, tall, strong-faced man was coming toward their table. On his right shoulder perched a small creature with blue and white fur, adorned with strings of tiny sparkling jewels. The man's dark eyes rested on Telzey as he approached. He nodded to her, smiled pleasantly, looked at Keth.

"Am I intruding?" It was a deep, soft-toned voice.

"Not at all," Keth told him. "We're almost finished—and I'd intended trying to get in touch with you during the afternoon. Telzey, this is Chan Osselin who handles publicity for COS and incidentally

owns Hute Beauticians . . . Telzey Amberdon, an old friend. We came out from Orado together. If you have the time, join us."

Osselin drew a chair around and sat down. His scalp hair was short, deep black, like soft animal fur. Telzey wondered whether it was a product of remodeling, felt rather certain then that it wasn't. The small animal on his shoulder stared at Telzey out of large pale eyes, yawned and scratched a rounded ear with a tiny clawed finger. The stringed jewels decorating it flashed flickering rainbows of fire.

"I heard of your arrival a few hours ago," Osselin said. "Here on Adacee business?"

Keth shrugged. "Always on Adacee business."

"Something specific?"

"Not so far. Something new, unpublicized, sensational."

Osselin looked reflective. "Sensational in what way?"

"Questionable legality wouldn't have to be part of it," Keth said. "But it would help. Something with shock effect. None of your pretty things."

"So COS is to be exposed again?" Osselin seemed unruffled.

"With some new angle," said Keth. "On some new issue."

"Well," Osselin said, "I'm sure it can be arranged—"

Telzey, absently nibbling the last crumbs of her dessert, drew back her attention from what was being said. She'd known Chan Osselin's name as soon as she saw him. She'd seen him before as an image in Uspurul's mind. One of COS's top men. Uspurul wouldn't willingly have brought herself to the attention of someone like Osselin. People of that kind were to be avoided. They had too much power, were too accustomed to using it without hesitation, or scruple.

There was no trace of the dead, psi-deadening, effect of a mind shield about Osselin—

Telzey's psi screens lightened, almost vanished. They were no significant obstacles in ordinary work, but she might have only minutes available here to attempt to draw the information she wanted from Osselin or establish a contact definite enough to be developed at another meeting—assuming she was able to maneuver him into another meeting. Reducing the screens gave her heightened probe sensitivity, might cut the required time in half. She reached toward the deep sound of Osselin's voice, paying no attention to the words, alert for any wash of thought connected with them which could draw her to his mind.

There was no slightest warning. A psi hammer slammed down, partly deflected by the instant reaction of the residual screen defenses, but jolting enough to black out her vision, leave her shaken and stunned.

III

She drew in a slow, cautious

breath. The screens had locked automatically into a tight shield—another assault of that kind would have no significant effect on her. None came. She realized she'd lowered her head in protective reflex. Her hair hid her face, and the voices of the men indicated they weren't aware that anything in particular had happened. Vision began to return. The section of the tabletop before her grew clear, seemed to sway about in short semicircles. A last wave of giddiness and nausea flowed over her and was gone. She'd be all right now. But that had been close—

She kept her face turned away as she reached for her bag. The makeup cassette showed she'd paled, but it wasn't too noticeable. Listening to a thin, angry whistling nearby, she touched herself up, put the cassette away, finally raised her head.

The furry thing on Osselin's shoulder stared at her. Abruptly it produced its whistling sounds again, bobbing up and down. Osselin stroked it with a finger. It closed its eyes and subsided. He smiled at Telzey.

"It gets agitated now and then about strangers," he remarked.

She smiled back. "So it seems. What do you call it?"

"It's a yoli—a pet animal from Askanam. Rare even there, from what I've been told. This one came to me as a gift."

"Supposed to be a sort of living good luck charm, aren't they?" said Keth.

"Something like that. Faithful guardians who protect their masters from evil influences." Osselin's dark eyes crinkled genially at Telzey. "I can't vouch for their effectiveness—but I do seem to remain undisturbed by evil influences! Would you care to accompany us to a few of the specialized labs a little later, Miss Amberdon? You should find them interesting."

Keth was to be shown a few projects COS didn't talk about otherwise, which might give him the kind of story he wanted. They preferred that to having him dig around on Fermilaur on his own. She told Osselin she'd be delighted to go along.

The yoli appeared to be falling asleep, but she sensed its continuing awareness of her now. A psi guard—against psis. Its intelligence seemed on the animal level. She couldn't make out much more about it, and didn't care to risk trying at present. It probably would react as violently to an attempted probe of its own mind as to one of its master's. The reaction couldn't hurt Telzey directly, now she was prepared for it; her shield had absorbed far more massive assaults with no stress. Indirectly, it could have disastrous results.

She probably was already in personal danger. The number of shields she'd touched here suggested some sophistication in psi matters. Ordinarily it wouldn't disturb her much. Mechanical antipsi devices could hamper a telepath but weren't likely to lead to the detection of one who'd

gained some experience, and other telepaths rarely were a problem. The yoli's psi senses, however, had been a new sort of trap; and she'd sprung it. She had to assume that Osselin knew of his pet's special quality and what its behavior just now signified. A man like that wasn't likely to be indifferent to the discovery that someone seemed to have tried to reach his mind. And the yoli had made it clear who the someone was.

If she dropped the matter now, it wasn't likely that Osselin would drop it. And she wouldn't know what he intended to do then until it was too late. She had to continue what she'd started—but very, very carefully. There must be no second slip. The reason he'd invited her along might be that he'd been waiting for another slip to confirm what he suspected.

Some time later, as the tour of the special labs began, there was an attention split. Telzey seemed aware of herself, or of part of herself, detached, a short distance away. That part gazed at the exhibits, smiled and spoke when it should, asked questions about projects, said the right things—a mental device she'd worked out and practiced to mask the sleepy blankness, the temporary unawareness of what was said and done, which could accompany excessive absorption on the psi side. On the psi side, meanwhile, she'd been carrying on a project of her own which had to do with Osselin's yoli.

The yoli was having a curious experience. Shortly after Telzey and Keth rejoined Osselin, it had begun to pick up momentary impressions of another yoli somewhere about. Greatly intrigued because it had been a long time since it last encountered or sensed one of its kind, it started searching mentally for the stranger, broadcasting its species' contact signals.

Presently the signals were being returned, though faintly and intermittently. The yoli's excitement grew. It probed farther and farther for the signals' source, forgetting now the telepath it had punished for trying to touch its master. And along those heedlessly extended tendrils of thought, Telzey reached delicately toward the yoli mind, reached it and melted into it, still unperceived.

It had taken time because she couldn't risk making the creature suspicious again. The rest wasn't too difficult. The yoli's intelligence was about that of a monkey. It had natural defenses against being controlled by another's psi holds, and Telzey didn't try to tamper with those. Its sensory centers were open to her, which was all she needed. Using its own impressions of how another yoli, a most desirable other yoli, would appear to it, she built up an illusion that it was in satisfying communication with such a one and left the image planted firmly in its mind along with a few other befuddling concepts. By that time, the yoli was no longer aware that she existed,

much less of what she was up to.

Then finally she was able to turn her attention again to Osselin. Caution remained required, and she suspected she might be running short of time. But she could make a start.

The aircar floated three thousand feet above foggy valley lands—Fermilaur wilderness, tamed just enough to be safe for the tourist trade. Tongue tip between lips, Telzey blinked at the clouds, pondering a thoroughly ugly situation. There was a sparse dotting of other cars against the sky. One of them was trailing her; she didn't know which. It didn't matter.

She glanced impatiently over at the comm grille. Keth Deboll was in conference somewhere with Osselin. She'd left a message for him at his residential tower to call her car's number as soon as he showed up. She'd left word at her own tower to have calls from him transferred to the car. In one way or the other, she'd be in contact with him presently. Meanwhile she had to wait, and waiting wasn't easy in the circumstances.

Chan Osselin couldn't sense a telepathic probe. Except for that, she might have been defeated and probably soon dead. She'd found him otherwise a difficult mental type to handle. His flow of conscious thoughts formed a natural barrier; it had been like trying to swim against a current which was a little too strong. She kept getting pushed back while Osselin went on thinking whatever he was thinking, unaware of her efforts. She could follow his reflections but hadn't been able to get past them to the inner mind in the time she had available . . . And then she'd been courteously but definitely dismissed. The guided tour was over, and the men had private business to discuss. Shortly after she left them, she'd lost her contact with Osselin.

She'd absorbed a good deal of scattered information by then, could begin fitting it together. As she did, the picture, looking bad enough to start with, got progressively worse—

Normally, even people who accepted that there might be an occasional mind reader around had the impression that telepathy couldn't pick up enough specific and dependable information to be a significant threat to their privacy. That might have been the attitude of the top men in COS up to a year ago. Unfortunately, very unfortunately for her, they'd had a genuine psi scare then. They spotted the spi and killed him, but when they realized how much he'd learned, that they almost hadn't found him out in time, they were shaken. Mind shields and other protective devices were promptly introduced. Osselin hated shields; like many others he found them as uncomfortable as a tight shoe. When an Askab lady provided him with a guard yoli, he'd felt it was safe to do without a shield.

He still felt safe personally. That

wasn't the problem. COS had something going, a really important operation. Telzey had caught worried flashes about it, no more and not enough. The Big Deal was how Osselin thought of it. They couldn't afford the chance of having the Big Deal uncovered. Keth Deboll was a notoriously persistent and successful snoop; a telepathic partner would make him twice as dangerous. The fact that the two had appeared on Fermilaur together might have no connection with the Big Deal, but who could tell? COS was checking on both at present. If they couldn't be cleared, they'd have to be killed. Risky, but it could be arranged. It would be less risky, less suspicious, than carrying out a double mind-wipe and dumping them on some other world, which might have been an alternative in different circumstances.

And that was it! Telzey wet her lips, felt a chill quivering again through her nerves, a sense of death edging into the situation. She didn't see how they could be cleared. Neither did Osselin, but something might turn up which would make it unnecessary to dispose of them. The Amberdon girl's demise, or disappearance, shouldn't cause too much trouble, but Deboll was another matter. Too many people would start wondering whether he hadn't been on the trail of something hot on Fermilaur, what it could be. This would have to be *very* carefully handled! Meanwhile COS was taking no chances. Neither of the two would be allowed to leave the planet or get near an interstellar transmitter. If they made the attempt, they'd get picked up at once. Otherwise, they could remain at large, under surveillance, until the final decision was made. That should turn up any confederate they might have here.

The final decision was still some hours away. How many, Telzey didn't know. Osselin hadn't known it yet. Not very many, in any case . . .

Osselin himself might be the only way out of this. Their information on psis was limited; they thought of her only as a telepath, like the other one, and didn't suspect she could have further abilities which might endanger them. She had that advantage at present. Given enough time, she should be able to get Osselin under control. She'd considered trying to restore mental contact with him at long range, wherever he happened to be. But she wasn't at all certain she could do it, and the yoli made it too risky. Its hallucinations should be self-sustaining for some hours to come if nothing happened to disturb it seriously. She had to avoid disturbing it in resuming contact with Osselin, which meant working with complete precision. A fumble at long range could jolt the creature out of its dreams and into another defensive reaction.

She didn't know what effect that would have on Osselin, but at the

very least it might give him the idea to equip himself with a mind shield as a further safeguard until they'd dealt with the telepath. She'd be stopped then.

She had to be *there,* with Osselin, to be sure of what she was doing. If she got in touch with him and told him she'd like to talk to him privately, he'd probably want to hear what she had to say. But he'd be suspicious, on guard. It would be easier for Keth to find a plausible reason for another meeting, easier if Keth was around to keep some of Osselin's attention away from her . . .

The comm grille burred. She gave a gasp of relief as her hand flicked out to switch it on.

IV

Keth took a little convincing then. He'd set their aircar down on a grassy hillside, and they'd moved off until it was a hundred yards below them. He'd turned on this and that antisnoop device. From eight feet away, their voices were an indistinguishable muddle of sound, their features blurred out.

"We can talk," he'd said.

Telzey talked. He listened, intent blue eyes blinking, face expressionless. Twice he seemed about to interject something, then let her go on. Finally he said, "Telzey, you're obviously not joking, and I don't believe you've suddenly become deranged. Did you ever try to read my mind?"

"Yes, once. Half a year ago. I thought you were up to something and I wanted to find out what it was."

"Oh? What did you find?"

"That you use a mind shield, of course. I didn't waste any more time."

Keth grunted. "All right! You're a telepath. If the situation is what it looks like, we have a problem. The check on me won't tell COS anything. Adacee isn't leakproof, but all they'll learn there is what I told Osselin. I came to Fermilaur to get a good story. Nothing specific. Any story as long as it's good enough. Can they find anything in your background to confirm that you're a mind reader?"

Telzey shrugged, shook her head. "I've been careful. What there was has been pretty well covered up. It's very unlikely they'll find anything. The trouble is Osselin's already pretty well convinced of it—he goes by the yoli's psi sense. And, of course, they can't prove that I'm *not* one."

"No. Not without linking you into a lie-detector system. If they go that far, they'll already have decided to go all the way with us. At any rate, they haven't made up their minds yet. I parted from Osselin on apparently friendly terms. If the verdict's favorable, nothing at all will have happened."

"Unless we try to reach a spaceport," Telzey said. "Or try to get in touch with somebody somewhere else."

"Yes, they wouldn't allow that. And, of course, they can seal off the planet as far as we're concerned. In effect, they own it." Keth considered. "There's a man I might contact here, but that would only pull him into the trouble. How about other, uh, functional telepaths?"

Telzey shook her head.

"Starting cold, it probably would be hours before I located one. We don't have that much time. They mightn't want to help anyway. It could cost them *their* cover."

Keth rubbed his chin. "If it gets to the point of running, a space yacht might get us off."

"COS Services handles the yacht rentals," Telzey reminded him.

"Not what I was thinking of," Keth said. "Plenty of people come here in private yachts. Last year, I got out of a somewhat similar situation that way. It shouldn't be impossible to borrow one, but it probably wouldn't be easy." He reflected. "That Big Deal of COS—the story they think we might be snooping around here for. You got no clue from Osselin what that might be?"

She shook her head. "There's an awful lot of money involved, and there's something illegal about it. They'll protect it, whatever it takes. They think you might have picked up some clues to it somewhere and brought me to Fermilaur to help dig up more. But that's all I can say. Everything else connected with it was too blurred to make out."

"Finance, politics, business—the big money areas," Keth said, watching her. "Nothing about some secret Hub-wide system to gather hot inside information at top levels there."

Telzey stared at him. "Oh, my!" she said after a long moment.

Keth said, "You went white, Telzey. What is it?"

"That guide I had this morning! Uspurul." Telzey put her hand to her mouth. "I was reading *her* mind. There was something odd going on. I didn't think there was any connection, but I wanted to check with Uspurul again to be sure. I tried to get in touch with her an hour ago. COS Services said she was on another assignment, couldn't be reached."

"You don't think she's on another assignment?"

"Uh,uh! No. She didn't know it, but she's connected with their Big Deal! Hot inside information—When they started checking this afternoon on what I've been doing here since I landed, they'd have picked her up to see what a telepath could have got from her."

Keth said, "The kind of lie detector that pushes unconscious material to view . . . So just what did you learn from her?"

Telzey recounted the essentials. Keth nodded slowly. He'd paled somewhat himself.

"That will have tipped the fat into the fire!" he said.

A secret Hub-wide information gathering system on the distaff side was . . .

Wives, mistresses, daughters of the Federation's greats streamed in to Fermilaur. Were tagged on arrival, maneuvered into making a remodeling appointment if that hadn't been their intention.

"Anesthesia, unconsciousness, in-depth interrogation," Keth said. "Anything they know of significance is filed immediately. The ones who can be typed as foolproof COS agents and have sufficiently valuable connections go home under a set of heavy compulsions, go to work. When their work's done, they come back, get debriefed. Leaving no trace of what's happened, in case of subsequent checks. Yes, a big setup! COS's capital investment program should be spectacularly successful!"

Now and then suspicion might turn on an unwitting agent. When it happened, the agent appeared to go into amnesic withdrawal and committed suicide at the first opportunity. It wasn't something the people involved would want to talk about. But there'd been such a case among Keth's acquaintances, and he'd learned of another very similar one, discovered both women had gone through remodeling centers on Fermilaur in recent months. It seemed worth following up. He'd come to Fermilaur to do it.

"I dislike turning my back on a story before it's in the bag," he said. "But I can pick this up at the other end now. We'd better get set to run while we can, Telzey! The decision they'll reach is to do us in. From their viewpoint, there won't be much choice."

"A yacht?" she said.

"Yes. Noticed a few boat parks while I was moving around this morning, and—"

"Keth, how much chance would we have of getting away?"

He hesitated, grimaced.

"It depends. Even odds perhaps, if we act now. Less if we wait."

She shook her head. "We can do better! Chan Osselin's really top man in COS, isn't he?"

Keth looked at her. "Yes. Barrand's president of the association. I've heard Osselin could have the job any time he wants. What he says pretty well goes anyway. Why?"

"You've got to think of some reason to see him again immediately, with me. I need more time to work on him, to really get into his mind."

"What will that do for us?"

"If I get through to him, Osselin will get us off Fermilaur," Telzey said. "He's in a better position to do it than anyone else."

Keth considered her.

"It seems you're something more than a telepath," he remarked.

"They don't know it."

"All right. How much time would you need?"

She shook her head.

"An hour . . . thirty minutes . . . twenty minutes . . . two hours . . . I don't know. It's always different, and Osselin isn't easy. But we'll have much better than even odds there!"

"Well, there's no need to arrange

for a meeting," Keth said. He looked at his watch. "We've got a dinner appointment at Osselin's house two and a half hours from now, our local time. He emphasized that I was to bring my charming young friend along. Two people want to meet us. One's Barrand, the COS president I mentioned. The other's Nelt, vice president and executive officer. They and Osselin are the trio that runs COS. Presumably the decision on what to do about us will be made at that time."

"Yes, probably," Telzey said. "But let's get there early, Keth."

"By about half an hour? I'm sure Osselin won't object. I've thought of further details about the projects he showed me that I'd like to discuss with him." He added as they turned back to the aircar, "But we're not scratching the space yacht idea just yet!"

"We're not?"

"No. COS *might* decide to lower the boom before we have a chance to sit down to dinner this evening. And you see, there're three special yacht types. Racing boats—"

The three yacht types had one thing in common: an identical means of emergency entry. It was designed for use in space but could be operated when the vessel was parked if one knew how. Keth did, though it wasn't general knowledge. "It's quick," he said. "We can do it from the car. Since we haven't spotted the people who are trailing us, they're doing it at a discreet distance. The chances are we'll be inside and going up before they realize what we're thinking about. So let's put in the next hour looking around for yachts like that! If the situation looks favorable, we'll snatch one."

Telzey agreed. Keth was an expert yachtsman.

It appeared, however, that no yachts in that category happened to be in the general area that day. After an hour, Telzey transferred her belongings to the residential tower where Keth was registered. It seemed better not to become separated now. They settled down to wait together until it would be time to go to Osselin's residence.

V

Osselin's yoli was still in timeless communion with the yoli of its dreams but beginning to show indications of uneasiness. The imagery had become static and patchy here and there. Telzey freshened it up. The yoli murmured blissfully, and was lost again.

Since their last meeting, Osselin had added a piece of pertinent equipment to his attire—a psi recorder, disguised as a watch and fastened by a strap to his brawny wrist. Its complex energies registered as a very faint burring along Telzey's nerves. She'd come across that particular type of instrument before. It was expensive, highly touted in deluxe gambling establishments and the like. It did, in fact, indicate any

of the cruder manipulations of psi energy, which had earned it a reputation for reliability. One of its drawbacks was that it announced itself to sufficiently sensitive psis, a point of which the customers weren't aware. And here it was no real threat to Telzey. The psi flows she used in investigative work were well below such a device's registration levels.

Barrand and Nelt had showed up presently, bringing two stunning young women with them. The girls, to Telzey's satisfaction, were gaily talkative creatures. Barrand was short, powerfully built. Nelt was short and wiry. Both had mind shields. Both wore psi recorders of the same type as Osselin's, though theirs weren't in sight. And like Osselin they were waiting for the tactile vibrations from the recorders which would tell them that psi was being used.

So they weren't really sure about her.

She'd split her attention again. Keth knew about that now, knew what to do to alert her if she didn't seem to be behaving in a perfectly normal manner. With suspicious observers on hand, that had seemed an advisable precaution. Keth and the ladies carried most of the conversation—the ladies perhaps putting up unwitting verbal screens for their escorts, as Keth was maintaining one to give Telzey as much freedom for her other activities as possible. Now and then she was aware that the COS chiefs studied her obliquely, somewhat as one might watch a trapped, but not entirely predictable, animal. The psi recorders remained inactive. She made progress along expanding lines with Osselin, sampled a series of dishes with evident appreciation, joined occasionally in the talk—realized dinner was over.

"Of course, I want to see Sorem!" she heard herself say. "But what in the world is a guilt-smeller?"

Nelt's lovely companion made fluttering motions with tapered white hands. "I'll keep my eyes closed until he's gone again!" she said apprehensively. "I looked at him *once* with his helmet off! I had nightmares for a month."

The others laughed. Osselin reached around for the yoli, perched at the moment on the back of his chair. He placed it on his lap. "I'll keep my pet's eyes closed, too, while he's in the room," he said, smiling at Telzey. "It isn't easily frightened, but for some reason it's in deathly fear of Sorem. Guilt-smeller . . . well, Sorem supposedly has the ability to pick anyone with a strong feeling of guilty apprehension out of a group." He shrugged.

"He's unnatural," Nelt's lady told Telzey earnestly. "I don't care what they say—Sorem never was human! He couldn't have been."

"I might let him know your opinion of him," Barrand rumbled.

The girl paled in genuine fright. "Don't! I don't want him to notice me at all."

Barrand grinned. "You're in no

danger—unless, of course, you have something to hide."

"Everybody has *something* to hide!" she protested. "I—" She broke off.

Faces turned to Telzey's right. Sorem, summoned unnoticed by Barrand, had come into the room. She looked around.

Sorem wore black uniform trousers and boots; a gun was fastened to his belt. The upper torso was that of a powerful man, narrow at the waist, wide in the shoulders, with massively muscled arms and chest. It was naked, hairless, a lusterless solid black, looking like sculptured rock. The head was completely enclosed by a large snouted helmet without visible eye slits.

This figure came walking toward the table, helmet already turning slowly in Telzey's direction. In Osselin's mind, she had looked at the head inside the helmet. Black and hairless like the body, the head of an animal, of a huge dog, yellow-eyed and savage. Barrand's bodyguard—a man who'd liked the idea of becoming a shape of fear enough to undergo considerable risks in having himself transformed into one. The great animal jaws were quite functional. Sorem was a triumph of the restructuring artists' skills.

The recorders had indicated no stir of psi throughout dinner. But they thought that perhaps she simply was being cautious now. Sorem was to frighten her, throw her off guard, jolt her into some revealing psi response. So she would show fear—which mightn't be too difficult. Sorem's mind was equipped with a shield like his employer's, but a brutish mirth and cruelty washed through it as he made it plain his attention was on her. Telzey glanced quickly, nervously, around the table, looked back at him. Keth's face was intent; he didn't know what would happen, whether it wasn't their executioner who had been called into the room. Sorem came up, steps slowing, a stalking beast. Telzey stopped breathing, went motionless, staring up at him. Abruptly, the helmet was swept away; the dog head appeared, snarling jaws half open. The eyes glared into Telzey's.

The yoli squealed desperately, struggling under Osselin's hand.

There were violent surges of psi energy then. The yoli wasn't fully aware of what was happening, but a nightmare shape had loomed up in its dreams, and it wanted to get away. Telzey couldn't afford to let it wake up now, and didn't. The three psi recorders remained active for perhaps forty-five seconds. Then she'd wiped the fright impressions from the yoli's mind, made it forget why it had been frightened . . .

"It must have recognized your creature by his scent," Osselin was saying. "I had its eyes covered."

He stroked the yoli's furry head. It still whimpered faintly but was becoming reabsorbed by its fantasies. Sorem had turned away, was striding

out of the room. Telzey watched him go, aware of Barrand's and Nelt's speculating eyes on her.

"If I'd been able to breathe," she gasped suddenly, "I'd have made more noise than that little animal!"

The beautiful COS dolls tried to smile at her.

"Their recorders couldn't distinguish whether those psi jolts came from the yoli or from me," Telzey said. "And with the racket the yoli was making, it really was more likely it was doing it."

"So the final decision still is being postponed?" Keth said.

"Only on how to go about it, of course. The other two want to know whether I'm a psi or not, what we've learned, whether we were after the Big Deal in the first place. Osselin thinks that's no longer so important. He wants to get rid of us in a way that's safe, and take his chances on everything else. He's giving Barrand and Nelt a few more hours to come up with a good enough reason against his plan—but that's the way it's to be."

Keth shook his head. "He thinks that?"

"Yes, he thinks that."

"And at the same time he's to make sure that it's *not* the way it's to be? Isn't he aware of the contradiction?

"He's controlled," Telzey said. "He's aware of what I let him be aware. It just doesn't occur to him that there is a contradiction. I really don't know how else to explain that."

"Perhaps I get the idea," Keth said.

They were in Osselin's house. Barrand and Nelt and their retinue had left shortly after the incident with Sorem and the yoli, having plans for the evening. Osselin had asked Keth and Telzey to stay on for a while.

The difference of opinion among the COS chiefs was based on the fact that Osselin was less willing to risk a subsequent investigation than his colleagues. The forcing lie detector probes Barrand and Nelt wanted would involve traceable drugs or telltale physical damage if the subjects turned out to be as intractable as he suspected these subjects might be. A gentle anesthesia quiz wasn't likely to accomplish much here. It would be necessary to get rid of the bodies afterwards. And the abrupt disappearance of Keth Deboll and a companion on Fermilaur would lead to rather stringent investigations even as a stage accident. Osselin intended to have them killed in a manner which could leave no doubt about the accidental manner of their death. A tragic disaster.

"What kind of disaster?" Keth asked.

"He's got engineers working on that, and it's probably already set up," Telzey said. "We'll be seen walking in good health into the ground level of our tower. Depending on the time we get there, there'll be fifty to a hundred other people around. There's an eruption of gas—

equipment failure. A moment later, we're all dead together. Automatic safeguards confine the gas to that level until it can be handled, so nobody else gets hurt."

Keth grunted. "Considerate of him."

Objectively considered, it was a sound plan. The tourist tower was full of important people; various top-level cliques congregated there. There'd be then a substantial sprinkling of important victims on the ground level. Even if sabotage were suspected, nothing would suggest that Keth and Telzey had been its specific targets.

On a subterranean level of Osselin's house was a vault area, and he was in it now. They hadn't accompanied him because anyone else's body pattern would bring the vault defenses into violent action. Telzey remained in mental contact; she hadn't quite finished her work on Osselin, though there wasn't much left to do. He was sewed up as tightly as she'd ever sewed anyone up. But he remained a tough-minded individual, and she wanted to take no chances whatever tonight. Things seemed under control and moving smoothly. But she wouldn't breathe easily again until Fermilaur vanished in space behind them.

In one respect, things had gone better than they'd had any reason to expect. "Will you settle for a complete file on the Big Deal?" she'd asked Keth. "The whole inside information gathering program? The file goes back almost three years, which was when it started. Names, dates, the information they got, what they did with it—"

Osselin kept duplicate copies of the file in the vault. She'd told him to bring up one copy for Keth and forget he'd had that copy then. After that, it would be a question of getting off Fermilaur—not too easy even with Osselin's cooperation. He couldn't simply escort them to a spaceport and see that they were let through. They were under COS sur-

veillance, would be trailed again when they left the house. COS police waited at the ports. If anything began to look at all suspicious, Barrand and Nelt would hear about it at once, and act at once.

Osselin obviously was the one best qualified to find a way out of the problem, and Telzey had instructed him to work on it. He came back up from the vault presently, laid two small objects on a table, said matter-of-factly, "I have some calls to make on the other matter," and left the room again.

Keth shook his head. "He seems so normal!"

"Of course, he seems normal," Telzey said. "He feels normal. We don't want anybody to start wondering about him."

"And this is the COS file?" Keth had moved over to the table.

"That's it."

The objects were a pair of half-inch microtape cubes. Keth smiled lovingly at them, took out a card case, opened it, ran his thumb nail along a section of its inner surface. The material parted. "Shrink section," he remarked. He dropped the cubes inside, sealed the slit with the ball of his thumb. The case was flat again and he returned it to an inner pocket.

Telzey brushed her hair back from her face. The room wasn't excessively warm, but she was sweating. Unresolved tensions– She swore mentally at herself. It was no time to get nervous! "How small are they now?" she asked.

"Dust motes. I get searched occasionally. You drop the whole thing into an enlarger before you open it again, or you're likely to lose whatever you've shrunk." He glanced at his watch. "How far has he got on that other matter?"

"I haven't been giving much attention to it. I'm making sure I have him completely tied up–I'll probably have to break contact with him again before we're off Fermilaur."

"You still can't control him at a distance?"

"Oh, I might. But I wouldn't want to depend on that. He seems to have the details pretty well worked out. He'll tell us when he gets back."

"The pattern will be," said Osselin, "that you've decided to go out on the resorts. What you do immediately after you leave the house doesn't matter. Live it up, mildly, here and there, but work around toward Hallain Palace, and drop in there an hour and a half from now. If you don't know the place, you'll find its coordinates on your car controls."

"I can locate Hallain Palace," Keth said. "I left money enough there five years ago."

"Tonight you're not gambling," Osselin told him. "Go to the Tourist Shop, thirteenth level, where two lamps have been purchased against Miss Amberdon's GC account."

"Lamps?" repeated Keth.

"They're simply articles of the re-

quired size. You'll go to the store's shipping level with them to make sure they're properly packaged, for transportation to Orado. They're very valuable. You'll find someone waiting for you with two shipping boxes. You'll be helped into the boxes, which will then be closed, flown directly to Port Ligrit, passed through a freight gate under my seal, and put on board an Orado packet shortly before takeoff. In space, somebody will let you out of the boxes and give you your tickets." Osselin looked at Telzey. "Miss Orm and her mother are on their way to another port, accompanied by two Hute specialists who will complete Miss Orm's modeling reversion at her home. They'll arrive at the Orado City Terminal shortly after you do. You can contact them there."

"How far can you trust him?" Keth asked, as Osselin's house moved out of sight behind their car.

"Completely now," Telzey said. "Don't worry about that part! The way we're still likely to run into trouble is to do something at the last moment that looks suspicious to our snoops."

"We'll avoid doing it then," said Keth.

Telzey withdrew from contact with Osselin. He considered the arrangements to be foolproof, providing they didn't deviate from the timetable, so they probably were foolproof. Tracer surveillance didn't extend into enclosed complexes like Hallain Palace, where entrances could be watched to pick them up again as they emerged. By the time anyone began to look through the Palace's sections for them, they'd have landed on Orado. There'd be nothing to indicate then what had happened. Osselin himself would have forgotten.

They stopped briefly at a few tourist spots, circling in toward Hallain Palace, then went on to the Palace and reached it at the scheduled time. They strolled through one of the casinos, turned toward the Tourist Shop section. At the corner of a passage, three men in the uniform of the Fermilaur police stepped out in front of them.

There was a hissing sound. Telzey blacked out.

VI

Barrand said, "Oh, you'll talk, of course. You'll tell us everything we want to know. We can continue the interrogation for hours. You may lose your minds if you resist too stubbornly, and you may be physically destroyed, but we'll have the truth from both of you before it gets that far."

It wasn't the escape plan that had gone wrong. Barrand and Nelt didn't know Osselin was under Telzey's control, or that she and Keth would have been off Fermilaur in less than an hour if they hadn't been picked up. They'd simply decided to over-

ride Osselin and handle the situation their own way, without letting him know until it was too late to do anything about it. Presumably they counted on getting the support of the COS associates when they showed that the move had produced vital information.

Their approach wasn't a good one. Telzey had been fastened to a frame used in restructuring surgery, while Keth was fastened to a chair across the room. Frame and chair were attachments of a squat lie-detecting device which stood against one wall. A disinterested-looking COS surgeon and an angular female assistant sat at an instrument table beside Telzey. The surgeon had a round swelling in the center of his forehead, like the lump left by a blow. Apparently neither he nor the assistant cared to have the miracles of cosmetology applied to themselves.

They were the only two people in the room who weren't much concerned about what was going on. Telzey couldn't move her head very far and had caught only one glimpse of Nelt after she and Keth were awakened. But Barrand remained within her range of vision, and his heavy features were sheened occasionally with a film of sweat. It was understandable. Barrand had to get results to justify his maneuver against Osselin. He might have regarded this as an opportunity to break down Osselin's prestige and following in the association. And so far Barrand could be certain of only one thing. He was, in fact, dealing with a psi.

He looked as if he almost wished he hadn't made the discovery.

From Telzey's point of view, it couldn't be avoided. Regaining contact with Osselin might be the only possible way to get them out of the situation, and she didn't know whether she could do it in time. The subtle approach was out now. While Keth, doing his part again, argued angrily and futilely with Barrand and Nelt, she'd been driving out a full-sweep search probe, sensitized to Osselin's mind patterns. Barrand's expression when he stared at her told her his psi recorder was registering the probe. So, of course, was Nelt's, whose impatiently muttering voice Telzey could hear in the section of the room behind her. He was keeping it low, but it was fairly obvious that he was hurrying along preliminary briefing instructions to the lie detector as much as he could without confusing the device, or giving it insufficient information to work with. They were anxious to have it get started on her.

She hadn't picked up a trace of Osselin yet. But almost as soon as she began reaching out for him, she'd run into a storm of distress signals from another familiar mind.

It had turned into a bad day for Uspurul. Shortly after noon, she was called in to COS Services' regional office. Something happened there. She didn't know what. A period of

more than an hour appeared to have lapsed unnoticed, and nobody was offering any explanations. She'd heard of amnesia treatments, but why should they have given her one? It frightened her.

She pretended that everything seemed normal, and when she was told to go to her quarters and rest for a few hours because she might be given a night assignment, she was able to convince herself that the matter was over—she'd been brushed briefly by some secret COS business, put to some use of which she was to know nothing, and restored to her normal duties.

An hour ago then, she'd been told to check out an aircar for a night flight to the Ialgeris Islands, registering Miss Amberdon and a Mr. Deboll as her passengers. That looked all right. Amberdon was still her assignment. The Ialgeris tour, though a lengthy one, requiring an expert guide because it involved sporadic weather risks, was nothing unusual. She took the car to one of the Barrand centers where she was to pick up the passengers. There she was conducted to a sublevel room and left alone behind a closed door. Misgivings awoke sharply again. There was no detectable way of opening the door from within the room.

Why should they lock her in? What was happening? Uspurul became suddenly, horribly, convinced that she'd been drawn deep into one of those dark COS activities she'd hardly even let herself think about. A fit of shaking came over her and it was some minutes then before she could control her muscles. Shortly afterwards, the door opened. Uspurul stood up quickly, putting on a servile smile. The smile was wiped away by the shock of realizing that the man in the door was Nelt—one of the biggest of the COS big shots, one of the people she least wanted to see at present. Nelt beckoned her out into the passage.

Uspurul stepped out, legs beginning to shake again, glanced up the passage and felt she'd dropped into a nightmare. Barrand, the COS president, stood thirty feet away at an open door, speaking to a man in surgeon's uniform. Beside them was a float table, and on it lay two covered figures. Uspurul didn't doubt for an instant that they were those of her prospective passengers. Neither they nor she were to reach the Ialgeris Islands. Tomorrow the aircar would be reported lost in a sea storm, as a number were each year in spite of all precautions—

The surgeon moved the float table through the door, and Barrand followed it. Nelt turned away and walked along the passage toward the room, leaving Uspurul standing where she was. For a moment, hope flickered wildly in her. She might be able to get out of the Center unnoticed, find a place to hide—stay alive!

A great black-gloved hand came down on her shoulder. Uspurul made a choked screeching noise. Nelt didn't look around. He went on

into the room and the door closed.

Sorem, whose black-uniformed tall figure Uspurul had seen once at a distance, Barrand's bodyguard, whose head was always covered in public by a large, disturbingly shaped helmet, unlocked the door to an adjoining room, went in with Uspurul and shoved her down on a bench. She'd heard stories about Sorem. Half fainting, staring fascinatedly at him, she hoped he wouldn't take off the helmet.

But he did, and the yellow-eyed black dog head grinned down at her.

The lie detector was asking its patterned series of trap questions on the matters it had been instructed to investigate, and Telzey was answering them. It was nerve-stretching work. They'd stripped her before fastening her to the frame, and she'd been warned that if she refused to answer or the detector stated she wasn't telling the truth, the surgeon was ready to restructure one of her arms as a start.

She'd split her awareness again, differently, deeply. The detector's only contact was with a shadow mentality, ignorant of the split, memoryless, incapable of independent thought. A mechanism. When a question was asked, she fed the mechanism the answer she wanted it to give, along with the assurance that it was the truth. It usually was not the truth, but the mechanism believed it was. Psi sealed Telzey's mind away otherwise both from the detector's sensors and from crucial body contacts. There were no betraying physical reactions.

It took much more concentration than she liked—she'd still found no mental traces of Osselin, and a purposeful search probe absorbed concentration enough itself. But she needed time and was more likely to gain time if she kept their attention on her, away from Keth. He wasn't being questioned directly, but Telzey suspected the detector was picking up readings from him through the chair to which he was fastened and comparing them with the readings it got from her. There was a slight glassiness in Keth's look which indicated he'd gone into a self-induced trance as soon as the questions began, couldn't hear either questions or answers, hence wasn't affected by them. He'd said he could hold out against a lie detector by such means for a while. But a sophisticated detector had ways of dealing with hypnotic effects, and the COS machine obviously was an advanced model. She should keep it working away at her as long as possible.

The questions ended abruptly. Telzey drew a long, slow breath.

She might have caught a touch of Chan Osselin's mind just then! She wasn't sure. The stress of maintaining her defenses against the detector had begun to blur her sensitivity.

The lie detector's voice said, "Deboll does not respond to verbal stimuli at present. The cause can be ana-

lyzed if desired. Amberdon's response to each question registered individually as truthful. The overall question-response pattern, however, shows a slight but definite distortion."

"In other words," Barrand said from behind Telzey, "she's been lying."

"That is the probability. The truth registration on individual questions is not a machine error. It remains unexplained."

Barrand and Nelt moved into Telzey's range of vision, looked down at her. Nelt shook his head.

"I don't like that," he said uneasily.

"Nor I," said Barrand. "And we can't be sure of what else she's doing. Let's speed up the procedure! Have the detector get Deboll out of whatever state he's in and start questioning him immediately. Put on full pressure at the slightest hesitation. Take the girl off the machine for the time being." Barrand looked at the surgeon. "Get to work. To begin with, I want the left arm deboned to the wrist and extended."

The surgeon's look of disinterest vanished. He drew back the sliding top of the instrument table. "A functional tentacle?"

Barrand grunted. "She's to stay alive and able to talk. Aside from that, keep her functional if you can, but it's not of primary importance. Let her watch what's happening." He added to Telzey, "We'll stop this as soon as you demonstrate to our satisfaction that you're willing to cooperate."

All the energy she could handle was reaching for Osselin's mind now. But the trace, if it had been one, had vanished. The sculpting frame moved, bringing her down and around. The surgeon's face appeared above her. An arm of the frame rose behind him and she saw herself in the tilted mirror at its tip.

"Don't let her lose consciousness," Barrand was saying to the surgeon's assistant. "But keep the pain level high—close to tolerance."

The skin on the odd lump in the center of the surgeon's forehead quivered and drew back to either side. The lump was a large, dark, bulging eye. It glanced over at Telzey's face independently of the other two eyes, then appeared to align itself with them. Part of Telzey's mind reflected quite calmly that a surgeon might, of course, have use for an independent eye—say one which acted as a magnifying lens.

But this was getting close. Barrand and the detector weren't giving her the time she'd hoped to have.

"Chan Osselin!" She blasted the direct summons out, waited for any flicker of reaction that could guide her back to him.

Nothing.

Uspurul had been in an entertainingly hysterical commotion for a few minutes, but then she'd simply collapsed. Sorem wasn't sure whether she was conscious or not.

When he prodded her with a finger, she made a moaning noise, but that could have been an automatic response. Sullenly, he decided to leave her alone. If she happened to die of fright here, it wouldn't really matter, but Barrand would be annoyed.

Sorem stood up from the bench on which he'd been sitting, hitched his gun belt around, looked down at the child-sized figure sprawled limply on the floor, eyes half shut. He nudged it with his boot. Uspurul whimpered. She still breathed at any rate. The black dog head yawned boredly. Sorem turned away toward the door, wondering how long it would be before they got what they wanted in the detector room.

Uspurul opened her eyes, looked after him, rolled up quietly on her feet.

Sorem had good reflexes, but not abnormally good ones; he was, after all, still quite human. And, at the moment, he was less than alert. He heard a faint, not immediately definable sound, felt almost simultaneously a violent jerk at his gun belt. He whirled, quickly enough now, saw for an instant a small face glare up at him, then saw and heard no more. The big gun Uspurul held gripped in both hands coughed again, but the first shot had torn the front of Sorem's skull away.

Telzey couldn't see the door opening into the lie detector room, but she was aware of it. For an instant, nobody else in the room was aware of it; and after that, it hardly mattered. Sorem had fancied a hair-triggered gun, and Uspurul was holding the trigger down as she ran toward Barrand and Nelt, swinging the gun muzzle about in short arcs in front of her. Most of the charges smashed into floor and wall, but quite enough reached the two COS chiefs. Nelt, already down, moments from death, managed to drag out his own gun and fire it blindly once. The side of Uspurul's scalp was laid open, but she didn't know it. Nelt died then. Barrand already was dead. Uspurul stopped shooting.

"Deboll," the lie detector's voice announced in the room's sudden silence, "is now ready for questioning."

Telzey said softly to the surgeon, "We don't exactly need you two, you know, but you won't get hurt if you do as I tell you. She'll do whatever I want."

"She will?" the surgeon breathed. He watched Uspurul staring at him and his assistant from twelve feet away, gun pointed. They'd both frozen when the shooting started. "What are we to do?"

"Get me off this thing, of course!"

He hesitated. "I'd have to move my hands—"

"Go ahead," Telzey said impatiently. "She won't shoot if that's all you're doing."

The frame released her moments later. She sat up, slid off it to the floor. Across the room, Keth cleared his throat. "You," Telzey said to the bony assistant, "get *him* unfastened!

And *don't* try to get out of the room!"

"I won't," the assistant said hoarsely.

"My impression," Keth remarked some hours later, "was that we were to try to stall them until you could restore your mental contact with Osselin and bring him around to the rescue."

Telzey nodded. "That's what I wanted. It would have been safest. But, like I told you, that kind of thing isn't always possible. Barrand wouldn't let me have the time. So I had to use Uspurul, which I *didn't* like to do. Something could have gone wrong very easily!"

"Well, nothing did," said Keth. "She was your last resort, eh?"

"No," Telzey said. "There were a few other things I could have done, but not immediately. I wasn't sure any of them would work, and I didn't want to wait until they were carving around on me, or doped you to start you talking. Uspurul I could use at once."

"Exactly how did you use her?" Keth asked.

Telzey looked at him. He said, "Relax! It's off the record. Everything's off the record. After all, nobody's ever likely to hear from me that it wasn't the famed Deboll ingenuity that broke the biggest racket on Fermilaur!"

"All right, I'll tell you," Telzey said. "I knew Uspurul was around almost as soon as we woke up. She's very easy psi material, so I made good contact with her again, just in case, took over her mind controls and shut subjective awareness down to near zero. She'd been in a state of terror, and Sorem thought she'd fainted, which was what it looked like. Then when I had to use her, I triggered rage, homicidal fury, which shot her full of adrenalin again. She needed it—she isn't normally very strong or very fast. That gun was almost too heavy for her to hold."

"So you simply told her to take the gun away from Barrand's monster, shoot him and come into the next room to shoot Barrand and Nelt?" Keth said.

Telzey shook her head.

"Uspurul couldn't have done it," she said. "She'd never touched a gun in her life. Even in a frenzy like that, she couldn't use violence effectively. She wouldn't know how. She didn't know what was going on until it was over. She wasn't really there."

Keth studied her a moment. "You?"

"Me, of course," Telzey said. "I needed a body that was ready to explode into action. Uspurul supplied that. I had to handle the action."

"You know, it's odd," Keth said after a moment. "I never would have considered you a violent person."

"I'm not," Telzey said. "I've learned to use violence." She reflected. "In a way, being a psi is like being an investigative reporter. Even when you're not trying very hard, you tend to find out things people

don't want you to know. Quite a few people would like to do something about Keth Deboll, wouldn't they? He might talk about the wrong thing any time. By now I've come across quite a few people who wanted to do something about me. I don't intend to let it happen."

"I wasn't blaming you," Keth said. "I'm all in favor of violence that keeps me alive."

They were on a liner, less than an hour from Orado. Once they were free, Telzey hadn't continued her efforts to contact Osselin mentally. They located a ComWeb instead, had him paged, and when he came on screen, she told him what to do. The story was that Sorem had gone berserk and killed Barrand and Nelt before being killed himself. Keth had made his own arrangements later from the liner. Adacee and various authorities would be ready to slam down on the secret COS project within a week.

Telzey's restrictions on Osselin should hold easily until then. The surgeon and his assistant had been given standard amnesia treatments to cover the evening. They could deduce from it that they'd been involved in a detector interrogation dealing with secret matters, but nothing else. It wasn't a new experience, and they weren't likely to be curious. Uspurul was aboard the liner.

"You know, I don't really have much use for a bondswoman," Keth remarked, thinking about that point.

"You won't be stuck with her contract for more than a year," Telzey said. "Keth, look, don't you owe me something?"

He scratched his jaw. "Do I? You got us out of a mess, but I doubt I'd have been in the mess if it hadn't been for you."

"You wouldn't have had your COS story either."

"Don't be so sure!"

"You'd have had the full story?"

"No, hardly that."

"Well, then!" Telzey said. "Uspurul's part of the story, so she can be your responsibility for a while. Fair enough? I'd take care of her myself if I didn't have my hands full."

"Why take care of her at all?"

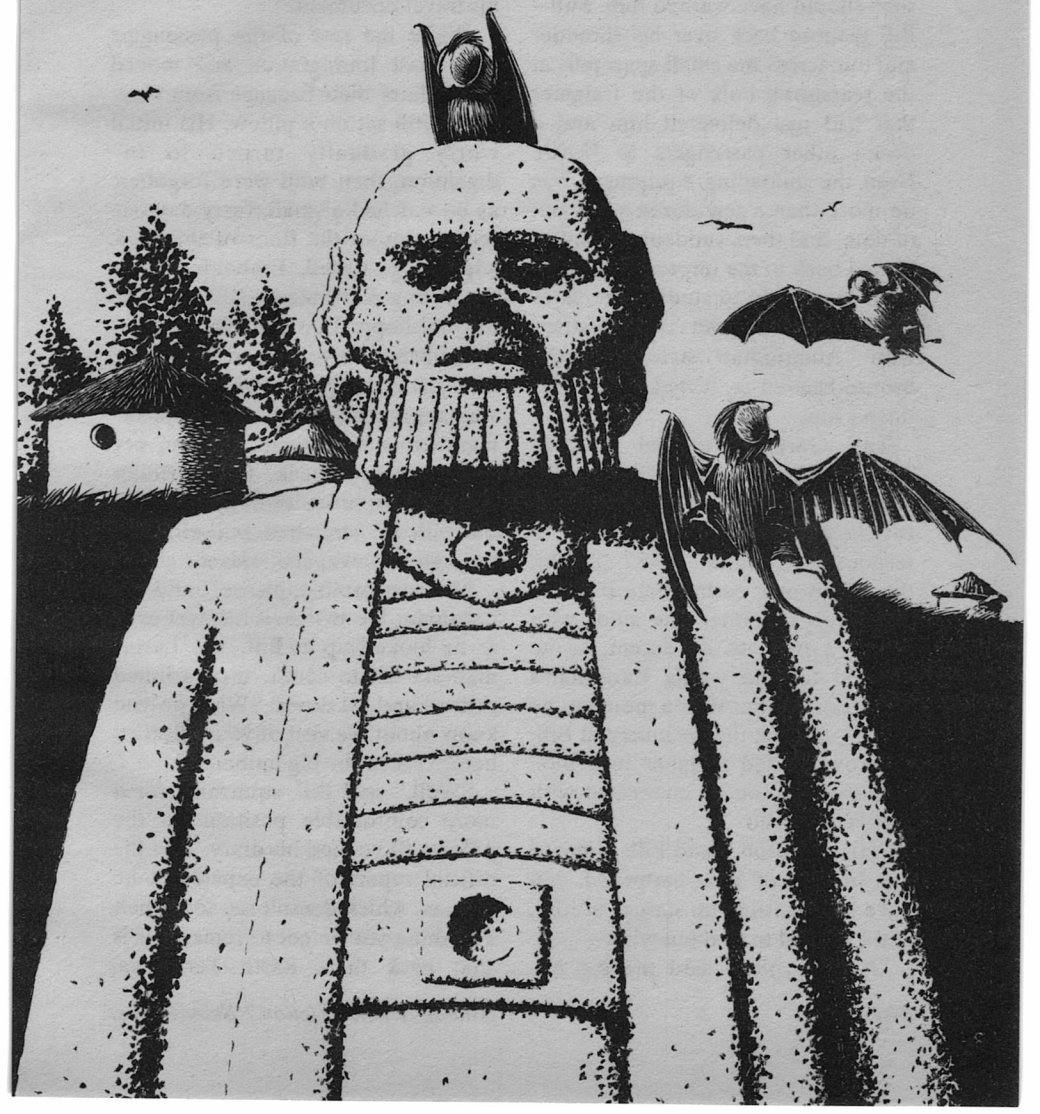
"Because not everyone in COS is going to believe Osselin's version of what happened. They don't dare do anything about him, but there was enough to show Uspurul was involved somehow in what went on tonight. She's a rotten little creature in some ways, but I'd sooner not think of her being worked over by COS interrogation methods. They can break down amnesia treatments sometimes, so Osselin wanted to have her killed immediately to be on the safe side." Telzey added, "Uspurul's got a really good brain, and you'd be surprised at the things she's learned working for COS Services! Adacee should find her an asset. Give her half a chance, and she might make a great newscaster!"

"Adacee and I thank you," said Keth. ■

not stupid enough

The fact that an alien's customs violate
the ethics of your people does not prove they're wrong.
It may simply prove they are, indeed, alien!

G. H. SCITHERS
ILLUSTRATED BY DAVID COOK



Bill Wilkes stared, wide-eyed and open-mouthed, at the nearly naked Immigration official. He closed his mouth and firmly reminded himself that he was light-years from Earth, and the thatched roof and log beams of the Customs and Immigration shed should have warned him. Still—Bill glanced back over his shoulder and out across the small spaceport at the reassuring bulk of the freighter that had just delivered him and a dozen other passengers to Garth. Even the unloading equipment was no more than a few dozen years out of date; and then, suddenly, this. Bill turned back to the impressively muscular humanoid to study more carefully the headband and feather, worn Amerindian style, and the bronze-headed ax, belted to the Garthian's hip.

The Garthian official finished with the passenger ahead of Bill. He glanced up, noticed Bill's stare, and twitched a bushy green eyebrow in response. "Cultural shock? 'S fact, this gets it over earlier than if we be in Terran costume," he said, with hardly a trace of an accent, as he reached for the young Earthman's travel document. After a moment, he looked up from the document at Bill, eyebrows pulled together in a puzzled scowl. "You be connected with that Wilkes who—"

"His grandson," said Bill. "I heard that in spite of what happened, you have been putting up statues of him, and I wanted to find out what—"

"Not in spite," said the big humanoid. "Because of." He stopped scowling, twitched his eyebrows. He gestured at a heap of pillows on a low log platform nearby. "Be seated, wait. After I check the others on, we talk." The Garthian turned to the next passenger in line, reached for his travel document.

While the rest of the passengers filed past Immigration and moved on to claim their baggage from Customs, Bill sat on a pillow. His initial worry gradually turned to indignation, then both were forgotten as he watched a small, furry day-bat scurry around the floor of the shed with wings furled. Emboldened by the young Earthman's stillness, the day-bat hopped up onto the pillows, then opened its wings and flitted off. Bill glanced up; the big Garthian was approaching. Bill stood up, remembering his indignation; but before he could speak, the Garthian plopped his muscular body down on the pillows, stretched himself in a prodigious yawn, and relaxed.

"Be comfortable, please," said the Garthian. He twitched his eyebrows as he looked up at Bill. The Earthman started to speak, then grinned instead and sat down. "What do you know about the visit of your ancestor here?" asked the big humanoid.

"Well," said Bill, squirming for a more comfortable position on the pillows, "I've read his diary. And the official report of the expedition he was on, which doesn't say too much. The thing you've got to remember is that back then, Earth—Terra—was

still in the Neo-Victorian reaction to the Hallucinated Age. At least, grandfather was, and it sort of gave him a jolt when the local mayor or chief or whoever he was, invited him to . . . uh—"

"Help service his woman?" The big Garthian twitched an eyebrow in amusement. "Of course even by then, our wisemen and your biographers . . . no, no, *biologists,* decided we be not interfertile, even though we correspond in bore and stroke."

"Bore and—? Oh." Bill felt his face go warm, saw the Garthian twitch his bushy green eyebrows again, and grinned back.

"High-Chief-by-Election Khlaj was conservative and—you do not have the word—one who observes proper ritual. So, interfertile or not, he extended invitation to service in the proper form. 'S fact, he got a jolt when your ancestor spoke forth a lecture on promiscuity. And then. . ."

The leader of the first Terran expedition to Garth had been in the middle of supper when Dr. Wilkes burst in, panting, "I have it, I have it!"

"Sit down, damnit, Doctor, and stop waving your arms around," Captain Smithson had grumbled. "The green-hairs aren't attacking, are they?"

"No. Hardly. Just the—reverse," Dr. Wilkes had said, between puffs. "They invited me—to an orgy."

"Well, well, Doctor," the captain had said. "You're the expedition's psychologist; you don't have to ask me for permission to . . . ah . . . observe the natives' religious—"

"No, no, you don't understand. It isn't religious at all; it isn't even public . . . I mean it isn't even—"

"*Do* sit down," the captain had said firmly. He had taken another mouthful of supper, then said, "Orgies tend to be something less than private, Dr. Wilkes. And while I wouldn't presume to prescribe in your field of study, an occasional one does do some—"

"That's just it. They *never* get together in private; *all* their procreative activity is in indecent groups and orgies."

"So?" the expedition's botanist had asked. "Maybe something in their instincts requires that they—"

"No, no, *no.* I talked to them. Preached to them, almost. They just never thought of being private about it, you know, monogamous. But with a little persuasion—"

"Persuasion!"

"Don't you see? That's the key to the whole Garthian behavioristic complex. No interspecific competition of exclusive access to the chosen female, no system of paternal descent, no basis even for monotheism replacing polytheistic idolatry, which is the basis for the concept of a law-bound universe, on which our whole scientific—"

"Yes, yes, but aren't you getting a bit emotionally involved?" the captain had asked.

"Involved? Even . . . even tomcats don't invite their neighbors in for . . . for . . . you've *seen* how primitive they are, living in dirty huts—"

"It seems to *me*," the expedition's zoölogist had objected, "that you are getting emotional. The huts are clean, even if they're built of rammed earth. And I've never seen a tribe of tomcats with an elected chief and a system of letters of credit, even if they are written on pieces of bark. And the bridgekeeper on the river a couple dozen kilometers west has been doing some interesting work on the statistics of day-bat breeding. Furthermore—"

"I AM NOT GETTING EMOTIONAL."

"*Furthermore*, I haven't seen any signs of a, as you call it, polymorphic idolatry to get replaced."

"Polytheistic, you pot-head. And if you can't see it's our plain duty to enlighten these poor savages, then—"

"*Pot*-head? I am not going to sit here and get insulted by a sanctimonious shrink who's meddling—"

"GENTLEMEN!" the captain had bellowed at that point. "That's better. Dr. Wilkes, if you do not shut up and sit down, I shall have the chief machinist make me some irons so I can put you in them. Just because we are one hundred thirty-five light-years from Terra is no reason we can't have a quiet, peaceful supper at the end of a hard day. I daresay Chief Khlaj keeps better order during his orgies than some of the meals in this madhouse, and—"

". . .Your ancestor began his crusade to reform all Garth," the big Garthian native said. "He persuaded the captain of the expedition to allow it, saying that it was to our own good. So in spite of the Terran rules—"

"Yes, that was the biggest problem," said Bill, rolling over onto his stomach and tucking a pillow under one elbow. "According to grandfather's diary, he had as hard a time persuading the captain not to interfere as he did persuading . . . uh . . . Chief Khlaj to give up orgies in favor of restricting sex to just the . . . uh . . . essential two participants. Talking the young bucks into the idea of not sharing their mates was almost easy, compared to those two. He had a lot in the diary about substitution and sublimation and reinforcement of post-adolescent intraspecific competition which I didn't—still don't understand at all."

"Well, 's fact that my folk didn't understand that part either. What they did understand was that he said giving up orgies meant getting Terran technology. *That* wasn't fact, as they found out; but at the time it did make sense." The Garthian twitched his eyebrows; Bill found himself smiling back.

"But—" Bill's smile faded. "He didn't mean to lie. According to the diary, he thought if he got you going with monogamy, then monotheism and the whole idea of a rational uni-

verse running on universal laws would take hold, superseding a lot of local superstitions and capricious gods and like that. Instead—"

"Instead, there were no capricious gods until your ancestor persuaded the village storyteller to invent some."

"Only, Grandfather didn't realize he—the storyteller—was inventing them on demand, though he did mention the storyteller seemed to have an endless supply." He glanced out the side of the Customs and Immigration shed, away from the spaceport, spotted a pair of thin lines strung from tree to tree through the woods. "Hey, you do have electric power, then."

" 'S fact. We decided there be no reason to cut down trees and cut off branches and put trees back in holes. Our power lines be strung from trees already there. And drains and running water in some of the towns." The big native rolled over, sat up. "Of course, we insisted the first visiting Terran running-water engineer be not admitted to Garth until a drains engineer has been here and started teaching and building. Otherwise"—his eyebrows lifted as he looked directly at the young Earthman—"it be as bad as a man who teaches first and learns afterwards."

Bill felt his face go warm. He sat up, glared at the big Garthian sprawled on the pillows beside him. "Now look, none of you guys . . . people . . . knew about the way your sexes and things worked then either."

"Two genders and three sexes?" The Garthian twitched his eyebrows lazily.

"And . . . and I don't quite understand it even yet," Bill said. "Could you—?"

"Your ancestor had all the facts himself. He visited the Hereditary-Bridgekeeper Tjarl shortly after he—your ancestor—began his crusade for procreative propriety, and while Hereditary-Bridgekeeper Tjarl was even then puzzling over the results of his day-bat breeding . . ."

"Perhaps," the hereditary-bridgekeeper had said, "animals do not inherit characteristics in the same clear way that plants do. I have not yet found out, because of the other problem, which seems to be even more interesting than the first." He had gestured at a tidy row of wicker cages, each containing from two to a half dozen furry day-bats.

The engineer of the first expedition, one of three Earthmen visiting the bridgekeeper, had been itching to ask about the bridge itself, for he'd never seen a warren truss executed entirely in wood with bronze fastenings before; but the bridgekeeper spoke no Terran, and the engineer had to depend on Dr. Wilkes for translation into the local language. The expedition's botanist had asked for more details, through Dr. Wilkes, of the Garthian's hobby, before the engineer changed the topic.

"Yes, yes," the hereditary-bridgekeeper had said, "it is that the number of males so affects whether there are day-bat pups. One male, any number of females, no pups. Two males, and in fourteen out of thirty cages, none of the females had pups, not counting, of course, two cages that my third son dropped and broke, and three more where one of the males died. After that, I decided the number of females in the cage be immaterial; either none had pups, or all, always excepting one or two who didn't like their mates or something." He had twitched his eyebrows then. "Day-bat females are like all women. Contrary. Howsoever, we had then ten man-body-lengths of decking of the bridge to replace before the seed-shipping season. My third son and my second daughter took over the day-bat breeding then, and did almost as well as I.

"Let's see now; with three males in a cage, but five of eighteen cages were without pups, again not counting cages with escaped or sick day-bats." He had sighed then. "It is not a simple, done-again-easily trial, like the famous Wilj and his measurement of the increase of speed of down-dropping weights from whence he called out the number-rule that all weights—but you Terrans be far beyond our feeble efforts in the study of non-alive things."

The engineer had demanded Dr. Wilkes get more details from the bridgekeeper, saying this Wilj sounded like a Garthian Galileo or Newton, but Hereditary-Bridge-keeper Tjarl had resumed his account before the psychologist could translate the Terran engineer's question.

"Then," the Garthian had said, "with four males in each cage, we have two out of fourteen cages without pups, leaving out the three cages that my fourth son's pet fnurr got into. I cannot yet decide if the rule underlying is one half, one third, one fourth; or if it is one half, one fourth, *one eighth*; with two, then three, then four males." The native had shaken his head slowly. "It would be much easier if I knew if number-rules in animal-study be simple numbers or messy ones. Or, maybe, I do no better than measure the mood of the lady day-bats, and you know what the mood of any female can be." He had twitched one eyebrow then. "Now, for the other Terran visitor, I show the bridge and his questions answer." The botanist had followed the bridgekeeper's second son back to the wicker cages of lively day-bats, while the other two Terrans followed the bridgekeeper up the abutment of the bridge.

". . . And your ancestor," the Garthian Immigration official asked Bill, "did his diary hold comment on the bridgekeeper's work?"

Bill shook his head. "He didn't think much . . . uh—"

"Go on, speak fact; it be safe."

"Yeah . . . uh . . . well, Dr. Wil-

kes . . . Grandfather didn't think much of whatever the bridgekeeper was computing on, but he did get all excited about his doing anything scientific since he—the bridgekeeper—lived alone with his woman and their kids. He figured this proved his argument about monogamy and monotheism and modern technology." He paused, frowned at the big Garthian, who seemed about to go into convulsions. "But when he tried this in his speech on giving up orgies, at the next village, the . . . the audience . . . hey!"

The muscular Garthian rolled off the pillows, jerking and squirming, yelping and wheezing. Bill scrambled to his feet, wide-eyed with bewilderment, then suddenly realized the Garthian was laughing. He slumped back on the pillows and sat, scowling while the Garthian rolled on the floor.

"I be sorry, young Wilkes," the Immigration official finally gasped. He stood up, eyebrows still twitching, brushed himself off, and then stretched his big body on the pillows beside Bill again. "The listeners, 's fact they would laugh and be thinking he be telling a joke. Hereditary-bridgekeepers be in our jokes as traveling salesmen in yours."

"Oh." Bill started to relax, then frowned in puzzlement. "But how? If they're off by themselves—"

"With all the traffic to market and back over the bridge for him to see over and pick from?"

"Oh." Bill grinned slowly. "I see. Anyway, Grandfather . . . uh . . . went along with the joke, even put it in as a joke on himself, from then on. He must have had a way of talking, getting people—Garthians—all enthusiastic about something. He kept getting guys so sold on his idea that they'd join him and then go out and preach on their own. Of course, not having Earth gadgets and things to show off put the Garthian . . . uh . . . assistants back a bit, but they did know the language better. I think he had about ten of them when . . . when the trouble started."

"But about the day-bat breeding?"

"No pups unless there are two males, and then only half the time?" Bill looked thoughtfully at the native sprawled comfortably beside him. "You're trying to find out if I can figure it out?"

The Garthian nodded, face suddenly serious. "Your ancestor did not; it was Hereditary-Bridgekeeper Tjarl who found out why, for villages and villages around the Terran landing site, women stopped becoming predicate . . . no, that is not the word . . . pregnant."

Bill chewed his lip. "Three sexes and two genders. If there were two kinds of males, and you had to have the right one . . . no, that's not it, since with one male there were never any pups. And with two . . . hey, it's like going to a bureau drawer for socks in the dark, and if there're two kinds and you want a pair . . . no, that's not it either; with three, you always got a pair." He glanced at the

Garthian, grinned at his bewildered expression, and explained.

"Two kinds of socks in a drawer. You can't tell which is which when you pick them out. If you take three, you're sure to have a pair, because if one's black and the other's, say, white, then the third one's got to be either black or white and you've got a pair . . . pair! That's it."

"Pair?" asked the big native, sitting up.

"With socks, you gotta have two of the *same* kind. But for . . . uh . . . breeding, you gotta have opposite kinds, so if you got three, then . . . let's see, you'd get a fifty-fifty chance that the first two turn out to be the same, so there's half that chance that the third is like the first two. But that would make it a quarter—one fourth—of the cages without pups, not two out of fourteen, or whatever it was."

"Real number-results do be messy, 's fact," said the big Garthian. "Hereditary-Bridgekeeper Tjarl came to the same thinking you do now." He twitched his eyebrows once. "But without the trips to the clothes-bucket to get socks. It outcomes as you think, that we be of two genders, male and female; but three sexes, female, one kind of male, other kind of male. Germ cells from all three be necessary for conceptions."

"Two kinds of males." Bill stared at the Garthian for a moment. "Uh . . . which kind are you?"

"No usable way to tell. Only difference is which kind of germ cells I make. And it be that we change, now and then, from one male sex to the other."

"Damn. No wonder you guys have orgies," said Bill, shaking his head. "Or at least enough of an orgy for your women to . . . uh . . . meet one of each kind of male. But that monogamy crusade Grandfather was on—"

"Without that, Hereditary-Bridgekeeper Tjarl would not easily have persuaded folk of his discovery, so it was not all bad. At the time, however . . ."

"Well," Dr. Wilkes had snapped, "I hope it's important. Your 'copter landed in the middle of one of the biggest crowds I've had yet. I'll take *hours* to get them back out of the woods and settled—"

"It's important, Doctor. What's more, you aren't about to collect your audience again, today or ever. This foolishness has—"

"Sir! This is unheard of! I am conducting a—"

"*You* have been conducting a genocidal pogrom. There hasn't been a Garthian woman got with child since you started your blasted preaching in the villages, and it's been spreading, as far as the natives can tell, as fast as your prudery crusade, for the past three months."

"Sir! I will not stand here—"

"You, Doctor, will get in that 'copter or be carried there."

Dr. Wilkes got.

Back at the expedition's base camp, they had landed to find High-Chief-by-Election Rhyl —High-Chief-by-Election Khlaj having been impeached—and a half-dozen other Garthians waiting for them.

"What's this?" the expedition's captain had demanded.

"Trial," the expedition's botanist had explained. He had become pretty fluent in the local dialects in the past three months, while Wilkes was away on crusade. "Judge, jury, the works." He had smirked then. "And an indictment, even if it is written on a sheet of bark."

"Indictment? Now look here," Dr. Wilkes had shouted, shifting to the local dialect of Garthian. "Are you blaming *me* for this supposed infertility of your women?" He had gone on at some length, pointing out that he was hardly expected to know the details of Garthian genetics; diagnosing the sudden lack of pregnancies in the regions he'd been preaching to as a psychosomatic, to be combated by closer adherence to the principles of private, proper procreative practices; and denouncing any theories that might be advanced by anyone of loose morals, such as hereditary-bridgetenders.

He had stopped for breath at last, whereupon Chief Rhyl announced that he and the jury would withdraw to consider sentence.

"SENTENCE? *Now?* When they haven't even—" Dr. Wilkes turned to the captain: "Are you going to put up with this . . . this—Why the prosecution hasn't even stated—"

"Don't need to," the botanist had said, dryly. "Not after that confession of yours."

"Confession?" the captain had asked. "But he hadn't even heard the charge."

"Well, seeing that he didn't wait to hear what it was before he started yelling, that rather confirms it."

The captain had grinned, started to snicker. Dr. Wilkes had demanded, "Just what in Space am I charged with, then? I told them I didn't understand their genetics, but—"

"Exactly. And the indictment was for the crime of stupidity."

"Stupidity?" Bill Wilkes asked. "In the diary—" He frowned. "But stupidity? But if he didn't know—"

The muscular native sat up suddenly, face serious. "I know. You Earthmen do not count stupidity among the crimes. But things do." He pulled from his belt the bronze-headed ax and held it out to Bill. "If you run your hand over the edge, hard, ax will cut. It makes no difference if you didn't know, or meant well. *The ax does not care.* Be stupid, get cut. 'S fact?"

Bill nodded slowly. "Uh . . . yeah. It . . . it is fact, O.K. So that's why the expedition got cut short—the diary didn't say, and the official report just talked around it, but—"

"But your ancestor was expelled from Garth for extreme stupidity."

"Yeah." Bill sighed. "I sort of sus-

pect the captain was glad to get away before your people thought of raising a charge of Genocide or Indigenous Interference."

The big Garthian twitched his eyebrows a few times as he put away his ax, then lay back on the pillows again. "Why should we? We were being stupid, too—following your ancestor. And as for the stop of pregnancies, that was easy to fix. Fun, too."

Bill grinned. "Then . . . hey, that's the thing Grandfather never could understand—how you guys managed to get anything *done* without intraspecific competition . . . uh . . . you know, competing for wives and stuff. Instead, you just invite in the neighbors and . . . you know."

"So? We be puzzled about how you manage with so much competition. 'S fact, though, that with you, take the job of immigrations. You would have a clerk, and a high clerk to be bossy to him, and a higher clerk over him, and then a committee to be boss over *them*, all because of your competition-drive. Here, I be in charge. If I do well, other Garthians leave my job alone. If I do badly, I get expelled from job. You see? Low drive to be bossy, low drive to keep *other* person from interfering. Works out almost the same, both ways."

"And so you're the . . . the only one to decide if I get onto the planet? I suppose, because Grandfather was so stupid, you're afraid that . . . hey, what about the statues? Or—"

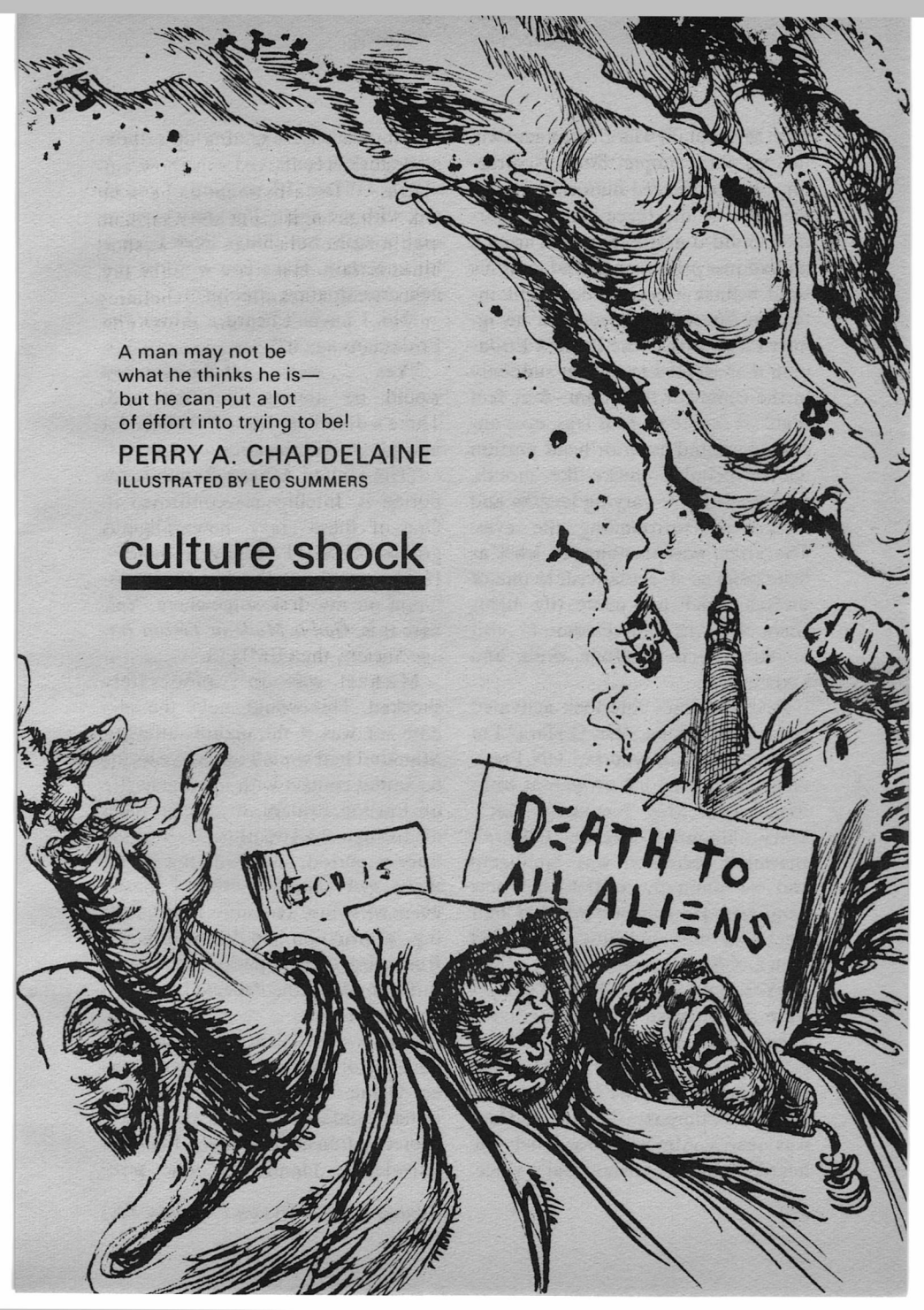
"Statues we be putting up of your ancestor?" He looked somehow embarrassed for a moment as he went on, "Look at it from the Garthian position, be Garthian for a short time. Earthmen arrive out of the sky, with flying machines, overwhelming powers, great wisdom, everything. All suddenly, we be stupid, weak, *nothing*. And your ancestor told us we were even wrong in our way of reproducing, in groups; and if we changed, we could be like Earthmen. Hereditary-Bridgekeeper Tjarl said no, we must reproduce *our* way. So: your ancestor was wrong and Hereditary-Bridgekeeper Tjarl was right."

"So the statues are to . . . to remind you guys how dense Terrans can be? And you're worried that I'm not smart enough to allow onto your planet?"

"Partly fact, partly not," said the big Garthian. " 'S fact we be careful who we let onto planet now. And 's fact your ancestor be . . . well . . . the standard of stupidity on Garth. He be very useful, telling us always that Earthmen are not all smarter, just started sooner, telling us we can catch up in our own way." He sat up beside Bill, put a thick arm across the young man's shoulders. "You be not stupid, young Wilkes. It is the other way around, with the importance of keeping . . . how you say . . . *down* your ancestor's reputation."

"You mean?" Bill grinned.

" 'S fact. You're not stupid enough to run around loose on Garth." ■



A man may not be
what he thinks he is—
but he can put a lot
of effort into trying to be!

PERRY A. CHAPDELAINE

ILLUSTRATED BY LEO SUMMERS

culture shock

Dr. Michael O'Hara, skin-corded, tall, youthful Project Ozma X director, pressed the red button built into the base of the three-inch by four-inch Solid-o-graph projector which he had just placed on the edge of his solid walnut executive desk. His intercom buzzer sounded, and he ignored it to look at the Epsilon Eridanian that seemed to appear suddenly in the center of this room—four feet high, six feet long, four legs, eyes encircled around anterior head portion which included puckerlike mouth, four tentacles of varying lengths and thicknesses surrounding the eyes. The effect was startling, at least as believable as an actual visit to one of the ten which had come 10.8 light-years from Epsilon Eridan to visit mankind, and to trade skills and knowledge.

His intercom's interlock activated and a voice spoke, "Dr. O'Hara? I'm sorry to interrupt you but UN President Ownouchai has an urgent communication. May I connect him?" Mary Clibourne, Michael O'Hara's charming secretary, was intelligent and exceptionally loyal to her new employer. He remembered her hair was blue this morning, a perfect match to her blue eyes.

"Yes. Put him on, Mary." His eyes were still focused on the intelligent alien's presence which the Solid-o-graph depicted so well. He could hear Mary Clibourne's full-throated voice tell someone that Dr. O'Hara was ready. Almost immediately he heard President Ownouchai's voice, rough, gravelly, tinged with a trace of English accent.

"Dr. O'Hara. It's so good of you to talk with me again. I'm sorry to be in such a rush, but things have been a bit uncertain. Have you word of the new assassination attempt?"

"No. I haven't heard a thing. The Eridanians again?"

"Yes . . . well . . . I thought you would be among the first told. There's definitely been established a new plot to kill the aliens.

"The United African Republic reported it. Intelligence confirmed it. One of these crazy, new religious groups. GIMITI society, I believe. Hold a moment—I've got the translation on my desk somewhere. Yes, here it is. *God is Made in Terran Image Society*, the GIMITIS."

Michael was only moderately shocked. This would make the seventh—or was it the eighth—attempt. Mankind had waited twelve years after initial contact with intelligent life on Epsilon Eridani, to receive them as distinguished visitors. During the interim period, and while the Eridanians were moving toward Earth, even with fast semantic index coding, information had dribbled in at a frustratingly slow pace, each transmission taking the expected full 10.8 years to arrive.

They were at least forty years in advance of Terran technology. Project Ozma X, credited with making initial contact, bulged with crash projects, translating whole fields of knowledge, identifying new prin-

ciples, creating and letting for market new ideas for consumer products.

The project had had to expand John Doanne's C and C—Communications and Crytographic—department to include the special Public Relations and Information section affectionately known as PuR and I which had been quite successful in allaying human fears about the alien visit, thus permitting the visitor's ship to come directly to Moonbase on termination of their twelve-year trip instead of the far-out Martian orbit.

After all these successes, and more, it seemed to Michael O'Hara that Project Ozma X could yet be scuttled by a world turned topsy-turvy during the past five years of his directorship. His words might have been sighs, when he said, "I'll get someone on it immediately. When will it be? During the dome transfer again?"

"Intelligence says they'll try a rather complicated maneuver this time. Probably use a copter-cab with guidance-locks off—fill it with jellied gasoline and thermite, and crash-dive it at the transfer vehicles. Security is looking out for anything, however."

When the president's call was terminated, Michael's thoughts profiled the small undercover group, untitled, under John Doanne. Two women and two men were in the group, as he remembered; all were young college graduates. Seemed like the place was crawling with young graduates, lately.

"John Doanne!" he said aloud. His vocal print was matched against millions of bits of information, light rays re-shunted electron flows from their circling paths, light-speed switches activated, and his voice came out the speaker in Dr. John Doanne's office three floors above.

"Here, Chief!" The long-legged, scholarly Dr. Doanne had a quick mind which belied his middle-age paunch, and his job had lately become the busiest, the most confused.

"Another attempt is to be made on the Eridanians during the scheduled transfer. Who do you have free?"

"Don't they ever learn? Who is it this time?"

Michael explained the Gimitis and their probable method of operation.

"I've got Happy Honey. The other three are tied up on another assignment—hush, hush, but related. Happy Honey is George W. Honneywell, graduate of Harvard, twenty-six years old, and a real noncony—head shaved bald, eyebrows and eyelashes singed periodically, two red stripes on each side of his nose, chain of old-fashioned plastic draft cards about his neck, suit-and-fish, and bare feet. Fits right in with the rest of the nonconies."

Michael's eyes strayed to the brilliant multi-colored Solid-o-graph in the center of his office. Not more than three years ago anyone caught dressed like Happy Honey would

have been placed in the General Hospital for investigation. Along with religions and anti-religions springing up everywhere, and new, crazy governments and anti-governments, had come the latest craze for young college grads. Nonconformist. The noncony shaved his head, singed his eyebrows and eyelashes, and clothed himself in the most shocking manner imaginable. Better that man should look like the extraterrestrial before him than what he had just heard. Mentally shocked, impotent against the range of social forces loose, Michael shrugged, and asked, "Can't he at least wear shoes? It's cold outside."

"No. I tried to specify things when he was hired. He made it a condition of employment. If I wanted him, he chose his own outfits. Anyway, they've learned to use a super-insulator based upon one of our developments and commercialized three years ago. Remember this?"

John Doanne sang,

"One can of Superinsul spray will,
Protect five forty square feet, one mill -
Seven-hundred degree differential!"

"I remember the commercial." Michael's voice was contemptuous. "What sort is Happy Honey? Stable? Can he handle the assignment?"

"He's exceptionally bri-"

"Hold! Mary just pushed the panic button. I'll get back to you, John.

"Yes, Mary?"

"President Ownouchai again, Dr. O'Hara. I told his secretary you would talk to him. Also Dr. Cleveland is waiting. Says it's important."

"Thanks, Mary. Tell Margaret to wait a moment, and put on the President."

There was only a slight pause. "Thank you for talking with me again, Dr. O'Hara. I'm afraid I've some bad news. This is a most unusual occurrence, and I apologize for my bluntness."

Michael's stomach muscles tightened, his chin jutted outward. "My day for it, President Ownouchai."

"Your budget is to be cut fifty percent, effective next month. I'm terribly, terribly sorry, Dr. O'Hara. I threatened to resign myself."

"But our budget's just been approved! Did you say fifty percent?"

"Yes, fifty percent."

"That can't be. It'll destroy our whole operation. We won't even have enough to handle the costs of the alien's visit. How does the budget-control office expect us to translate, interpret and record what we learn? How will the people gain any benefit from our discoveries? Do they realize, Dr. Ownouchai, that ten thousand five hundred and twenty-six major products have come from this project during the past five years, encompassing a gross-product volume amounting to several trillions . . . yes! I said *trillions* of dollars?

"Do they realize that every decent benefit—cybernetic education, low-cost, self-contained extruded homes,

our return to individual transports . . . all—every blessed one—and more, came from this project?

"Do they know that one job out of every five on the face of the globe directly, or indirectly, is tied to this project, even across national boundaries?

"Don't they realize that every aspect of life touches, or is touched, upon by this project in some manner or by some means?

"Are they absolutely, positively noncony crazy?"

Michael's voice had got higher pitched, louder, until the last question came out as a shouted challenge which begged for a responsive gladiator—anyone—anywhere.

The pause which followed was pronounced. He was about to ask if the president was still there when he gratefully heard; "I *am* truly sorry, Dr. O'Hara. Not just for your sake, but for mankind's.

"I would have resigned if only stubbornness, or blindness had been at fault, and that would have helped you and your project succeed. But it was more than that. Several representatives brought in well-qualified specialists—blue ribbon, really. The crazy age is not just your country, you know. Every nation seems to have its share of freakish behavior and iconoclastic organizations.

"They brought out charts and graphs, and I was convinced. Project Ozma is causing the up-side-downness of our society, Dr. O'Hara. Not consciously, or intentionally, but causing it nonetheless."

Michael was stunned. Having sat in the center of the most influential seat for five years—the first interchange of facts, ideas and culture with an alien race from the stars—he could not easily think of himself as a cause of, or in any way an influence on, the world's present collapsing of traditions, customs and mores. "I—can't—accept—that, Mr. President. You'll have to be clearer."

"Please forgive my abruptness, Dr. O'Hara. As I said, I was on the project's side. They did not bring emotional arguments to the council's attention, however. They were rational, fact-built, persuasive. If you can counter them—and I would expect you and your staff to try—I believe I can arrange for another meeting, and I believe the hearing will be fair.

"Regretfully, Dr. O'Hara, I must caution you that as of the beginning of next month's budget cycle, you will be cut fifty percent. Knowledge will probably have to be recorded and stored for later use. When the Eridanians go home, you'll probably get a little larger increase—assuming society has stabilized again."

"You're giving us about fifteen days, then?"

"Not me, Dr. O'Hara," the president chided, "the council."

"Yes . . . yes . . . thank you." Michael's eyes were bound to the Eridanian's solid red form in front of his desk, following the curl of ten-

tacle from mouth opening to gray colored rug, but his mind was impacted, puzzled, strained, wondering.

"Dr. O'Hara?" Mary's efficiency broke his reverie. "Can Margaret Cleveland see you now?"

"Huh—Oh yes! Send her in, Mary." He spoke next to the office three floors above, "Dr. Doanne? Still in your office?" Silent connections were made, and John Doanne's voice, smooth, well-inflected, came through his speaker again.

"Here, Michael."

"C'mon down. Emergency meeting. Bring your . . . ah . . . Happy Honey with you. Margaret will be here, too."

Dr. Margaret Cleveland, department head of Culture and Customs—Cu and Cu—was as tall as Michael. She frowned on the custom of dyeing one's hair to suit colors of the day, and she was quite severe on the current young women's custom of shaving half their hair while leaving the other half to grow long. "Disgusting. Simply disgusting," her puritan spirit would expostulate.

Today her auburn hair was tied into a neat bun on the back of her head. She opened the mahogany paneled door displaying a matronly-shaped leg, high heels, a subdued-gray sheath conservatively decorated with a small silver brooch. Her left hand held a technician's notebook; her right hand flew to her mouth, where she stifled a sharp, sudden expostulation. Her eyes had gone to the life-sized, fierce-looking Eridanian image which appeared to be standing before Michael's desk without regard to absence of the three atmospheres of pressure customary to their kind.

"Oh, I forgot." Michael thumbed the switch on the tiny device, and the lifelike image disappeared. "It's just Samuel Chavits's new Solid-o-graph. Come in. I want to see you about an emergency which has cropped up, anyway. But your problem first."

Michael moved to the head of his conference table at the left of his desk, and Margaret took the proffered chair to his right. She laid her notebook before her, and pressed her hair-bun with her right hand.

"Dr. O'Hara, there's a call from Istanbul. Can you take it? Something about an article you had promised on new techniques for deep-earth mining. You had made the arrangements with P and C . . . ah . . . my notes show the Physics and Chemistry chief himself, Dr. Win Lai."

"Sorry, Mary. Cancel it. Also hold all other calls and callers except Dr. Doanne and a George W. Honneywell, who may or may not come with John. That's a . . . oh, yes . . . one more thing. Put the coffee on, will you, Mary?"

"Will do."

Margaret appeared hesitant when Michael turned to her. "You first, Margaret. And, if you've brought me a problem half as big as the two

which I've already been given, I'm going noncony myself."

She laughed. "Gosh, Chief! I guess mine is just a little, sort-of mouse-sized, routine type. I'll take it up another time."

"No! No! Let's have it. Right on the table. My razor is in my desk and I can always shave my head before Doanne and his protégé show."

She thumbed her notebook usually used for recording and dating technical ideas which could be referred to in the future, or which could also be used as the basis for a prior-invention claim, if necessary. She found the right page, and passed her finger down to a heavily penciled line. "I've been working rather closely with Dr. Peter Machtrix in Language and Context on this latest analysis. Most of the members of Peter's L and C department and Samuel Chavits' E and E agree with me, although Earth and Exo-biology has some slight reservations over a few of the specifics.

"Remember when we wired up *Grandeur One*, the Eridanian research physicist, recording everything imaginable while he conducted an experiment?"

Michael nodded his head.

"The purpose of recording while he conducted an experiment was to get referents for their symbolic structure describing their idea of scientific method. We couldn't find meaningful correspondence between our description of scientific method and theirs."

"I don't remember the details. Surely it was just a language conversion problem, wasn't it?"

"We thought it was, but our normal conversion techniques wouldn't do the job. That's why we asked for the multi-recording referents—and that's where we got even more confused."

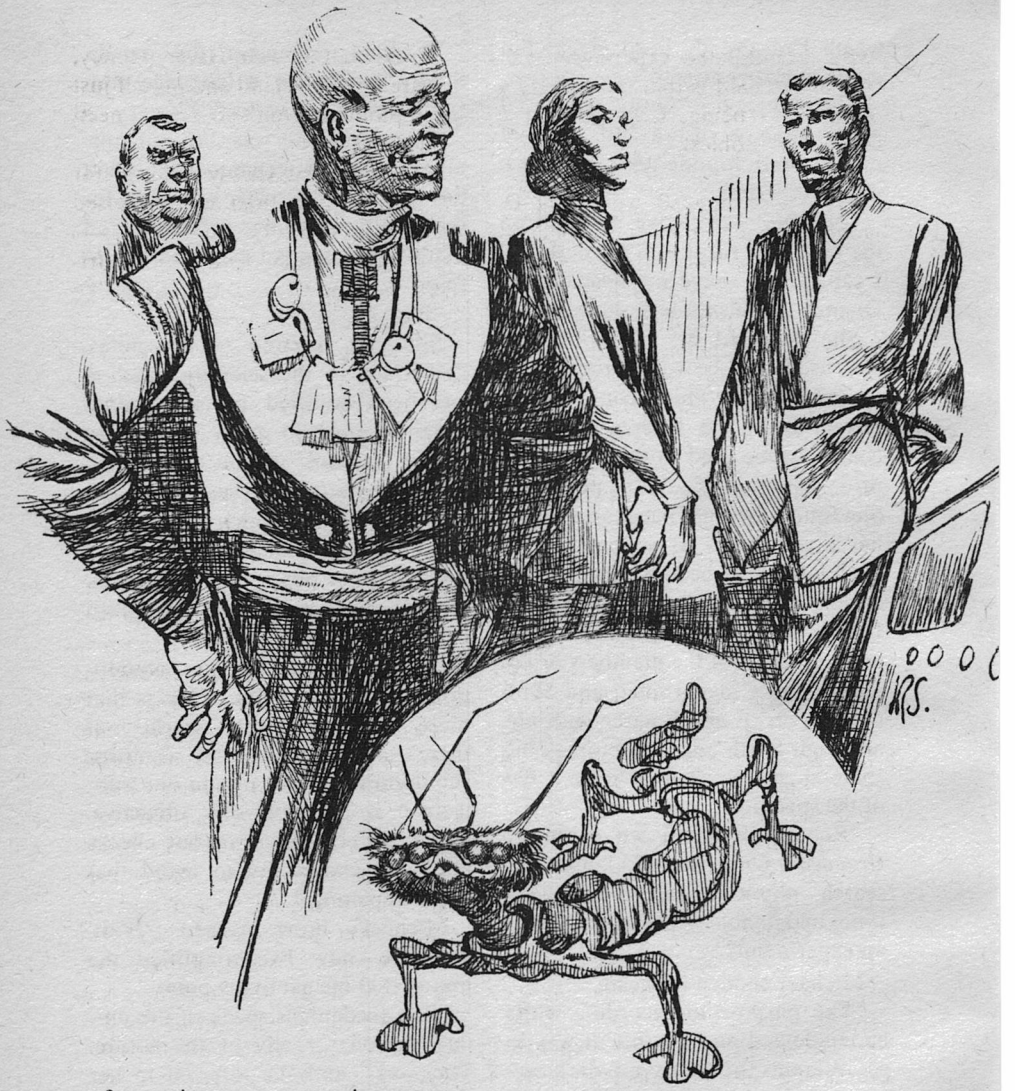
"Explain."

Margaret referred to her notes. "Our idea of the scientific method has been codified for a hundred years or more in every elementary school textbook and on up. We tell our students to observe, record, develop conjectures which may lead to hypotheses, to plan and control experiments, or observe phenomenon, to cross-check and finally to support or detract from hypotheses.

"One of the underlying assumptions in this symbolic recipe is that there is an 'objective' world 'out there', and that we, as scientists, should never, never mix in our 'subjective' world with our 'objective' world. Indeed, much of our checks and cross-checks are to avoid that very happening."

Michael's brow creased. "Wait, Chief. I know I've simplified the matter. Let me get to my point."

"The Eridanians speak of the unitary person, or ally of the future. They say," and she referred to her notes again, " '. . . It is the *image* of the future which is the key to that future coming into realization.' That, '. . . Science is not a description of *reality* but a metaphorical ordering



of experience: a new science never impugns an older.'

"Where we speak of an objective versus subjective reality, they say, 'It is not a question of which view is *true* in some ultimate sense; rather, it is a matter of which picture is more useful'; and, 'among the possible images that are reasonably in accord

with accumulated experience, since the image held is that most likely to come into being, it is prudent to choose the noblest."

The door opened, admitting Dr. John Doanne of Communications and Cryptography, C and C; and also striding jauntily behind was an apparition at least as shocking in real flesh as Dr. Doanne's prior description had forecast. It must have been, indeed had to be, Happy Honey, otherwise known on his birth certificate, if nowhere else, as George W. Honneywell, recent Harvard graduate cum laude, twenty-six, brilliant linguist, one fourth of the PuR and I secret intelligence section.

Dr. Doanne shook hands with the standing director. Happy Honey, however, pressed his palm then his backhand against his forehead, representing the noncony meeting-in-friendship greeting. His head was shiny under the lights, and Michael was sure he had sprayed a brilliancy powder on his bald pate.

"Ah! Margaret! My very own love!" Happy Honey pulled the chair closest to Dr. Cleveland and rocked it over next to hers. The best she could do was move her body to the far side of her own chair, having no farther to go except against the director's desk. Michael looked to Dr. Doanne, who merely shrugged.

"Excuse us a moment, Dr. Doanne and . . . ah . . . Mr. Honneywell—"

"Just call me Happy Honey; all my friends do!"

"Yes; well . . . ah, Happy Honey, excuse Dr. Cleveland and myself just for a moment. Don't go away. I need you both."

Margaret was visibly relieved for the interruption, brief as it promised to be.

"I don't understand your difficulty, yet, Dr. Cleveland. Sounds like philosophy of some sort—"

"We approached it that way, Dr. O'Hara; but it had a relevance to their idea of scientific investigation. Both Drs. Machtrix and Chavits agree with me, as well as Dr. Lai. There are a group of principles relating to the commonality of and interpretation of Eridanian subjective experience, especially of the 'transcendental' and hence to the bases of their values, which seem to shift suddenly from the realm of philosophical to the empirical."

Margaret closed her notebook and waited, as often does the specialist who feels the point has been made, not fully recognizing that it is only the specialist who could have understood the implications from such sparse data. Michael looked puzzled. "Don't you understand, Chief? The consequences of what we have may be even more far-reaching than those which emerged from the Copernican, Darwinian and Freudian revolutions!"

"I still don't understand your point, Margaret."

Dr. Doanne had walked around the table and was now sitting next to the director. Happy Honey had

placed his right arm around the back of Dr. Cleveland's chair. Their age differential was easily twenty-five years.

"Let us suppose, Chief, that we are back in the year 1600, concerned with forecasting probable future trends. In retrospect, it is clear that one of the most significant events in progress was what came later to be called the Copernican revolution. Would our futurist researches have picked this up?"

"They might have, if we were looking for the right things," Dr. O'Hara answered.

"Yes. But what was the essence of this remarkable transformation? Nicholas Copernicus, the brash, and Giordana Bruno made suggestions which led to consequences as diverse as a tremendous acceleration in physical science and a decline in the political power of the Church. So—I ask again, what was the essence of this transformation?"

Margaret had been addressing Dr. O'Hara. But Happy Honey, too long silent, too long the periphery of attention, interjected an answer. "One useful interpretation is that a group of questions relating to the position of the Earth in the universe, and the nature and significance of the heavenly bodies passed into the realm of empirical inquiry.

"No longer were these questions to be settled by referring to this or that ecclesiastical or scholarly authority; rather they were to be subjected to illumination by systematic observation and experiments.

"Consequence of such a shift?

"New research started; familiar phenomena were given new interpretations; educational approaches were altered; power structures in society began undergoing change; new bases for consensus were applied to conflicts between belief systems."

His countenance was so amusing, so in contrast with the erudite, professional speech, Michael's laughter flew out, unrestrained.

"He gets that way, sometimes," Dr. Doanne excused.

Margaret edged farther away, but she nodded her head as she added seriously, "A later similar event occurred with the work of the geologists, paleontologists, and biologists of the Nineteenth Century culminating in the controversial evolutionary hypotheses.

"Questions relating to the origin of the Earth and of man were relabeled empirical instead of theological. Consequences again reverberated throughout the worlds of research, education and politics."

Michael shook his head. He just wasn't up to following the abstruse points, and where they were supposed to aim. "I'm sorry, Margaret. I have an emergency on my hands—first class—two of them, in fact. What is it you need?"

"We . . . Dr. Chavits, Dr. Lai, Dr. Machtrix and myself . . . believe that the Eridanians' aspect of relating themselves to their methodology

has the potential of bringing forth a second Copernican revolution. We may be able to restructure the thinking of not only science, but society, and the project priority needs to be placed high, and given push."

It was hard for Michael to say, but he finally got it out. He explained how their budget would be chopped by fifty percent within fifteen days, and how the world's nations had decided that Project Ozma X was the source of society's weird behavior. "Sorry, Margaret. A second industrial revolution is *not* what we need now. As a point of fact, we need to undo the small revolutions going on around us if the project is to survive."

Happy Honey was indeed brilliant. He also proved to be an individual's individualist. Yes, he would stay with the Eridanians during their next transfer. No, he would not change his costume. How was he supposed to mix with other youthful citizens his age? Yes, he had been among those assigned to the third unsuccessful plot against the Eridanians. High-powered scopes had been used, and they had been countered by a newly developed, sensitive, gunpowder detector. No, he didn't mind being exposed to the danger, but he would run the show his own way—no interference.

"The UN as well as involved countries will have plenty of security arrangements of the customary kind," Dr. Doanne reminded. "Happy Honey's job will be that of looking between the interstices of conventional thought, the tiny cracks and devices where ordinary traditions, customs and patterns of thinking would normally be unwelcome.

"I know that looking at him," Dr. Doanne added, "he's not much; and he behaves atrociously—a standard for his age, apparently—but I'll vouch for him, Dr. O'Hara. Underneath that shiny pate, painted nose, tuxedo, plastic card bead-chain, bare feet and abominable behavior, beats there a heart which pumps human blood and a brain which at least simulates the human."

"Dr. Lai? Dr. Machtrix? Dr. Chavits?" Michael's words formed silent signals which were compared and switched, activating appropriate circuits. Acknowledgments came from all three department heads.

"I'd like all of you in for an emergency meeting. Dr. Cleveland and Dr. Doanne are already here. I've just discussed another assassination attempt against the Eridanians during their next dome transfer with . . . ah . . . Happy Honey from Dr. Doanne's irregular section. Pass the word to give him every cooperation during the interim, will you?"

Four steaming coffee cups were thrust through the doorway, followed by Mary Clibourne, whose eyes sparkled as they noted Margaret's awkward position. Michael's attention had just focused on Margaret's last comments, ". . . Absolutely not! I won't shave half my head, or

bow to any other noncony emblem of conformity. Why don't you find a woman your own age?"

"Take coffee from Mary's tray, if you want, Mr. Honneywell," Michael interrupted, "but leave us for now. This next meeting doesn't concern you."

Happy Honey stood, bent his shining, bald head slightly toward the project director, and placed the front and rear portion of his hand against his forehead again, acknowledging a parting-in-friendship, as he had acknowledged a meeting-in-friendship. His smile was large, showing even rows of clean, white teeth. His outlandish costume, artificial decorations and stage of undress clanged incongruously with office decor. But all of these things might have been tolerated that morning had Happy Honey only refrained from using his greeting and parting hand to pat Mary Clibourne's buttocks on the way out.

"Cool down, Michael," Dr. Doanne hastily advised. "I assure you, he'll do the job. He's merely playing a role in conformance with all other kids his age in the world, under the guise of nonconformity. They'll get over it."

"I'm beginning to appreciate the enormity of changes which have come to civilization within the past few years," the project director commented.

The meeting had been nonproductive, depressing. Alone, again, Michael switched on the Solid-o-graph, idly wondering about the minor changes which would make the solid figures spring suddenly to life. He had been about to approve release of the development, and fully expected entertainment industries throughout the world to be revolutionized by it.

Maybe they had pushed technology and new ideas too fast. If Project Ozma was actually the source of society's breaks with culture, tradition and moves, then the project should be closed, or at best, slowed.

But what of loss to mankind's future? Were they to convert the Eridanian visit to a mere social call? Would the Eridanians stay long enough for conditions to stabilize? True, their life span seemed to be about half an order of magnitude longer than man's, but he had to remember their return trip would consume at least another twelve years.

Most depressing of all had been lack of suggestions from departmental heads, though he supposed the news had placed them in a state of shock similar to his. Moreover, they hadn't had time to analyze the problem. Had anyone?

He spoke aloud to the Sound-a-news, commanding, "International news on," and immediately heard, ". . . Will be moved from United African Republic's dome number fifteen, to the newly erected dome, number thirty-one, in Hangchow, China, where Chinese scientists will have their first opportunity to work directly with the Eridanian scientists.

"The route is eight thousand and forty miles long, passes through nine nations, and already Eridanian kewpie dolls are beginning to appear in stores in every country along the route of travel."

Michael remembered how development of the Disney-type kewpie dolls—lovable, cuddly for kids—had been one of Project Ozma's top priority items four and a half years ago, when mankind's fear of the aliens had almost sliced the budget.

". . . Their pressurized, transport, steel domes will be viewed by hundreds of thousands of people who will line the paths of travel in expectedly deep ranks for a look at these extraordinarily intelligent members from Epsilon Eridani; they will . . ."

"Switch to national," Michael ordered.

". . . And we are experiencing already the effects of the meeting. Nearly three million youths, every one in some outlandish costume, hair either shaved or half-shaved depending upon sex, face or body painted with grotesque designs, clapping and swaying in rhythm with synchronized, colored lights orchestrated by one hundred of the country's top rainbow groups.

"Think of it, folks. Nearly three million youths!

"According to reports gathered for this news service from reliable sources, at least two hundred and fifty new organizational groups were established during the all-week festival, each dedicated in some way to the overthrow of current customs, traditions, or religious principles. They claim to be peaceful, and maybe they are; but already a half dozen state legislatures have gathered to write manifestos which delineate those principles which shall be considered unbreachable, rock-bottom acceptances against which every new organization must be compared—and perhaps be outlawed if the comparison is in—."

"Another station," Michael dictated.

". . . Add to that, demands of the Australian Aborigines who now claim all of Northern Territory as well as South Australia, cutting the continent in two . . ."

"Local," Michael's depression was being rapidly replaced by irritability, a kind of exasperation.

". . . Dr. Min Pockben, the noted and much published psychiatrist, is the latest local figure to join with the Gimitis, and he is quoted as saying that 'man's image of himself requires a Terran-type God'. Their parade down Broadway lasted at least an hour longer than local police had predicted, showing the organization's growing strength . . ."

"Off," Michael shouted. Good Lord! From the Sound-a-news one would think Armageddon was coming!

"President Ownouchai on the line again, Dr. O'Hara. Shall I switch him in?" Mary's calm voice was an

oasis. But the UN president again? Three calls in one day? Now what? His heart thumped as he confirmed Mary's interruption.

"Terribly sorry again, Dr. O'Hara. Things are getting a bit out of hand. They call it an exponential curve, but it will flatten again in about seven days.

"Something drastic has to happen to capture the world's attention, or civilization will tear itself apart by too many conflicting motives arrived at too rapidly.

"Some of the members are suggesting complete abolishment of Project Ozma X, and sending the Eridanians home. I thought I should warn you."

"Has the whole world gone noncony, Mr. President?" Michael thrust a verbal dagger at the UN President.

"I'm afraid it has, . . . uh . . . Michael." There was use of his first name, and a sympathetic voice, a concerned expression. The dagger didn't have the thrust he thought it would have.

Momentarily, both were silent, and they looked at one another in the small viewscreens, sharing their human concerns by sight alone. Michael broke the quiet, "Can you arrange for me to meet a spokesman of those who compiled the causal report against our project? No recriminations or accusations; I simply want to question for professional reasons."

President Ownouchai pressed his lips together, "I'm sure I can arrange it. I'll talk privately to one of them."

Michael turned away from the blank screen, to again face the life-sized Eridanian. He thumbed off the Solid-o-graph: the after-image burned into his retina and projected itself on the paper which he pulled out to marshal his notes.

Project Ozma I had suffered for money and political sympathy. Every Project Ozma thereafter had suffered for lack of the same ingredients. Now, O'Hara reflected, money was no obstacle, the project having generated far more in economic benefits than it had generated in costs. Political sympathy was still lacking—or, perhaps he should think of it as inability of the human species to identify with Project Ozma's eminently worthwhile goals. Gaining species identification was apparently more than simple construction of Kewpie dolls.

Item 1: he wrote. *Fragmentation of values.*

What had Margaret said? "It is not a question of which view is *true* in some ultimate sense; rather, it is a matter of which is more useful . . ." and ". . . since the image held is that most likely to come into being . . ."

Item 2: Patterns, relations, are as real as material things—check on applications of Eridanian objective-subjective fusions.

A second Copernican revolution?

Item 3: Can department heads implement findings to save Project Ozma X?

Michael O'Hara fought time with

pen and paper, and struggling, sticky, embryonic ideas.

Dr. Markstein, Michael's distinguished but portly visitor from the United Nations offices, had coarse features, large red-veined bulbous nose and fast balding head. He had the officious attitude which Michael had expected to find, but he also had his facts and figures well thought out. Pending his own staff's work, and interpretation, Michael would have to accept the conclusions.

The visitor's rotund body swung ponderously as he swept his pointer around. The curves on the flip-chart were impressive. "You have asked me to be brief, Dr. O'Hara. As succinctly as possible, civilization is suffering from culture shock!"

Dr. Markstein laid the pointer on the flip-chart's rim and fluffed himself into the chair at Michael's left hand at the conference table.

Michael O'Hara forced out a good-natured laugh. "Can you embellish a little on that, Dr. Markstein? We do need to hurry, but we also should have a few more words of wisdom from you."

Seven days was too short a time to effect any kind of solution to the world's problems. The human society had had bad times before, and would probably survive this one—by use of totalitarian measures, if necessary, Michael mused.

Both pudgy hands were laid palms-down on the table as Dr. Markstein ponderously pushed himself upward again. His throat rasped, "You have asked me for our consensus report. As you see, our studies border on issues which have been at the root of human conflict for centuries.

"We have known for years that man views himself in terms of in-vogue models which limit his behavior and his potentialities. But no matter how he views himself consciously, the greater portion of significant experience is comprised of unconscious processes, including the wisdom of the body and those mysterious realms of experience which we refer to as intuition and creativity."

Michael repressed an impulse to frown. It would not be appropriate to express any hint of antagonism with the representative. "I thought man had had access to these unconscious processes through a wide variety of factors, including attention to feelings and emotions, inner attention, free association, hypnosis, sensory deprivation, hallucinogenic and psychedelic drugs, and other means. In fact, the Menninger Foundation, the Journal of Transpersonal Psychology, and others, have included studies in these largely unconscious processes showing that self-expectations, internalized expectations of others, images of the self and limitations of the self, and images of the future, play a predominant role in limiting or enhancing actualization of one's capacities.

"So—I don't understand how re-

formulation of those principles are related to society's present propensity for breaking with traditions, nor how our project is at fault."

Dr. Markstein's voice was flat, unemotional, and he sometimes read his summaries in a stilted, professorial, uninspiring manner. Michael forced himself to attend. If the man were only more forthright, as he had come to expect from his own staff members.

"Our consensus shows unanimity in the belief that most of the pervasive social illness is loss of guiding visions, and the cure is to be found in generating a nobler image of man and of a society." There was the plump visitor's appeal to authority again, and he was showing great sensitivity to even implied disagreement.

"You don't question our correlations, do you, Dr. O'Hara? That disaffection began with Project Ozma X technical knowledge, and increased proportionately?"

"No! No! Certainly not! But the very idea that a solution exists, implies uncomfortable principles: If man actually has the ability to adapt more rapidly than heretofore, and also his social organizations, then we have vastly undersold him, and misunderstood what was needed for transitions. The most profound revolution in education would not be the cybernation of knowledge transmission, but the infusion of an exalted image of what man can be and the cultivation of an enhanced self-image in each individual child. Solutions to widespread disaffection would not then be so much a vast social program, as through adoption of a new image of our fellow man and our relationship to him."

"Our consensus shows unanimity, Dr. O'Hara." The voice became challenging, almost stubborn. "A slow-down of technical innovations will permit a naturally evolved solution to rise, permit social stabilities."

"Yes—yes. I accept your data, and I do value your conclusions, Dr. Markstein. May I keep your summary for review by my staff?"

When Michael's departmental conference began the conference room was quiet; paper scratching and pencil tapping was hushed by long drapes strategically placed. One of Project Ozma's products, a roll-up TV screen, twelve by fourteen feet, hung on the ceiling-to-floor drapes. On it was seen a televised map of the latest Epsilon Eridanian trek from United African Republic to Hangchow, China, and a prominent newscaster who was faithfully describing the line of travel as well as the interesting geography.

The picture soundlessly changed to a scene showing five large transparent pressure tanks which were slowly parading through the dusty, heat-soaked streets of Kabul, Afghanistan. Boxy, white, mud-houses intermixed with the modern, rounded extruded homes, the latter also a

Project Ozma outcome, lined the streets. A weird mixture of cloth-draped natives, conservative western-style dressed personages, and unconventionally dressed nonconies lined the streets, waving flags and banners. Uniformed guards lined the way, and were three thick near the wooden stand which strutted over the crowd and which contained the local region's indignitaries.

Dust spirals lazied upward and an official military copter passed before the camera. Michael wished he could follow the action but regretfully turned from it to his assembled department heads, leaving the picture itself as a silent, shifting tapestry of colors blending themselves into the maroon folds behind.

"Colleagues," Dr. O'Hara began, "I understand your summary is ready. Dr. Markstein's report has been before you for two days now. They have labeled the social phenomena—the strange activities of individuals and groups which have permeated our society for the last four or five years—as culture shock; and they attribute this shock to the rapid technological changes which we have introduced through interpretation and release of Eridanian science, as well as to strong challenges of basic traditions, customs and mores brought about by impingement of a new species' necessarily different viewpoint.

"The consensus committee concluded that traditional underpinnings—the scaffold or framework, so-to-speak—of our various social organizations have been challenged more rapidly than our present abilities to adjust. They also declare that no technical solution to the present social instabilities lies on the horizons.

"One final, but perhaps more limited, problem involves President Ownouchai's claim to a need for some kind of world-attention-getting focus.

"Oh . . . yes . . . Dr. Markstein discussed these matters with me personally. I didn't dare give him the benefit of my own opinions, of course, but I found his thinking gossamer wishful thinking at best. We are scientists here, and we look for operational factors—components which can be described, predicted, perhaps even manipulated."

Dr. Sam Chavits spoke first, in his quiet but forceful manner, saying, "A new social order need not be built on gossamer wishful thinking, but can have a sound foundation in the research findings of our project."

"Are you asserting that we *can* have our scientific advancement and our social stabilities, too?"

"Well . . . yes! But it's Margaret's story, Dr. O'Hara." Sam laughed. "I guess that brings us around full circle again."

The slightly stooped Peter Machtrix spoke. "Science of man's subjective experience is in its infancy, Dr. O'Hara. What's needed is a new science which incorporates the most penetrating insights of psychology,

the humanities and religion. These developments would have profound impacts on goal priorities in our society, on our concepts of education, on the further development and use of technology, and perhaps—as in the case of the Copernican revolution—on the distribution of power among social institutions and interest groups."

Michael looked at the faces around him—department heads all—serious, thoughtful, sober. Their natural excitement, their natural enthusiasm had been blunted. "I may have missed the point somewhere. Are we to close up Project Ozma X, send the Eridanians home—or, are we to concentrate on this . . . this . . . development of a science of subjective experience?"

Mary Clibourne entered with hot coffee and tea. Margaret had been shuffling through her notes. When she found the page she wanted, she looked up. Michael knew she was requesting the floor, but he waited. John Doanne pointed his finger at Margaret. Sam Chavits and Win Lai and Peter Machtrix all looked toward her, also.

"All right Margaret," Michael nodded.

"We haven't made any determinative decisions regarding Project Ozma X, on return of the aliens, Chief. Even the UN committee holds that a threshold effect has been reached in our society and closing down the project, in our opinion, is not going to affect the new leavening one way or another." Margaret's voice was steady, clear, objective.

"Agreed."

"If something spectacular were to happen which captured world attention, probably the heat would be off us long enough to take a second step." Margaret nodded to the others. "We are in agreement. The UN technical and professional body can be convinced that Project Ozma, itself, carries the medicine for its own sickness."

"Good gosh! If you folks have any recommendations, let's hear them. I don't have any."

"What Dr. Markstein reports on is need for a new science of the objective-subjective. This is almost analogous to our findings with respect to the Eridanian's description of scientific method." As was her wont, she waited for Michael to catch the overtones.

Michael remained silent. He thumped the table with his middle index finger and frowned.

Margaret returned to her notes. "I'll read some of the characteristics embedded in the Eridanian concept of scientific method:

"A dominant one is the relaxing of the subjective-objective dichotomy. In some way yet to be determined, they incorporate the doctrine that sentient life perceives the world as it has been culturally hypnotized to perceive it, and their science compensates for it. Our common-sense-scientific view of reality is consid-

ered valid, but only a partial view—a particular metaphor, so to speak.

"One reason we've had such a difficult time classifying and categorizing their knowledge over the past twelve years is that certain religious or metaphysical views are also embedded in their concept of scientific method." Margaret looked at the others apologetically, then returned to her notes.

"They refer to subjective experiences and the unity of things which this view brings about, and they include some sort of mapping or ordering of states of consciousness transcending the usual conscious awareness. Subjective experiencing of a higher self is accounted for, as well as views favorable to the development of a self-image congruent with experiences of the higher self.

"Where we categorize under such diverse headings as creativity, hypnosis, mystical experience, psychedilic drugs, extrasensory perception, psychokinesis, and related phenomena, they provide a much more unified view of the processes of personal change and emergence which takes place when one pursues the 'know thyself' path.

"Their view is centered around the concept that personality and behavior patterns change consequent upon a change in self-image, a modification of the person's emotionally felt perception of himself and his relationship to his environment. They join the object with the field; they—"

"Are you trying to tell me that those principles of Eridanian science are analogous to the new science of the subjective-objective alluded to by Dr. Markstein?"

"They are indeed. I didn't recognize the relationship until we had Dr. Markstein's detailed report available for study and cross-checking, then Dr. Lai, who is always such a stickler on methodology, pointed out the relationship. Well—you know our habit of translating, cross-verifying and cross-relating—we all agree—it's reasonable that the Eridanians, too, faced similar problems, and have solved them in this manner. They are a Type I civilization like us only about forty years in our advance. If so, maybe they've solved the problem of stabilizing society while making rapid technological progress."

It wasn't a positive answer, but neither was it a grasping for straws. Michael knew his team of five years, and he knew their thoroughness. He was willing to accept their recommendations, and he believed he could sell delay of project slowdown, pending at least a further check by outside specialists. What he needed, now, he felt, was that single stroke across the sky, that brilliant burst of light, which would attract attention away from Project Ozma X long enough to effect the selling job. He looked to Dr. Doanne, "Can your PuR and I section sell th—."

"Look at the screen!" Dr. Chavits

suddenly interrupted with a shout.

A copter-cab was being pursued by a lone military copter. Michael O'Hara turned the volume up, and they waited anxiously for more military copters which did not appear.

Dr. Win Lai exploded. "I thought Intelligence was prepared?"

Dr. Margaret Cleveland's hand pressed against her mouth.

Surprisingly, the copter-cab easily outdistanced and outmaneuvered the lone, fluttering military copter. The camera panned down and across, zooming swiftly in to catch UN honor guards and military escorts as they aimed and shot toward the cab. The sharp crack of rifle fire was drowned out by suddenly standing and shouting scientists.

Bursting puffs of white surrounded the cab even as it straightened out, lining itself with the tail of the Eridanian parade.

The TV camera followed the plummeting copter; Michael's stomach muscles tightened as the cab came low behind the last Eridanian tank, hit it, and broke into an inferno of red, white and yellow flame which passed like tumbling waves to each of the other four Eridanian tanks in turn.

Michael's fists clenched as he fought himself to his seat.

Several Red Cross trucks had swung up to treat the wounded civilians, and the crowd was slowly moved backward.

The group sat stunned.

The camera suddenly zoomed to a small cluster of robe-frocked natives which had sprouted signs, as though ready for the event. GOD IS MADE IN TERRAN IMAGE, one sign said. DEATH TO ALL ALIENS, another quoted. GOD PLACED MAN OVER BEAST, flashed another.

Hundreds of militia were now converging on this small group; sticks and mist-sprays filled the screen. The conference group now sat, glued to the shocking pictures until the last of the Gimitis had been arrested.

"Strange how ill-prepared the authorities were for what they knew was to happen to the aliens, and how very well prepared they were to arrest the demonstrators," someone said.

Dr. Samuel Chavits, a silent rock during the catastrophe, cleared his throat which had become understandably dry during the interim. "I'm sure Happy Honey took care of th—. . ."

"Happy Honey on the line, Chief." Mary Clibourne's voice overshadowed Dr. Chavits'.

Michael raised his hand before the assembled chiefs. "Here's a firsthand report. Put him on, Mary."

Happy Honey's voice was appallingly casual, even irritatingly normal, considering the circumstances. His smile showed clean teeth flashing white with the shine on his bald head. "Happy Honey reporting from Afghanistan, folks. How did you like the show? I understand the viewer's rating was something

unique for a dome transfer. That's what you said was needed, didn't you, Dr. O'Hara?"

"We saw it on the screen. What happened? Report." Both Michael's voice and face reflected his disapproval of the Harvard cultured voice. Were anyone watching and listening, they would hardly believe that the most valuable cargo in all of man's history had just been lost.

"The Gimitis came through with their ridiculous cab, just as predicted—used thermite and jellied gasoline, too—burned our dummy tanks just as planned."

"Dummy tanks?"

"Yes. Dr. Chavits adapted the Solid-o-graph to show moving solids, the aliens. We had five projectors going, one in each of the transparent tanks. Couldn't tell the difference between the real Eridanians and our solid-picture forms.

"We secretly loaded the Eridanians in planes, and transferred them days ago. When the scheduled time for public transfer came, we sent the moving Solid-o-graph images on the route. Who would know the difference? Then we set the trap for the Gimitis—if they showed—and they did."

"But those were real antiaircraft bursts we saw. Weren't you running a risk with live ammunition? What if the military copter had been hit? Or the Gimitis's copter?" Michael asked.

Happy Honey shrugged. "Oh, those were blanks. The hardest part was with the Afghanistan militia. Had to make a special trip with their brass to prove the images were actually images. They doubted our credentials, too."

"We'll get your detailed report later . . . uh . . . Happy Honey. And . . . Happy Honey. And . . . uh . . . thanks." Michael's voice was resonant, sincere. "That was an especially good Gimiti group, too. Signs were just right."

The roll-up TV screen hung again from the maroon drapes in front of Michael O'Hara's desk. It was divided into a rectangular array of two rows and three columns, each square dimensioned about four feet by five feet. Margaret Cleveland's homespun image appeared in the upper left; John Doanne's and Peter Machtrix's image were respectively next, in the same row.

Below Margaret was an empty square and the next two in order were Samuel Chavits and Win Lai. Each department head sat before a similar roll-up screen divided electronically in such a way that all other members were present, including their chief, Michael O'Hara.

Public reaction to the apparent assassination of the Eridanians had been virtually instantaneous. Complete, mind-devastating numbness followed the news reports which seemed to cycle the Eridanian deaths over and over again, as though by the very repetition the single act of horror could be disavowed; or, at the

least, a justification would be found which could sweep away human guilt.

The cab-copter broke away from the military copter. Puffs of white smoke surrounded the craft which settled into its run, striking the five tanks with roiling, colored flames. The red Eridanians, flame-swallowed, disappeared in the image of blackened corpse.

Again and again the newscasters repeated the senseless act, and the Gimitis waved their signs demanding that God be man's exclusive image; and the police battered through the forest of banners, to club and spray.

Three days had passed while the seething human emotion swelled, and Project Ozma X waited, patiently, silently.

And now Michael and his staff waited on the scheduled call. His eyes flicked across the empty square below Margaret's image, tense, waiting.

Only the bare facts of the Eridanian murders were reported first, later, when a voracious news-service searched for new material, and human senses had yet to be saturated, feelings yet to be assuaged, Project Ozma X had been ready with thoughtful, in-depth background material. Michael smiled as he remembered the Aselt News Hour. Aselt, a dynamic tongue-and-eye binder who had made a career of shaping pointed remarks against Project Ozma X, had had to explain the depth of Eridanian loss to his listening and watching public.

Public guilt and shame ballooned. One by one the small social fragments were encysted, then cut-off by humanity's sharp cries of denial. The Gimitis, once so strong, so durable, evaporated as a mist, then a nothingness, a thing that never was.

The image of UN President Ownouchai suddenly appeared on the blank square next to Samuel Chavits and below Margaret's image. "It is good to talk with you and your staff again, Dr. O'Hara." His smile was broad, bright; his head nodded briefly. "I am proud to announce a complete reversal of the assembly's former stand. There no longer seems good reason to choke off funds, or to hamper Project Ozma X's activities, and the vote was unanimous."

Michael could see muscles relax, tension drain, as department heads accepted the statement.

"This turnabout is . . . ah . . . a political phenomenon extraordinary, Dr. O'Hara. Naturally when the Eridanians appeared to die, public guilt and shame, reinforced by the outrage of a silent majority, was the acultural backlash needed. As a practicing politician, I understand. I don't understand how you prevented indignation . . . ah . . . the feeling of 'You made a fool of me!' when the truth was finally verified yesterday. Reports show the Eridanian image . . . ah, the identification of humanity with the alien and his cul-

ture . . . is growing, and promises to grow to its natural limit.

"Also, I'm not entirely sure I understand how the trick was accomplished. There were human deaths in Kabul. I surely hope Project Ozma X was not responsible."

Michael nodded his head in agreement. "John Doanne and Samuel Chavits can give you the mechanics of the incident, President Ownouchai. It *is* true that the Eridanians had been transferred earlier by air, and newly developed solid images rode the tanks. One of John Doanne's young graduates, Happy Honneywell, arranged the matter.

"I can assure you Happy Honneywell merely took precautions along the route to insure that if the terrorists appeared, the military and parapolice would permit the strike. Those killed and injured were too close to the parade because of laxity by the Kabul police.

"We also regret the deaths; but the count could have been much higher had we not made advanced preparations."

"Yes! Yes! Thank you for the assurance." The president's smile widened. "I have discussed the other matter with Dr. Markstein, who assures me that society has reached a new level of stability. What is your explanation? He does not explain it."

"Dr. Cleveland's work provided the basis, Dr. Ownouchai." Michael nodded toward Margaret, who accepted the cue.

Her image, almost life-sized, unfolded lap-held hands as she said, "The Eridanian attitude toward science surmounts our more limited view of an objective versus subjective dichotomy. They recognize that relationships, as well as material things, and internal mind phenomena interact.

"From their orientation, although reality is always greater in complexity than any number of finite minds can visualize—or interact with—there is a reality there, with its proper rules and relations.

"The Eridanians also believe that their internal image of reality will help them to discover, and the relationship between their subjective image and reality constitutes the subject of their scientific methodology—reality adjusts their internal image, and their internal image adjusts the appearance of reality, or at least the relationships about reality under view, until the interacting confluence stabilizes." Margaret, always the specialist, folded her hands back on her lap and waited.

The UN president's forehead wrinkled, his smile disappeared.

Michael O'Hara laughed. "Margaret is saying that 'It is the image of the future which is the key to that future coming into realization.' Within certain broad constraints, of course.

"When the UN assembly voted to cut Project Ozma, ostensibly because society could not react as rapidly as Eridanian technology and introduction of new concepts demanded, the world was receiving a

downward-spiraling image of itself via newscasts, political gatherings and the other thousands of ways which humans communicate and interact with one another.

"You, President Ownouchai, suggested the need for a startling attention-getter, and we agreed that such would break humans from their hypnosis-like patterns. But it was Margaret's insight on new applications of the Eridanian viewpoint of scientific methodology which turned the trick—and, a practicing politician such as yourself will surely recognize some characteristics."

The president's frown deepened.

"When the news media begin to run out of background material, and the public tired of seeing the tanks burn, John Doanne's office began providing accurate information, showing how the Eridanians had been saved—and his reports were embellished by describing the heroism, patience, shrewdness and foresight of all participants from all countries party to the deception.

"The public was ready then, and the image provided, so that a new kind of self-image was acceptable. Rather than disruptive, the images unified; instead of fragmentation, argumentation, stupidity, the public now holds a self-image of nobility, wisdom, understanding—and it constrains the public to conform to that image. Dr. Markstein will surely find that man is beginning to view himself as part of a cosmopolitan, galactic citizen of noble image.

"The public consists of humans, even as you and I, Dr. Ownouchai, and individuals will certainly not be the perfection of product this newly manufactured and accepted image projects; but he'll approach a lot closer than he did during the past four years."

The UN president's smile broadened, deepened, brightened, again. "Ah yes, of course. Well . . . thank you Dr. O'Hara, Dr. Cleveland, Dr. Doanne, Dr. Machtrix, Dr. Chavits . . . thank you for talking with me again. I look forward to working with Project Ozma again—and I will want to learn more about this . . . ah . . . non-dichotomy of immaterial mind and material world."

The dark man's features clouded, then brightened again, as he turned to go. Michael's last doubts about the man's ability to understand evaporated with his last piercing remark. "I will be looking forward to a second Copernican revolution, Dr. O'Hara!" ■

peace with honor

Peace is a very complex thing—and it is by no means true that all wars are fought on battlefields, and all casualties either buried or hospitalized.

JERRY POURNELLE
ILLUSTRATED BY LEO SUMMERS

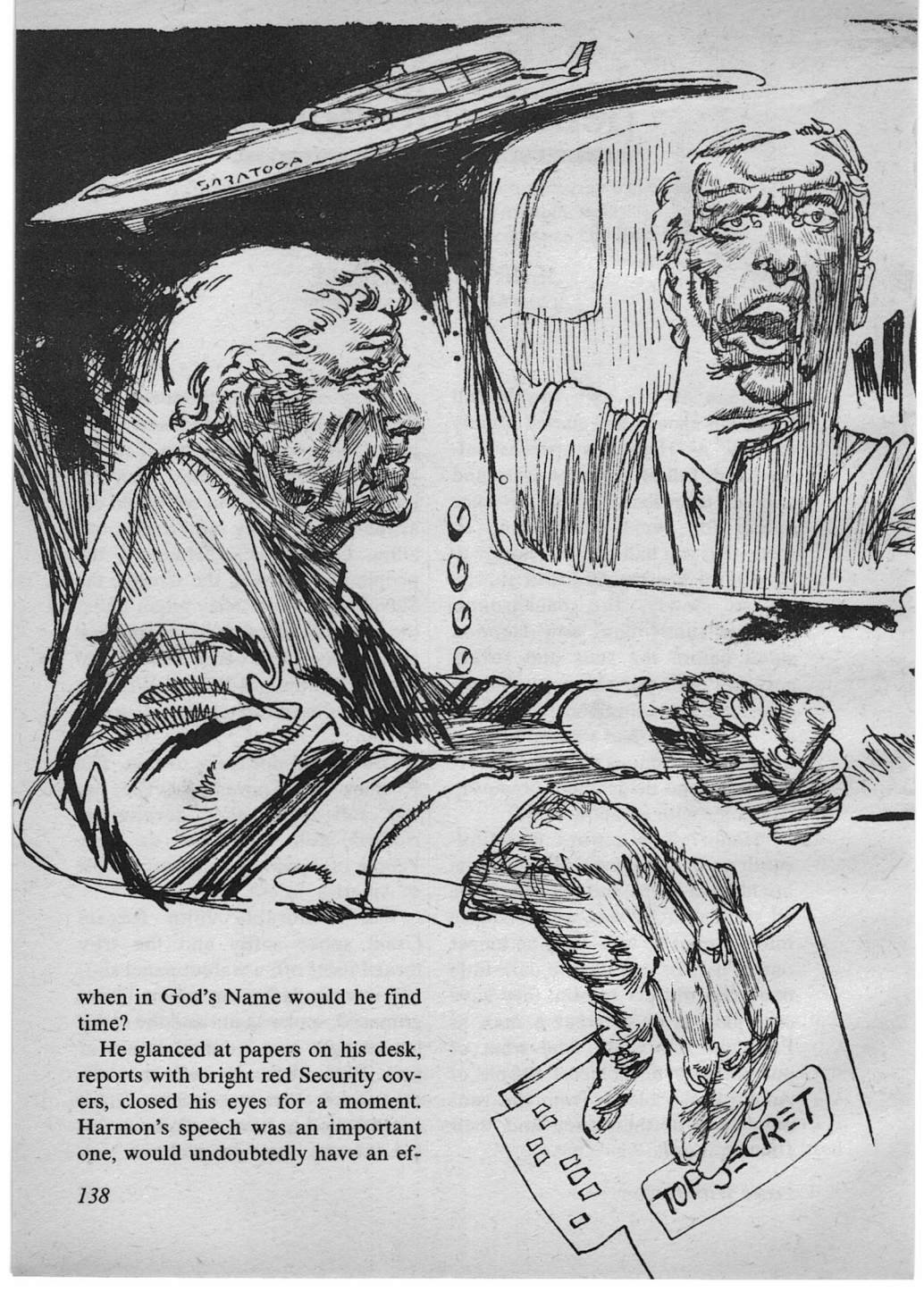
The man on the tri-v was in full form. His speech had started quietly enough, as Harmon's speeches always did, full of resonant tones and appeals to reason, the quiet voice asking for attention, speaking so softly that you had to listen closely to be sure of hearing him. But slowly, oh so slowly, the background changed subtly until now Harmon stood before the stars and stripes covering the hemisphere, an American Eagle splendid over the Capitol, and the speaker had worked himself to one of his famous frenzies, his former calm and detachment obviously overcome with emotion.

"Honor? It is a word that Lipscomb no longer knows. Whatever he might have been—and my friends we all know what he was, we all admire him for what he was—he is no longer one of us! His cronies, the dark little men who whisper to him, they have corrupted even so great a man as President Lipscomb! And what of our country? She bleeds! People of America, she bleeds from the running sores of these men and their CoDominium!

"They say that withdrawal from the CoDominium would mean war. I pray God it would not, but if it did, why these are hard times. Many of us would be killed, but we would die as men! And today our friends, our allies, the people of Hungary, the people of Rumania, the Czechs, the Slovaks, the Poles, they groan under the oppression of their communist masters, and who keeps them there? Our CoDominium! We do! We have become slavemasters! Better to die as men.

"But it will not come to that. The Russians would never fight. They are soft, soft as we, their government riddled with corruption as ours. People of America, hear me! People of America, listen!"

The Honorable John Rogers Grant spoke softly and the tri-v turned itself off, a walnut panel sliding over the darkening screen. Grant grimaced, spoke again, and the servitor brought him a small bottle of milk. With all the advances in medical science, there was nothing Grant could afford to have done for an ulcer. Money was no problem, but



when in God's Name would he find time?

He glanced at papers on his desk, reports with bright red Security covers, closed his eyes for a moment. Harmon's speech was an important one, would undoubtedly have an ef-

fect on the coming elections. The man was getting to be a menace, Grant thought. Have to do something about him one day. He put the thought aside; John Grant liked Harmon, at one time they had been best friends. Lord, what have we come to? He opened the first report.

There had been a riot at the International Federation of Labor convention. Three killed, and the smooth plans for the re-election of Matt Brady thrown into confusion. Grant grimaced again and drank

more milk. The Intelligence people had assured him that this one would be easy. Digging through the reports he found that some of Harvey Bertram's child crusaders were responsible. They'd bugged Brady's suite, got enough evidence of sell-outs and deals to inflame sentiment on the floor. The report ended with the recommendation that the government drop Brady, concentrate support on MacKnight who had a good reputation, but whose file in the CIA building bulged with information. MacKnight would be easy to control. Grant nodded to himself, scrawled his initials on the action form, dropped it in the TOP SECRET: OUT slot. No point in wasting time, but he wondered what would happen to Brady. Matt Brady had been a good friend to the Unity Party, blast Bertram's people anyway.

He took up the next file, but before he could open it his secretary came in. He looked up and smiled gently, glad of his decision to ignore the stupid telecom. Some executives never saw their secretaries except through electronics from the moment they came in until they were ready to leave.

"Your appointment, sir," she said. "Almost time. And it's time for your nerve tonic."

He grunted. "I'd rather die." But he let her pour the shotglass of evil-tasting stuff, tossed it off and chased it with milk before glancing at his watch. Not that the watch was needed, he thought. Miss Ackridge knew the travel times to every Washington office, allowed just enough extra for possible emergencies. There'd be no time to start on another report, and that suited Grant just fine.

He let her help him into his black coat, brush off a few silver gray hairs. He didn't really feel fifty-five, but he looked it now. It happened all at once. Five years ago, he could pass for forty. John saw the girl in the mirror behind him, standing close to him, and knew that she loved him. The usual secretary-boss situation, and it wouldn't work. Why the hell don't you get married again, John Grant? It isn't as if you're pining away for Priscilla. By the time she died you were praying it would happen. You can even admit that, now. Why the hell do you go on acting like the great love of your life has departed forever? All you'd have to do is turn around, say five words, she'd . . . she'd what? She wouldn't be the perfect secretary any longer. Good secretaries are harder to find than mistresses. Let it alone.

She stood there for a moment, then moved away. "Your daughter wants to see you this evening," she told him. "She's driving down this afternoon. Says it's important."

"Know why?" Grant asked. Ackridge knew more about Sharon than Grant did. A whole lot more, probably.

"I can guess. I think her young man asked her."

John nodded. It was hardly unexpected, but it hurt. So soon, so soon. They grow so fast, and there's so little time. John Jr. was with the Callisto Squadron, First Lieutenant of a CoDominium Navy frigate, due for a command of his own any year now. Frederick was dead in the accident with his mother, and now Sharon had found another life . . . not that she hadn't before. Since he became the Honorable Deputy Secretary he might as well have died for as often as they had time together.

"Run his name through CIA, Flora. Meant to do that months ago, can't think why I never got around to it. They won't find anything, but we'll need it for the records."

"Yes, sir. You'd better be on your way, now. Your drivers are outside."

He glanced around the office, scooped up his briefcase. "I won't be back today, have my car sent around to the White House, will you? I'll drive myself home tonight."

"Yes, sir. You can send the briefcase back with your driver, then," she said carefully, reminding him of his own regulations. Too many papers turning up missing from too many houses lately. If you want to work nights, stay at the office.

He acknowledged the salutes of his driver and armed "mechanic" with a cheery wave, led them to the elevator at the end of the long corridor. Paintings and photographs of ancient battles hung along both sides of the hall, but otherwise it was like a cave. Blasted Pentagon, he thought for the millionth time. Stupidest building ever constructed. Nobody can find anything, it can't be guarded for any price, and it's too big for the important staff, too small for everything the military needed. Miserable stupid building. Why couldn't somebody have bombed it?

They took a surface car to the White House. He could have made his own clearance for a flight, but it would have been another detail, and why bother? Besides, this way he got to see the cherry trees and flower beds around the Jefferson. The Potomac was a brown sludgy mess despite the latest attempt to clean it up. You could swim in it if you had a strong stomach, but the Army engineers had "improved" it a few administrations back, giving it concrete banks . . . why the devil would anyone want to make a concrete ditch out of a river? he wondered. Now the workmen were tearing the lining out, which kept the water perpetually muddy. One day they'll be through with it.

They drove through rows of government buildings, some of them abandoned. Urban Renewal had given Washington all the office space the government needed, more, until there were empty buildings, big relics of the time when Washington was the most crime-ridden city in the world. Back around the turn of the Century, maybe before, he couldn't remember, they'd torn everything down, hustled everyone out of Washington who didn't belong there,

the bulldozers quickly following to demolish the tenements. For some political reason it was thought desirable to put up offices as quickly as the other buildings were torn down, to make the displaced people think it was all necessary, and now there were these empty tombs.

They passed the Population Control Bureau, two square blocks of humming activity, then around the Elipse and past Old State to the gate. The guard checked his identity carefully, using the little scanning plate on his palm-print, although blast it, that guard knew John Grant as well as he knew his own mother. Grant sighed and waited until the computer flashed back the "all right," was driven into the White House basement and escorted quickly up to the Oval Office. He got there one minute early for his appointment.

The President stood when Grant entered, and the others shot to their feet as if they had ejection charges under them. Grant shook hands around, but looked closely at Lipscomb. The President was feeling the strain, no question about it. Well, they all were. Too bad about the Chief, but they had to have him.

"Sorry the Secretary couldn't make it, Mister President," Grant announced ritually.

Lipscomb made a wry face but said nothing. The Secretary of Defense was a political hack who controlled a bloc of Aerospace Guild votes and an even larger bloc of aerospace industry stocks. As long as government contracts kept his companies employing his men, he didn't give a damn about policy, and since he couldn't keep his big mouth shut it was best not to tell him about meetings. He could sit in on formal Cabinet sessions where nothing was ever said and would never know the difference anyway.

Grant kept his attention on the President. Lipscomb didn't like to be reminded of the incompetence of his cabinet, the political deceptions that divorced power from its appearance. The ritual was getting old, why not just sit down and say nothing? Silently, Grant took his place at the center of the table across from the President.

Except for Lipscomb, none of the men in the Oval Office were well-known to the public. Any one of them could have walked down the streets of any city but Washington without fear of recognition. But the power they controlled, as assistants, deputies, clerks even, was immense and they all knew it. There was no real need to pretend to each other.

The servitor brought drinks and Grant accepted a small scotch. Some of the others didn't trust a man who wouldn't drink with them. His ulcer would give him hell, and his doctor more, but doctors and ulcers didn't understand the realities of power. Neither, Grant thought, do I or any of us. But understand it or not, we've got it, and we've got to do something with it.

"Mr. Karins, would you begin?" the President asked. Heads swiveled to the west wall where Karins had set up a briefing stand. A polar projection of Earth glowed behind him, lights blinking the status of forces which the President ordered, but Grant controlled.

Karins stood confidently, his paunch spilling out over his belt, an obscenity in so young a man. Herman Karins was the second youngest man in the room, Assistant Director of the Bureau of the Budget, and said to be one of the most brilliant economists Yale had ever produced. He was certainly one of the best political technicians in the country, but that didn't show in his résumé, or degrees.

He took off the cover sheet to show a set of figures. "I have the latest poll results," Karins said too loudly. "This is the real stuff, gentlemen, not what we hand out to the papers. It stinks."

It certainly did stink. The Unity Party was hovering around thirty-eight percent, just about evenly divided between the Republican and the Democratic wings. Harmon's Patriot Party had about twenty-five, Millington's violently left wing Liberation Party had its usual ten, but the real shocker was Bertram's Freedom Party. Bertram's popularity stood at an unbelievable twenty percent of the population.

"These are figures for those who have an opinion and might vote," Karins said. "The usual. 'Course there're about half who don't give a damn about anything, but they vote by who got to 'em last anyway; we know how they split off. You see the bad news."

"You're sure of this?" the Assistant Postmaster General asked. He was the leader of the Republican wing of the Unity Party, and it hadn't been six months since he told them they could forget Bertram and his bleeding hearts.

"Yes, sir, I'm sure of it," Karins said. "And it's growing. Those riots at the labor convention probably gave 'em another five points, but we don't show that yet. Give Bertram another six months and he'll be ahead of us. With elections coming up in a year. How you like them apples, boys and girls?"

"There's no need to be flippant, Mr. Karins," the President said automatically.

"Sorry, Mister President." Karins wasn't sorry at all, and he glared at the Assistant Postmaster General with triumph. Then he flipped the pages of the chart to show new results.

"This is the soft and hard vote, gentlemen. You'll notice that Bertram's vote is pretty soft, but solidifying. Harmon's is so hard you couldn't get 'em away from him without using nukes. And ours is getting a little like butter. Mister President, I can't even guarantee we can be the largest party after the election, much less that we can hold a majority."

"Incredible," the chairman of the Joint Chiefs muttered.

"Worse than incredible," Grand Senator Bronson agreed. "A disaster. Who will win?"

Karins chuckled. Bronson's appointment to the CoDominium Grand Senate expired just after the election. Unless Unity won, he wouldn't be going back to Luna Base next year. "Toss-up, Senator. Some of ours is drifting to Harmon, some to Bertram. I'd say Bertram if I had to call it, though."

Bronson sat back, relieved. Bertram's Freedom Party was not totally opposed to the CoDominium, perhaps he could do business with it. He'd have to change his stand on opposition to increased Japanese representation in the Grand Senate, though.

"You've been quiet, John," the President said. "You have no observations?"

"No, sir," Grant answered. "It's fairly obvious what the result will be if we lose, no matter who wins. If Harmon takes over, he pulls out of the CoDominium and we have war. If Bertram takes over, he relaxes security, Harmon drives him out with his storm troopers, and we have war anyway."

Karins nodded. "I don't figure Bertram could hold on to power more'n a year, probably not that long. Man's too honest."

The President sighed loudly. "I can recall a time when men said that about me, Mr. Karins."

"It's still true, Mister President," Karins said hurriedly. "But you're enough of a realist to let us do what we have to do. Bertram won't."

"So what do we do about it?" the President asked gently.

"Rig the election," Karins answered quickly. "I give out the popularity figures here." He showed another chart indicating that the Unity Party had well over a majority popularity. "Then we keep pumping out more faked stuff, while Mr. Grant's people work on the computers. Hell, it's been done before."

"Won't work this time." They turned to look at the youngest man in the room. Larry Moriarty, Assistant to the President and sometimes called the "resident heretic," blushed at the attention. He was naturally shy, hated to be noticed until he got worked up. When he was fully committed to an argument, though, he could shout with the best of them. "The people know better. Bertram's people are already getting jobs in the computer centers, aren't they Mr. Grant? They'll see it in a minute."

Grant nodded. He'd sent the report over the day before; interesting that Moriarty had digested it already.

"You make this a straight old rigged election, you'll have to use the CoDominium Marines to keep order," Moriarty continued.

"The day I need CoDominium Marines to put down riots in the United States is the day I resign," the President said coldly. "I may be a

realist, but there are limits to what I will do, gentlemen. You'll need a new chief."

"That's easy to say, Mister President," Grant said. He wanted his pipe, but the doctors had forbidden it. The hell with it, he thought, and took a cigarette from the pack in front of the Undersecretary for Welfare. "It's easy to say, but you can't do it. What happens after you resign?"

"I don't think I care," the President answered.

"But you do, sir," Grant continued. "We all do. The Unity Party supports the CoDominium, and the CoDominium keeps the peace. An ugly peace, but, by God, peace. I wish . . . Lord, how I wish . . . that support for the CoDominium treaties hadn't got tied so thoroughly to the Unity Party, but it did and that's that. And you know damn well that even in the Party it's only a thin majority that supports the CoDominium. Right, Harry?"

The Assistant Postmaster General nodded. "But don't forget, there's support for the CD in Bertram's group."

"Sure, but they hate our guts. Call us corrupt," Moriarty said. "They're right, too."

"So flipping what if they're right?" Karins snapped. "We're in, they're out. Anybody who's in very long is corrupt. If he ain't, he ain't in."

"I fail to see the point of this discussion," the President interrupted. "I for one do not enjoy being reminded of all the things I have done to keep this office, and I am sure most of you like it no better than I do. The question is, what are we going to do? And I feel I must tell you that as far as I am concerned, nothing would make me happier than to have Mr. Bertram sit in this chair. I'm tired, gentlemen. I've been President for eight years, and I don't want it anymore."

Everyone spoke at once, shouting to the President, murmuring to their neighbors, until Grant cleared his throat loudly. "Mister President," he said, using the tone of command he had been taught during his brief tour in the Army Reserve. "Thank you, gentlemen. Mister President, that is, if you will pardon me, sir, a ludicrous suggestion. There is no one else in the Unity Party who has even a ghost of a chance of winning. You remain popular. The people trust you. Even Mr. Harmon speaks as well of you as he does of anyone not in his group. Mr. Bertram thinks highly of you personally. You cannot resign without dragging the Unity Party with you, and you cannot give that chair to Mr. Bertram. He couldn't hold it for six months."

"And would that really be so bad, John?" Lipscomb was using all the old charm now, the fireside manner that the voters loved, the tones and warmth and expressions that won ambassadors and voters, senators and taxpayers. "Are we really so sure that only we can save the human

race, John? Or are we merely interested in keeping our own power?"

"Some of both, I suppose," Grant answered. "Not that I wouldn't mind retiring."

"Retire!" Karins snorted. "You let Bertram's clean babies get in the files for two hours, none of us will retire to anything better'n a CD prison planet. You got to be kidding, retire."

"That may be true," the President said, "but there are other ways. General, what does happen if Harmon takes power and starts the war?"

"Mr. Grant knows better than I do," General Carpenter said. When the others looked at him with amazement, Carpenter continued. "Nobody's ever fought a nuclear war. Why should the uniform make me more of an expert than you? But I'd say we could win. Heavy casualties, but our defenses are good." He gestured at the moving lights on the enormous wall projection. "Better technology than the Russki's. The laser guns ought to get most of their missiles. CD Fleet won't let either one of us use space weapons. We might win."

"We might." Lipscomb was grim. "John?"

"We might not win. And we might succeed in killing about half the human race. We might do better than that. How in God's Name do I know what will happen if we start throwing nuclear weapons around?"

"But the Russians aren't prepared," a Commerce official said. "If we hit them without warning—people never change governments in the middle of a war."

President Lipscomb sighed. "I am not going to start a nuclear war to retain power. Whatever I have done, I have done to keep peace. That's my last excuse, I could never live with myself if I sacrifice peace to keep power. I'd rather sacrifice my power to keep peace."

Grant cleared his throat gently. "We couldn't do it anyway. If we started converting defensive missiles to offensive, CoDominium Intelligence would hear about it in ten days. The Treaty prevents that, you know." He lit another cigarette. "Of course we could denounce the CoDominium. That would just about assure us of losing the election. And probably put Kaslov's people in power in the Soviet Union."

Kaslov was a pure Stalinist, who wanted to liberate Earth for communism. Some called him the last communist, but of course he wasn't the last. He had plenty of followers. Grant could remember a secret conference with Ambassador Chernikov only weeks ago. The Soviet was a polished diplomat, but it was obvious that he wanted something desperately. He wanted the United States to keep the pressure on, not relax her defenses out at the borders of the U.S. sphere of influence, because if she ever let the communist probes take anything out of the U.S. sphere without a hard fight, Kaslov would gain more influence at home.

Telling Grant about it was as close to playing politics as a professional like Chernikov would ever come; and it meant that Kaslov was gaining influence, not losing it.

"This is all nonsense," the Assistant Postmaster announced. "We aren't going to quit, we won't start the war, and we aren't going to lose. Now what does it take to get the support away from Mr. Clean Bertram and funnel it back to us? A good scandal, right? Find Bertram's dirtier than we ever thought of being, right? Catch some of his boys plotting something really bad, right? Working with the Japs, maybe. Giving the Japs nukes. I'm sure Mr. Grant can arrange something like that."

Karins nodded vigorously. "That would do it. Disillusion his organizers, drive his followers out. The pro-CoDominium people in his group will come to us like a shot." He paused, chuckled evilly. " 'Course some of 'em will head for Millington's bunch." Karins laughed again. No one worried about Millington's Liberation Party very much. When they did worry, it was whether it would survive. Without his madmen to cause riots and keep the taxpayers afraid, other measures the Unity Party had to take would never be accepted. Millington's people gave the police some heads to crack, a nice riot for tri-v to keep the Citizens amused and the taxpayers happy.

"I think we can safely leave the details to Mr. Grant," Karins grinned.

"What will you do, John?" the President asked.

"Do you really want to know, Mister President?" Moriarty interrupted. "I don't."

"Nor do I, but if I can condone it, I can at least find out what it is. What will you do, John?"

"Frame-up, I suppose. Get a plot going, then uncover it."

"That?" Moriarty said. "Man, it's got to be better than that. The people are beginning to wonder about plots."

Grant nodded. "There will be evidence. Hard core, cast-iron evidence. Such as a secret arsenal of nuclear weapons."

There was a gasp. Then Karins grinned widely, laughed. "Oh, man, that's tore it. Hidden nukes. Real ones, I suppose?"

"Of course." Grant looked at the fast youth with distaste. What would be the point of fake nuclear weapons? But Karins lived in a world of deception, so much so that fake weapons would be appropriate for this nightmare scene.

Karins chuckled again. "Better have lots of cops when you break the story. People hear that, they'll tear Bertram apart."

True enough, Grant thought. It was a point he'd have to remember. Protection of those kids wouldn't be easy. Not since one militant group A-bombed a Mississippi town, and a

criminal syndicate tried to hold San Francisco for a hundred million dollars ransom. People no longer thought of private stocks of atomic weapons as something to laugh at. They'd kill anyone they believed had some.

"We won't involve Mr. Bertram personally," the President said grimly. "Not at any price and under no circumstances. Is that understood?"

"Yes, sir," John answered quickly. He hadn't liked the idea either, was eager to agree. "Just some of his top aides." Grant stubbed out the cigarette. It, or something, had left a foul taste in his mouth. He turned to Grand Senator Bronson. "Senator, the CoDominium will end up with final custody, I'll see that they are sentenced to transportation for life. I'd prefer it if they didn't have too hard a sentence to serve."

Bronson nodded, his hands clasped over his vest, a satisfied smile breaking through the doubts he'd had before. He could probably not have made a deal with Bertram, this was better. "Oh, certainly, whatever you like. Let them be planters on Tanith if they'll cooperate. We can see they don't suffer."

Like hell we can, Grant thought. Even as an independent planter, life on Tanith was no joy. He shook his head wearily and lit another cigarette.

Grant left the meeting a few minutes later. The others could continue the endless discussion, but for Grant there was no point to it. The action they had to take was clear, and the longer they waited the more time Bertram would have to assemble his supporters and harden his support. If something was going to be done, it might as well be now while Bertram's vote was soft. Give them a reason to leave his camp while they were still unsure, don't play around with it. Grant had found all his life that the wrong action taken decisively and in time was often better than the right action taken later.

He thought about the situation on his way back to his office, and after he reached the Pentagon summoned his deputies and issued orders. The whole thing took no more than an hour. The machinery was already in motion.

Grant's colleagues always said he was rash, too quick to take actions without looking at all their consequences. They also conceded that he was lucky, that what he did usually worked out well, but they complained that he didn't think it over enough. John Grant saw no point in enlightening them: he did think things over, but by anticipating them rather than reacting to crisis. He had known that Bertram's support was growing alarmingly for weeks, had made up contingency plans for the event in case Karins' polls turned out badly. He hadn't expected them to come out *that* bad, but it only indicated that the drastic actions Grant had already planned were needed

immediately. Within days there would be a leak from the conference; there always was. Not a leak about the actions to be taken, but about the alarm and concern. Some secretary would notice that Grant had come back to the Pentagon after dismissing his driver. Another would see that Karins chuckled more than usual when he left the Oval Office, that Senator Bronson and the Assistant Postmaster General went off to have a drink together, all the little nuances, and someone else would put the facts together—the President's staff was worried. Another clerk would add that Karins was reporting on political trends, and another would overhear a remark about Bertram . . .

No. If they had to take action, take it now while it might work. Grant dismissed his aides with a sense of satisfaction. He had been ready, and the crisis would be over before it began. It was only after they left that he crossed the paneled room to the teak cabinet, opened it, and poured a double scotch.

He laughed at himself as he drank it. That's the boy, Grant. Tear hell out of your ulcer. Punish yourself, you can atone for what you're doing. What you need is a good wife. Somebody who doesn't know a damn thing about politics, who'll listen and tell you you had to do it, that you're still a good man. Everybody ought to have a source of comfort like that. He envied the statesmen of the old days when there would be a Father Confessor trained in statecraft that you could go to for reassurance. Reassurance and maybe a little warning, do this or that or you won't be forgiven.

The Maryland countryside slipped past far below as the Cadillac cruised along on autopilot. A ribbon antenna ran almost to Grant's house, and he watched the twilight scene, house lights blinking, a few surface cars on the roads. Behind him was the sprawling mass of Columbia Welfare Island where most of the people displaced from Washington had ended up, lumps of poured concrete buildings and roof parks, the seething resentment of useless life kept placid by government furnished supplies of Tanith hashpot and borloi and cheap booze. A man born in one of those complexes could stay there all his life if he wanted to, and some did. Grant tried to imagine what it would be like there, but he couldn't. Reports from his agents gave him an intellectual picture, but there was no way to identify with those people, the hopelessness and dulled senses, burning hatreds and terrors. Karins knew, though. Karins had begun his life on a welfare island somewhere in the midwest, clawing his way through the schools to a scholarship, refusing stimulants and dope and never watching tri-v . . . was it worth it?

The speaker on the dash suddenly came to life, Beethoven cut off in mid bar. "WARNING. YOU ARE

APPROACHING A GUARDED AREA. UNAUTHORIZED CRAFT WILL BE DESTROYED WITHOUT FURTHER WARNING. IF YOU HAVE A LEGITIMATE ERRAND IN THIS RESTRICTED AREA, FOLLOW THE GUIDE BEAM TO THE POLICE CHECK STATION. THIS IS A FINAL WARNING."

The Cadillac automatically turned off course, riding the beam down toward State Police headquarters, and Grant cursed. He fumbled with switches on the dash, spoke softly. "This is John Grant, resident in Peachem's Bay. Something seems to be wrong with my transponder."

There was a short wait, then the mechanical voice on the speaker was replaced by a soft feminine tone. "We're very sorry, Mr. Grant. Your signal is correct. Our identification unit seems to be out of order. You may proceed, of course."

"Yeah. Better get that thing fixed before it shoots up a taxpayer," Grant said irritably. Anne Arundel County was a Unity Party stronghold, how long would it last if there was an accident like that? The taxpayers would begin to listen to Bertram and his Freedom Party cant.

"We will see to it immediately, sir," the girl answered. "Good evening."

"Yeah. All right, I'm going home." He took the manual controls and cut across country, ignoring regulations. If they wanted to give him a ticket—all they could do now that they knew who he was—let them. His banking computer would pay the fine without Grant ever being aware of it. It brought a wry smile to his face—traffic regulations were broken, computers noted it in their memories, other computers paid the fines, and no human ever became aware of them. Until finally there were enough tickets that a warning of license suspension would be issued. Since that could never happen to Grant, there was no way he'd ever find out about violations.

There was his home ahead, a big rambling early Twentieth Century place on the cove, his yacht at anchor offshore, wooded grounds. Be nice to stay there a few weeks. He wondered if he wanted to retire. The President certainly did, and most of his colleagues said much the same. The thought of a long rest, repair to his ulcer, sailing out to Bermuda, that was intriguing, but years of inactivity? He couldn't imagine life without responsibilities, and the thought of retirement was vaguely frightening. He'd seen too many old friends come apart just when it looked like they ought to be happiest.

Carver, the chauffer, rushed out to help Grant down from the Cadillac and take it to the garage; Hapwood was waiting with a glass of sherry in the big library. Prince Bismark, shivering in the presence of his god, put his Doberman head on Grant's lap and stared into his eyes, ready to leap into the fire at command. There

was irony in the situation. At home, Grant enjoyed the power of a feudal lord, but it was a power that many wealthy men could command, and it was limited by how strongly the staff felt it worthwhile to stay out of Welfare. But he had only to lift the Security phone in the corner, and his real power, completely invisible and limited only by what the President wanted to find out, would operate. An interesting thing, power. Wealth gave him the visible power, heredity the power over the dog . . . what gave him the real power of the Security phone?

"What time would you like dinner, sir?" Hapwood asked. "And Miss Sharon is here with a guest."

"A guest?" Grant asked.

"Yes, sir. A young man, Mr. Allan Torrey, sir."

"Have they eaten?"

"Yes, sir. Miss Ackridge called to say that you would be home, but late for dinner."

"All right, Hapwood. I'll eat now and see Miss Grant and her guest afterwards."

"Very good, sir. I will inform the cook." Hapwood left the room invisibly.

Grant smiled again. Hapwood was another fugitive from Welfare, a man who grew up speaking a dialect that Grant would never recognize. What had possessed him to study the mannerisms of English butlers of a hundred years before, perfecting his style until he was known all over the county as the perfect household manager? Why would a man do that?

Certainly there was money in it. Hapwood didn't know it, but Grant had a record of every cent his butler took in, kickbacks from grocers and caterers, "contributions" from gardeners, and the surprisingly well managed investment portfolio. Hapwood could have retired to his own house years ago, moved to another part of the country and assumed the life of a taxpayer investor, but instead here he was, still the perfect butler. It had intrigued Grant enough to have his agents look into Hapwood very carefully, but the man had no politics other than staunch support for Unity, and the only suspicious thing about his contacts were the refinement with which he extracted money from every transaction involving Grant's house. The man had no children and whatever sexual needs he experienced were satisfied by infrequent trips to the fringe areas around Welfare.

Grant ate mechanically, hurrying to be through and see his daughter, yet afraid to meet the boy she had brought home. For a moment he thought of using the Security phone to find out more about him, but he shook his head angrily. Too much of this kind of Security thinking wasn't good; for once he was going to be a parent meeting his daughter's intended. He left half his steak uneaten and went to the high-ceilinged library, sat behind the massive Ori-

ental fruitwood desk with its huge bronze fittings. Behind him and to both sides the walls were lined with bookshelves, immaculate dust-free accounts of the people of dead Empires. It had been years since he took one down. Now, all his reading was confined to typescript reports, some copied by human secretaries but most generated by computers. They told a live story about living people, but sometimes, late at night, as Grant sat in the huge library he wondered if his country were not as dead as the empires in his books. He loved his country but hated her people, all of them: Karins and the new breed, the tranquilized Citizens in their welfare islands, the smug taxpayers who grimly held their privileges . . . So what was it that he loved? Only history, the story of the greatness that had once been the United States, something found only in books and not in the neat reports with their bright red Security covers.

But then Sharon came in, a lovely girl, far prettier than her mother but without her mother's poise. She ushered in a tall boy in his early twenties. As they crossed the room Grant studied him closely. Nice looking. Long hair, neatly trimmed, conservative moustache for these times although it would have been pretty wild in Grant's day. Blue and violet tunic, red scarf . . . a little flashy, but even John Jr. went in for clothes like that whenever he got out of CoDominium uniform.

The boy walked hesitantly, almost timidly. Grant wondered if it were fear of him and his position in the government, or just the natural nervousness of a young man about to talk to his fiancée's father. The tiny diamond on Sharon's hand sparkled in the yellow light from the fireplace, and she held the hand unnaturally, not sure of herself with the unfamiliar ring.

"Daddy, I . . . I've talked so much about him, this is Allan. He's just asked me to marry him! I'm so happy!" Trustingly, sure of his approval, never thinking for a second—Grant wondered if Sharon wasn't the only person in the country who didn't fear him. Except for John Jr., who thank God was beyond the reach of the power of Grant's Security phone. The CD Fleet took care of its own.

"Hello, Allan." Grant stood, extended his hand. Torrey's grip was firm, but his eyes avoided Grant's. "So you want to marry my daughter." He glanced pointedly at her left hand. "Looks like she approves the idea, anyway."

"Yes, sir. Uh, she wanted to wait and ask you before she let me put the ring on, but well . . . it's my fault, sir." Torrey looked at him this time, almost defiant.

"Yes. Well . . . Sharon, as long as you're home for the evening, I wish you'd speak to Hapwood about Prince Bismark. I don't think the animal is being fed properly."

"You mean right now?" she asked. She tightened her small mouth into a

pout. "Really, Daddy, this is Victorian! Sending me out of the room while you talk to my fiancé!"

"Yes, it is, isn't it?" Grant said nothing else, and finally she turned away.

Then, impishly: "Don't let him scare you, Allan. He's about as dangerous as that . . . that moosehead in the trophy room!" She fled before there could be any reply.

They sat awkwardly, Grant coming out from behind his desk to sit near the fire with young Torrey. Drinks, offer of a smoke, all the usual amenities, anything to avoid saying something important, but finally Hapwood had brought their refreshments and the door was closed.

"All right, Allan," John began. "Let's be trite and get it over with. How do you intend to support her?"

Torrey looked straight at him, his eyes dancing with what Grant was sure he recognized as concealed amusement. "I expect to be appointed to the Department of the Interior. I'm a trained engineer."

"Interior?" Grant thought for a second. The answer surprised him, he hadn't thought the boy was just another office seeker. Well, why not? "I suppose it could be arranged."

Torrey grinned. It was an infectious grin, and Grant liked it. "Well, sir, it's already arranged . . . I wasn't asking for a job."

"Oh?" Grant shrugged. "I hadn't heard anything–you'll be Civil Service, then?"

"No, sir, Deputy Assistant Secretary. Natural Resources Control. Environments. I took a Master's in ecology with my engineering degree."

"That's interesting, but I can't recall seeing anything about the appointment . . ."

"It won't be official yet, sir. Not until Mr. Bertram is President. For the moment I'm on his staff." The grin was still there, and it was friendly, not hostile, not mocking. The boy thought politics was a game, wanted to win . . .

He's seen the polls, Grant thought. God knows–Allan Torrey? Just who was he on Bertram's staff? "Give my regards to Mr. Bertram when you see him. What is it you do for him?"

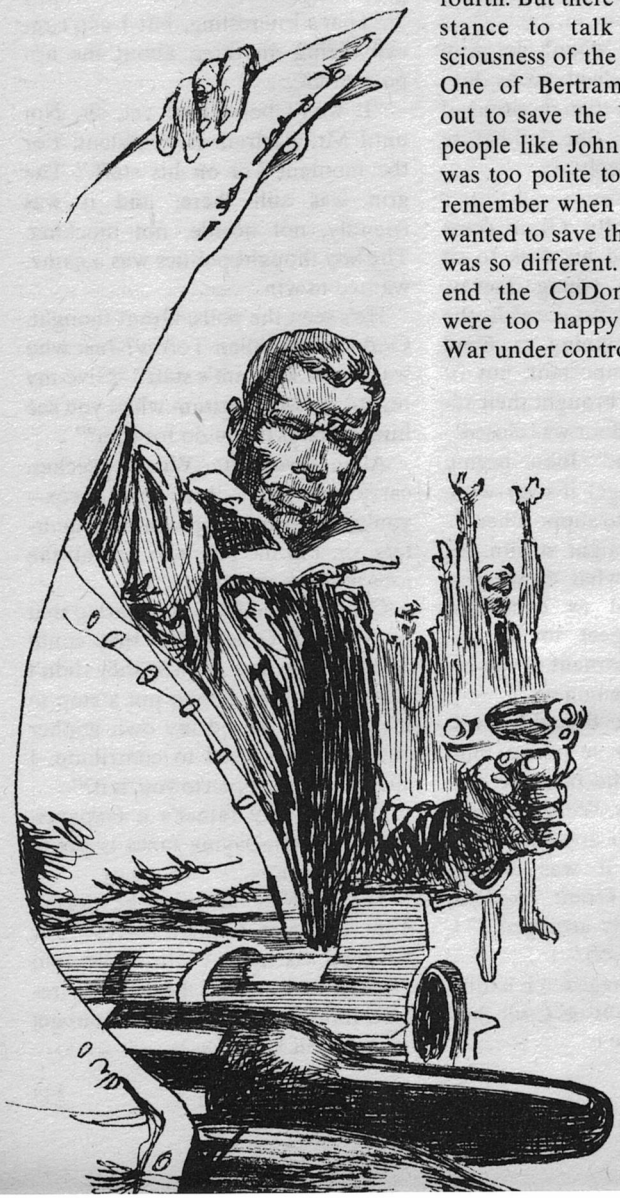
Allan shrugged. "Write speeches, carry the mail, run the Xerox–you've been in campaign headquarters, sir. I'm the guy who gets all the jobs nobody else wants."

Grant laughed. "Yeah. Started that way myself. Only staffer they could afford to use as a gopher, they didn't have to pay me. I soon put a stop to that, though. Hired my own gopher out of what I used to contribute. I guess that's not open to you, is it?"

"No, sir. My father's a taxpayer, but . . . well, paying taxes is pretty tough right now."

"Yes." Well at least he wasn't from a Citizen family. Torrey, now just who the hell . . . he could find out when Flora had the Security report. Important thing now was to get to know this boy.

It was hard to do. Allan was frank, open, more relaxed after Hapwood brought his third drink. Grant was pleased to see that the boy refused a fourth. But there was nothing of substance to talk about. No consciousness of the realities of politics. One of Bertram's child crusaders, out to save the United States from people like John Grant although he was too polite to say so. John could remember when he was that young, wanted to save the world, but then it was so different. Nobody wanted to end the CoDominium then, they were too happy to have the Cold War under control at last. What hap-



pened to the great sense of relief when everybody could stop worrying about atomic wars? It was all anybody could think of when Grant was young, how this might be the Last Generation . . . now they took it for granted that there would always be peace. Was peace, then, such a little thing? He realized that Torrey was speaking.

"Take the Baja Project for example. All those nuclear power plants. And the artificial harbors. Thermal pollution of the Sea of Cortez! They'll kill off a whole ecology just for their cities. And it isn't necessary, sir. I know we have to have living space for cities, God knows I don't want the Citizens cooped up in their welfare islands, but that isn't what the government is planning. What they're going to build will be more estates for taxpayers, not a decent place for the Citizens." He was speaking intently, trying to burn past Grant's gentility, to get to the man underneath.

"I know it isn't part of your Department, sir. You probably don't even know what they're doing. But it's so wrong . . . I'm sorry, sir, but I really believe it. The Lipscomb government has been in too long. It's got away from the people, and . . . and I'm sure you're not aware of it, but the corruption! Sir, I wish you could see some of the reports we have, some of the dirty things the government's done just to stay in power. It's time for a change, and Mr. Bertram is the man, I know he is."

Grant's smile was thin, but he managed to bring it off. "Maybe you're right. I wouldn't mind living in this house instead of the Pentagon. Might as well live in Washington for all the time I manage to get out here." What was the point of it? He wouldn't convince this boy, and Sharon wanted him . . . he'd drop Bertram after the scandals broke. And how could Grant explain that the Baja Project was developed to aid a syndicate of taxpayers, that without their support the government wouldn't last a month? The damn fools, of course they were wrecking the Gulf of California—oh hell, Sea of Cortez. Call it that, it made the six states which were formerly the Republic of Mexico happier. Of course they were wrecking it, through sheer shortsighted idiocy, but what could the government do? You might get the Citizens to huddle around tri-v in their welfare islands, smoke borloi, but without taxpayers . . . There was no point in explanations. At that boy's age, Grant wouldn't have believed it either.

Finally, painfully, the interview was over. And there was Sharon, grinning sheepishly because she was engaged to one of Bertram's people, understanding what that really meant no better than Allan Torrey. It was just a game, Bertram would be in government and Lipscomb, the Unity Party, would be the opposition, just the game that the Republicans and Democrats used to play.

How could you tell them that if Unity ever went out, the rules would change, there wouldn't be an alteration anymore. You'd get Bertram against Harmon, or Bertram against the Liberation Party, or worse, Harmon and the Liberation people working together against Bertram, and somebody would try to mobilize the Citizens, get them involved, and the whole structure would come crashing down . . . and then? Then the Leader, the Man with a Cause, the Friend of The People. It was all there, told time and time again in those aseptically clean books all around him.

BERTRAM AIDES ARRESTED BY INTERCONTINENTAL BUREAU OF INVESTIGATION!! IBI RAIDS SECRET WEAPONS CACHE. NUCLEAR WEAPONS HINTED!!!

Chicago, May 15, (UPI)—IBI agents here have arrested five top aides to Senator Harvey Bertram in what government officials call one of the most despicable plots ever discovered . . .

Grant sat at his desk and read the transcript of the *extra* tri-v newscast without satisfaction. It had all gone according to plan, and now there was nothing left to do. The evidence was there. He could let Bertram's people wiggle all they wanted to, challenge jurors, challenge judges. The Attorney General, in a spirit of fairness, would even waive the government's rights under the Thirty-first Amendment, let the case be tried under the old adversary rules. It wouldn't matter.

Then, in small type, there it was, and he gasped. "Arrested were Grigory Kalamintor, 19, press secretary to Bertram; Timothy Girodano, 22, secretary; Allan Torrey, 22, executive assistant . . ." the rest of the page blurred. "Oh my God, what have we done?" Grant asked. He sat with his head in his hands.

He hadn't moved when Miss Ackridge buzzed. "Your daughter on Four, sir. She seems upset."

"Yes." Grant punched the button. Sharon's face swam into view, her makeup ruined by long streaks of tears. She looked ten years older, she looked like her mother during one of . . .

"Daddy! They've arrested Allan! And I know it isn't true, I was in that house in Chicago two days ago, they didn't have any secret arsenal . . . there wasn't any reason for them to have nuclear weapons! A lot of Mr. Bertram's people said you'd never let the country have an honest election. They said John Grant would see to it, and I told them they were wrong . . . Daddy, what happened? It's true, isn't it? You've done this to stop the election."

He tried to say something, but there was nothing to say. She was right. But where was she calling from, who might be listening in? "I don't know what you're talking about. I saw the newscast about Allan's arrest, but I know nothing

more. Come home, kitten, we'll talk about it there."

"Oh no! You're not getting me in that big house! Have Dr. Pollard come over, give a nice friendly little shot, and I forget all about Allan . . . NO! I'm staying right here until . . . I guess I just won't be coming home, Daddy. And when I go to the newspapers, I think they'll listen to me. I don't know what to tell them, but I'm sure Mr. Bertram's people can write something for me. How do you like that, Mister God?"

"Anything you tell the press about the government will be a lie, Sharon. You don't know anything." He fought to stay calm, but he couldn't think what to do. He noticed his assistant get up and leave the office.

"Lies? Where did I learn to lie? I'm only following your example, Daddy dear." The screen went blank. She had hung up on him.

Was it that thin, he thought? The trust she'd had in him, the love, whatever it was . . . was it that thin?

"Sir?" It was Hartman, his assistant.

"Yes."

"She was calling from a house in Champaign, Illinois. A Bertram headquarters they think we don't know about. The phone had a guaranteed no-trace device on it."

"Trusting lot, aren't they?" Grant said. "Have some good men watch the house, but leave her alone." He stood, felt a wave of something, dizziness and something else, so that he had to hold the edge of the desk "MAKE DAMN SURE THEY LEAVE HER ALONE, DO YOU UNDERSTAND?" he shouted.

Hartman went as pale as Grant. The chief hadn't raised his voice to one of his own people in five years. "Yes, sir, I understand."

"And get out of here." John spoke carefully, in low tones, and the cold mechanical voice was more terrifying than the shout.

Alone he sat staring at the blank telephone, sitting at the seat of power. Now what, he thought? It wasn't generally known that Sharon was engaged to the boy, in fact hardly anyone knew it. He'd talked them out of making it formal until the banns could be announced in the National Cathedral, all the requirements of the Church satisfied. At the time it was just something they should do, but . . .

But what? He couldn't have the boy released. Not that boy. He wouldn't keep silence as the price of his own freedom. He'd be at a newscaster's booth within five minutes. And then the headlines: BERTRAM AIDE ACCUSES GOVERNMENT. DAUGHTER OF DEPUTY SECRETARY OF DEFENSE SAYS SECRET NUKE CACHE A PLANT ARRANGED BY HER FATHER.

Or something more clever. Of course Bertram's people would say it was a plant, but that didn't matter. Anyone accused of what was nearly the ultimate crime would say that. But if the daughter of the top secret

policeman in the country said it . . . He punched the communicator.

Grand Senator Bronson appeared on the screen, looked up in surprise. "Oh, hello, John. Need something?" Bronson asked it nervously. Whenever John Grant called on the special scrambled circuit, interrupting all other business, cutting off all other conversations, it was likely to be unpleasant.

"Are you alone?"

"Yes."

"When's the next CD warship going outsystem? Not a colony ship, and most especially not a prison ship. A warship."

"Why . . . I don't know. I suppose anything could be arranged if you'd . . . what's on your mind, John?"

"I want—" Grant hesitated. But there was no time to be lost. None. "I want space for two very important prisoners. A . . . a married couple. The crew is not to know their identities, and any crewman who comes in contact with them stays outsystem for at least five years. Got that? I want these people put down on a good colony world, something decent. Like Sparta, where they can't get back again. Nobody ever comes here from Sparta, do they?"

"But . . . yes, I suppose it can be arranged." Grant's expression discouraged debate.

"It will be arranged. And for tonight. I'll have the prisoners brought to you tonight. You have that CD ship ready. And . . . and it better not be the *Saratoga*. My son's on that one, he'll . . . he'll know one of the prisoners." Grant reached for the phone, then drew his hand back. "Make sure there's a chaplain aboard, the kids will be getting married."

Bronson frowned into the telephone lens. "John, are you sure you're all right?"

"Yes. One other thing. They're to have a good estate on Sparta, but they're not to know who arranged it. Just take care of it for me and I'll pay. You have it all?"

It was all so very simple. Direct his agents to arrest Sharon, conduct her to CD Intelligence. No, he wouldn't want to see her first. Have the Attorney General's office send young Torrey to the same place, let it out that he'd escaped, try him *in absentia*. It wasn't as neat as having all of them convicted in open court, but there'd be enough convictions.

Inside, something screamed at him, screamed again and again, this was his daughter, his pretty little girl, the only person in the world who wasn't afraid of him . . . calmly, almost gently, Grant leaned back in his leather chair. What world would it be for her if the government fell?

He dictated instructions for his agents, took the flimsy order sheet from the writer. His hand didn't tremble at all as he signed it. Then, slowly, carefully, he leaned back again, tasting the blood and bile that he knew would be in his throat the rest of his life; tasting the price of peace. ■

THE REFERENCE LIBRARY

P. Schuyler Miller

TWO INSIDERS

The jacket of "More Issues at Hand," by William Atheling, Jr.—published by Advent: Publishers, P.O. Box 9228, Chicago 60690, for $5.00—shows a scalpel incising a bleeding gash in one page of a book or magazine, while an old-fashioned *Planet Stories* era rocket ship has buried itself to the tailfins in the muck of a rather bland planet. "Atheling" is the name SF writer James Blish uses for his critical contributions to science-fiction fanzines, convention programs, et al. Advent has a new edition of his earlier collection of criticism, "The Issue at Hand," back in print for $5.00 hardbound, $1.95 in paper.

I don't know what the jacket of Donald Wollheim's "The Universe Makers" will be like, because I have read only the proofs. Harper and Row will have it out by the time you read this, for $4.95. Wollheim, as you should know, is editor of Ace's notable series of science-fiction and fantasy paperbacks, and an old-time fan who has written, edited, and lived science fiction for the greater part of his life.

Both men can be considered "insiders," unlike the writers I discussed last month. But both have a totally different attitude toward what science fiction is and what it should be.

Blish/Atheling is tough. His basic premise is that science fiction is a part of literature and that it should consequently meet the same standards as any other type of literature, including the "serious" novels of the men and women whom the literary world considers the finest writers of our time, or of any time. Wollheim, in spite of a long-ago career as one of science fiction's young radicals, has a much more tolerant attitude. He would have to, to keep new Ace books rolling out at the rate they do. His book is a more avuncular view of stories and writers than Atheling's, but Atheling is no hypocrite. He measures his alter ego, Blish's, work by the same standards he uses for his colleagues.

Both men, incidentally, are critical of Analog . . . and both acknowledge that without it, and John Campbell's editing over the years, science fiction would not have the status that permits Blish to dissect it and Wollheim to make a living at it.

As a slob with no knowledge of, or concern for, world literature—no background outside some old-fashioned training in chemistry and an

armchair knowledge of the fringes of present science—I suppose I fall somewhere below Wollheim as a critic. That never stopped anyone from sounding off, though, least of all me.

If the Atheling book really sends you up the wall, frothing at the mouth, let me suggest a cranny in the author's armor where you may be able to slip in the end of a crowbar. Unless I misread him—and I may—he believes and contends that writers have evolved, tested and established a number of technological principles that must be followed in constructing a story. A story that does not obey these rules is *per se* a bad story—and he can tell you why. He can *show* you why. But rules of writing stories are not laws of physics, mutable as those sometimes appear. A really good story can make nonsense of them. If it were not so, Blish/Atheling's present rules would not have evolved out of a totally different set of rules which had been developed for a different readership in a different society at another time. A. Merritt's flamboyantly colorful stories, which Atheling tears to shreds, were written for people who still enjoyed the sound and savor of words. Perhaps this means no more than that American readers were still controlled by the patterns and standards of the Nineteenth Century upper-class English novels which their teachers and libraries and Establishment critics taught them were to be admired. Anthony Lewis, the New York *Times'* man in London, commented recently that the English "love words." So did we when Merritt wrote. So do Samuel Delaney, Roger Zelazny, Andre Norton . . . and they loved pictures and sounds and smells conveyed by words.

Atheling's hard-and-fast rules will evolve in their turn. I hope that the techniques of some "New Wave" writers, which seem to be impelled by the abstract in painting and music, don't crystallize into a pattern of noncommunication. And I don't think Blish would want them to.

Unless you do have a rather rigid *avant garde* concept of literature in general and science fiction in particular, you will probably prefer Donald Wollheim's book. As fan/writer/editor he really does cover the field. He recognizes that an "in" group is a very small, very inbred, self-limiting fragment of his potential audience, and Ace publishes books for the whole audience. It is interesting that, like Professor Robert Philmus in his "Into the Unknown," Wollheim sees Jules Verne and H. G. Wells as representing a basic schism in science fiction. Philmus argued that Verne's stories expressed his own, limited personal view of the world, while Wells dealt with society's view—"public myths." Wollheim sees Verne as the champion of the status quo in social relations, and Wells as being chiefly concerned with changes in those relations.

"In the present science-fiction

world," Wollheim says, "it is mainly Wellsians who are in a crisis. Vernians go on as unthinkingly as before. . . . Because we are living day by day among . . . terrible challenges and because the Wellsians, aware of what they can mean, feel more and more the ineffectuality of protest and are imaginatively more sensitive to the ultimate disasters portending, it is Wellsians who reflect gloom and hysteria in their works."

Analog, he says, is today's representation of the essentially limited Vernian school of science fiction, and John Campbell is its prophet. And he goes on to say that John "is doing exactly the right thing for the readers of his magazine." He then—in Chapter 17, in case you plan to buy or borrow the book, as you should—describes us. The description may make you furious. I don't think the book will, and it is a far better book to give to an uninformed friend than Atheling's, which almost requires that you read the stories he dissects along with his criticism.

Perhaps there is room left for an analog. It seems to me that a story whose only purpose is to communicate a series of events is the equivalent of a photograph. It may be of no more moment than a snapshot of someone you don't know in a place that doesn't interest you . . . but a good photograph can convey a unique point of view, insight, a mood. It may reward study. It may be worth framing. Old-Wave science fiction is basically photographic. It has the limitations of a photograph, but it has all the potentialities, too.

With a painting, the thing itself is of primary importance. What it communicates—whether it communicates at all—is secondary. Some artists would say that the only important thing is the artist's expression of something he has felt, and that he couldn't care less whether it imparts anything to anybody. So with New-Wave science fiction, I am afraid. A good painting *can* communicate far more than the best photograph, and it doesn't have to use pseudophotographic techniques to do it. I don't think James Blish will go so far as to say a science-fiction story should not communicate anything to a reader, but he might say that it need not—if the reader is ignorant of the symbols and myths and concepts the writer is using.

Charles Dunn of *Business Week* wrote recently: "I don't read difficult things for pleasure." He is obviously a Vernian.

THE PULPS: FIFTY YEARS OF AMERICAN POP CULTURE

By Tony Goodstone • Chelsea House, New York • 1970 • 239 pp. • $15.00

Your reason for buying this memento of the "good old days" must be strictly nostalgia. And that is, in fact, all the compiler-editor-annotator intends. He does not pretend to have written a history of the pulp magazines or their era. He does, by reprinting representative stories, by

reproducing a rich selection of pulp covers in excellent color and interior illustrations in not so excellent black-and-white—that's a printing problem, not an editorial flaw—and by interpolating some rather too brief comments, recall the pulp era to those of us who lived through it. I'm not sure he has or can recreate it for a younger generation.

In science fiction, because the pulpish past has been so lavishly represented in anthologies and in Sam Moskowitz' histories, we get only two rather ordinary stories: rather, one ordinary and one fair. As intended, they are representative of the science fiction published at that time—not choice selections. The two are Harl Vincent's "Wanderer of Infinity" from a 1933 pre-JWC Astounding and Stanley G. Weinbaum's "Parasite Planet," a much better story from Astounding of 1935—the Tremaine era. You also get six pages of good color reproductions of magazine covers: three plus for the old *Amazing Stories,* two minus for Astounding, and the sixth divided among four other magazines. Weird tales are better—at least, more lavishly—covered, and there are sections on adventure stories, sport stories, war/aviation, westerns, mysteries, what passed for sex thrillers in those days, and the one-hero pulps.

You may be a little shocked to find Tennessee Williams and MacKinlay Kantor represented. Those really were the good old days!

TOWER OF GLASS

By Robert Silverberg • Charles Scribner's Sons, New York • 1970 • 247 pp. • $5.95

This isn't Robert Silverberg's best book, but it is certainly one of the best of the year and a prime example of the "new" Silverberg. It has its gadget/gimmick in the tower which gives it its title—a gigantic transmitter with which Twenty-third Century industrialist Simeon Krug hopes to make contact with a race that is signaling from beyond the stars. But the real plot is in the personal and, in a sense, racial relationships among the characters. And that, friends, is supposed to be what distinguishes a novel from just a story. Bob Silverberg, who in his time may have written more "stories" than anyone except Murray Leinster, is writing top-grade science fiction novels.

The society in which Simeon Krug works out his obsession is an oddly three-cornered one. Most of the planet's work, mental as well as physical, is done by the androids who were invented by Krug and whom he manufactures. They are sterile, as much to sustain Krug's market as to maintain their difference from humanity. They are mature and ready to work two years after they leave the vats where they are grown. There are also the ectogenes, the "bottle born," with human parents and *in vitro* infancy—more than the androids, since they are human, yet less because they have not had the androids' special abilities pro-

grammed into their genes. And there are the human beings, most of them parasites on the android economy Krug has created. Krug's son is one such.

To one segment of the android underground, Krug is precisely that—Krug the Creator, Krug their god. Wherever androids work there is a secret chapel, a secret ritual, a faith that Krug the Father will one day grant android-kind equality with mankind. Thor Watchman, the "alpha" who directs the building of the glass tower, is a leader of the cult, but he does not move fast enough to suit the extremists among his people. One thread in the web he is weaving is the relationship he has created between Krug's son and an android mistress. Surely Manuel Krug must understand that Lilith is as human as he in all but technicalities.

But this is only the simplest element in the novel. There is the unreasoning malevolence of Leon Spaulding, Krug's ectogene secretary. There is Krug's obsession. There is Manuel's struggle for an identity. There is the fascinating technology of the Tower.

This will be one people remember, and with better reason than the "great" stories of the "good old days."

MUTANTS

By Gordon R. Dickson • Macmillan Company, New York • 1970 • 250 pp. • $4.95

I guess that Gordon Dickson, like Poul Anderson, Murray Leinster, and a few others, is basically a "linear" writer. (I hesitate to use the nasty word "straight.") He believes that science fiction should communicate, that it does so best by telling a story, that a story should have a beginning and, often, an end. He also believes that mankind is basically tough and adaptive, and that it may yet hack out a niche in time comparable to the one the dinosaurs homesteaded.

In its non-pyrotechnic way, this collection of eleven short stories and novelettes is the best science fiction Macmillan has published in a long time. (The jacket says twelve, but the blurb writer was counting on his fingers and included the introduction.) They span the period from 1952 to 1965, but six of the eleven date from the 1960s. And four of them originated here in Analog: "Warrior" (one of the Dorsai cycle), "Danger—Human," "By New Hearth Fires," and "Idiot Solvant."

All of the stories are dedicated to the faith that we have not stopped evolving, and, through mutation or otherwise, will survive any situation we create. My favorite, "The Immortal," is a war story, a problem story, a character story, a story that suggests a possible course of cybernetic evolution, and a story that uses poetry—the old-fashioned kind of poetry that warriors used to sing—integrally. A ship vanished into enemy space two hundred years ago. Now it has reappeared and is coming home, and five

ships go out to meet it and escort it back, through the thick of the enemy fleet. Corny? You just think so.

"Home from the Shore" is another extra-good one. Man has adapted to life under the sea, and has developed certain talents that the land-based Establishment wants to use in space. But the men of the deep Homes have mutinied, and are being hunted. And there is a "traitor" who, like the others, does what he believes in.

"Roofs of Silver" gives you another complex situation, not too different. Men on an arid planet have been adapting to it in other ways, but the Establishment considers that they are degenerating—degrading the race—so they are to be wiped out.

The Dorsai, in Dickson's cycle of stories and novels, are men from a harsh world who breed and train themselves as mercenary warriors. In "Warrior," which you may remember from other collections, Ian Graeme, one of a pair of brothers who are important in the series, comes to Earth to avenge one of his officers—for unusual reasons.

The other three Analog reprints are, to a degree, gimmick stories. In "Danger—Human" a captive escapes by extraordinary means. In "By New Hearth Fires" the last dog finds a new master with whom to share the future. In "Idiot Solvant" a wild talent is unleashed.

But mutants are born of men. They are men, and find it hard to forget it. That is the theme of the gentle "Of the People." "Rehabilitated" is a totally different, and totally characteristic, treatment of the theme of Sturgeon's great "More Than Human." "Listen" shows that the changes will come first in children, to whom the new is normal because everything is new. Finally, "Miss Prinks" is a "miracle" yarn that would have been at home in *Unknown Worlds.*

NEBULA AWARD STORIES FIVE
Edited by James Blish • Doubleday & Co., Garden City, N.Y. • 1970 • 215 pp. • $4.95

This year's collection of the Nebula Award-winning short fiction is less appealing than in most previous years—not because the stories are poorer, but because you have probably already read most of them in other anthologies. The Science Fiction Writers of America, who make the awards, chose Harlan Ellison's "A Boy and His Dog" as Best Novella, Samuel Delany's "Time Considered as a Helix of Semi-Precious Stones" as Best Novelette, and Robert Silverberg's "Passengers" as Best Short Story. Of the three runners-up which James Blish has selected to round out the book, you have probably also read Ursula Le Guin's "Nine Lives"—her "Left Hand of Darkness" was Best Novel of the year—and Larry Niven's "Not Long Before the End." If you haven't, of course, here is your opportunity.

This leaves one story which may be strange: Theodore Sturgeon's

"The Man Who Learned Loving." It is very short, but it is also very good to have Sturgeon back. It isn't a plot story, or a gimmick story, but it is what Judith Merril used to call a point-of-view story, and the point it makes is one that even the New Left must call relevant. They may not like it.

If you do decide that you've read too much of the book, last year's "Nebula Award Stories Four" is out as Pocket Book No. 75646, for only 75 cents.

I nearly forgot to point out that the SFWA now asks friends and members to sum up the SF of the year. In "Five" the novels are discussed by Professor Darko Suvin of McGill University, editor of "Other Worlds, Other Seas," the anthology of science fiction from east of the Iron Curtain. Alexei Panshin, whose "Rite of Passage" won the 1968 Nebula novel award, discusses the short story field.

INDEX TO THE SCIENCE FICTION MAGAZINES, 1969

Compiled by Anthony Lewis • New England Science Fiction Association • Box G, MIT Branch Station, Cambridge, Massachusetts 02139 • 20 pages • $1.00.

As you know if you follow this department, the New England Science Fiction Association, centered primarily at Massachusetts Institute of Technology, published an "Index to the Science Fiction Magazines, 1951-1965." It is still available from the above address for $8.00. To keep their index current, the NESFA also publish annual supplements—1966, 1967, 1968 and now 1969—for $1.00 each. They're a bargain, and this 1969 collation has a particularly attractive cover by George Barr, a fan artist who should be getting professional jobs any day now.

All the supplements follow the same format as the Index. First, a checklist of the magazines indexed—U.S. and English—which tells you what issues were published during the year. Next, the contents of each issue of each magazine. (Unless they've changed policy, this is a weak point, because they got their Index listings from the tables of contents and these aren't always accurate.) Reprints are identified. Third, you have a title listing, and fourth you have a listing by author.

I say again—if you're anything but a casual reader, don't miss 'em. As you read this, the 1970 Index will probably be in the works.

BEHIND THE WALLS OF TERRA

By Philip Jose Farmer • Ace Books, New York • No. 71135 • 188 pp. • 75¢

This is the fourth in the series of books Philip Jose Farmer has written about a race of human or humanoid super-beings, the Lords, who have created a series of independent but interconnecting universes for their own, often grotesque amusement. In the first books the hero was a man

from Earth who broke through into a strange universe of levels, rather like a Victorian whatnot, each level seemingly frozen at a different level in the evolution of human society. Roving through the levels was the man or being known as Kickaha—among other names—who gradually usurped the readers' interest and took over the series.

Now he and others are on Earth, looking for the Lord who made our own universe, for other refugee Lords, and for the creature known as a "Beller," whose bell brings destruction on men and worlds. In the beginning he is handicapped by the changes that have taken place in American society in the generation since he last visited us. Later he is fully immersed in the bizarre melodrama of interuniversal manhunting . . . which is just getting well under way when the book ends.

The result is a lively enough action story, but if you have read the earlier books you are bound to miss the trickster character that made the original Kickaha so attractive. He was the Loki of Farmer's Adgard, and now he seems to have diminished into just another vigorous hero. Maybe he is just resting between exploits.

ALIENS 4

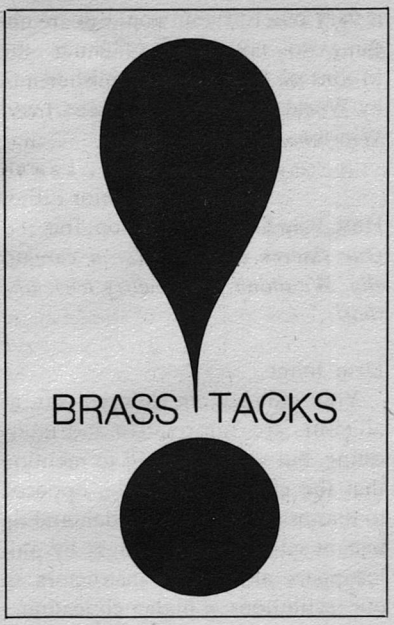
By Theodore Sturgeon • Avon Books, New York • No. V 2363 • 223 pp. • 75¢

I don't recall reading this collection of Sturgeon's stories before, though it is the third printing since 1959. Three of the four stories are either overly familiar to old hands or a "must" for newcomers. The fourth is a strange little fantasy rescued from *Luke Short's Western* magazine, and unlike any other Sturgeon story I've read.

The book opens with one of the most famous stories from the "great" days of Astounding Science Fiction—"Killdozer," the story of the animate bulldozer that hunts down the hero on a Pacific isle. This could make one of the most terrifying movies ever filmed, if it were done straight. "The Comedian's Children" is horrible rather than terrifying in its portrait of a psychically cannibalistic VIP, "loved" on all the planets. "The (Widget), the (Wadget), and Boff" is almost as bizarre as its title, as alien experimenters try to understand a not very understandable lot of human beings.

"Cactus Dance," the fantasy, brings the pseudo-realism of the traditional western story to a very old form— the story of the child who had a strange kind of symbiosis with the yucca forest where her peon parents lived. Since it is a Sturgeon story, it is a human story rather than a ghost story.

If these stories evoke the kind of memories they stirred up in me, you won't need the book. You probably have them in other collections or anthologies, anyway. But it's been much too long since Sturgeon wrote stories like these, so if you haven't read them, now is the time to do it.



Dear Mr. Campbell:

Regarding recent discussions about possible intellectual differences between the races—I prefer to think positive.

We know that there are differences. German skin is lighter than Polynesian. Japanese eyes look different than French eyes. And we tend to accept other differences—we refer to the Swede as stubborn—certain Mediterranean people tend to scheme—and did you ever see an Italian contractor who wasn't excitable?

I feel that there are other race differences. Some tend to excel in manipulative skills, some in computational skills, some in innovative skills, some in precognitive, some in telepathic, et cetera.

To me it is a tragedy that we do not identify and exploit these and other race skills. How can we do this unless we test, collect and correlate data?

Individuals are more comfortable when working at their best. Why not races, too? Let us recognize each race for its outstanding talent tendency—whatever it may be.

What better place to start than a melting pot like the good old United States of America? Let us complement one another.

This is so good that it should be a government funded project. A good way to spend a few tax $'s, providing rewarding jobs for sociologists, statisticians, et cetera.

And for those who say there is no difference between the races—if they are right—proof positive.

Search for skills.

DONALD H. JACOBS
11425 Rainier Avenue South
Seattle, Washington 98178

My point exactly! The cells in your body are different so they can have different needed abilities!

Dear Mr. Campbell:

I am trying to find out the author and title of a story which was published in Analog some years ago. It dealt with a planet of Quyhrm, whose inhabitants could not effectively fight an alien invasion because they were fragmented by the diversity of dialects. A human expert

hired to solve their problem did so by devising a new "patriot" dialect through which all the various Quyhrnhazeth fighting the invaders could communicate.

Also, can you think of other SF stories with linguistic themes? (E.g. *The Languages of Pao,* "Tragedy of Errors".)

WILLIAM LINDEN
83-33 Austin Street
Kew Gardens, N. Y. 11415

Anybody want to tell him? I can't recall the title, although I remember the story. After the first thirty years, you begin to forget titles, I guess!

Dear Mr. Campbell:

I was pleased and delighted to see the favorable notice of Sam Moskowitz's "Under the Moons of Mars" that appeared in "The Reference Library" of the November issue of Analog.

Your reviewer's reaction to SaM's book, as well as his earlier World titles, is very satisfying indeed. After undertaking four of the World volumes that were mentioned in the first portion of the review, I continued with "Under the Moons of Mars" here at Holt, publishing it with the same internal care and external design that went into the World titles in order to keep Sam's books "on the same shelf," so to speak, so that series might continue more or less intact except for the change of imprint.

Mr. Miller's error, therefore, is a painful one, and I would appreciate it very much if you would do something to correct it. "Under the Moons of Mars" was published not by World, but by Holt, Rinehart and Winston.

WALLACE EXMAN
Senior Editor
Holt, Rinehart and Winston, Inc.

Our sincere apologies for a careless slip. We didn't plan a dirty trick like that!

Dear John:

Your editorial on children was, as all yours are, informative and interesting, but you neglected to mention that the childish life style, opposed to reason and reality and demanding instant satisfaction, is taught by philosophers and many instructors in our institutions of higher education.

As an example, an analysis of Marcuse's philosophy is given by George Walsh (2nd part) in the October issue of *The Objectivist.* Herbert Marcuse is, as you know, the mentor of Angela Davis and others of her ilk.

I have listened briefly to Marcuse, and would say he is anti-intellectualism, opposed to analysis, the opposite of Aristotle, and an intellectual anarchist whose ideas may destroy civilization, if they flourish. He is, of course, paid by the State of California, although it is astounding that he is not on the Federal payroll.

JACK KNEASS
Huntington Beach, Calif. 92647

You should add Dr. Spock's ideas on child care permissiveness.

Dear Mr. Campbell:

I have enjoyed your series of editorials on the moral-political state of the country, particularly its institutions of higher learning, and would like to add a few comments of my own, having just graduated from one of those institutes. Nothing enlightens like first-hand experience, and what follows is the truth about four common fallacies regarding the Now Generation.

Fallacy number 1: "The Now Generation wants peace." Nothing could be further from the truth. From first-hand contact, discussions, observations, and threats I might add, I can state that the Now Generation is fascinated with violence and war (i.e. guerrilla war). They view it as a game, a thrill, in which the victim gets his teeth knocked out, but comes back for more in the next act. The Nasty Old Generation, of course, takes these things seriously, much to the dismay of the Now People. The chief reason they were upset with Kent State, *et. al.*, is that the Old People refused to play; everyone knows you're supposed to sit back and giggle at bombings, burnings, and murder.

Fallacy number 2: "Only one or two percent of the young people use violence; the rest are concerned with nonviolent solutions to our social problems." I don't know how many idiots have fallen for that one, but a bigger lie would be harder to come by. Now, it's true that only one or two percent actually commit the crimes on campus against life and property, but that's no reason to celebrate when the only thing that stops a group ten times that size from committing them is that violence is *bad tactics* (not wrong, just bad tactics). This group, which numbers anywhere from one-fourth to one-third, by my own estimation, of the college population, either openly admires these murderers or excuses them as "victims of a sick society."

Fallacy number 3: "If only we got rid of the draft, most of the Now Generation's discontent would vanish." Some people never learn. The number of people who object to the draft on consistent moral grounds in college is infinitesimal. What they object to is being drafted into the *U.S. Military*, not the process of being drafted. Slavery to a good gang is fine; it's only slavery to a bad gang they object to. Draft them into the armed forces of North Vietnam, send them as slaves to work in Castro's sugar plantations, or our own ghettos, and no one would dare criticize it. If Nixon really wants to earn the love of the Now Generation, he should institute immediately some form of compulsory social service, required of everyone. No doubt several liberal members of Congress are thinking along those lines right now.

Fallacy number 4: "Our young people want to end poverty." Ignoring the question as to whether the state has any business in robbing from one group of citizens to pay for the comfort and pleasure of another,

the last thing the Now Generation wants is for the Poor to achieve material prosperity even remotely comparable to that enjoyed and *earned* by the so-called middle class. That would turn the Poor into bourgeois, a fate worse than death. What they actually want is the destruction of the material wealth of that middle class, so that every person on the planet is equally impoverished, setting the stage for a global utopia, the standard of living of which would be roughly the same as the early Bronze Age. To achieve it, they want power, power for anyone or any group so long as their aim is criminal and they hate America. Granted those stringent requirements, anything goes.

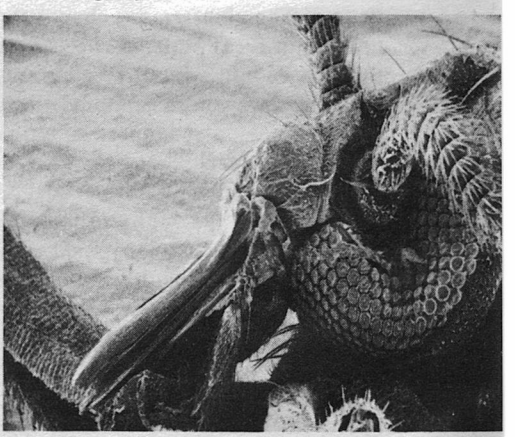
Everything I have seen and experienced these past three years has convinced me the nation is heading for bloody conflict within the decade, though Global War may intervene before Civil War does come. The Now Generation is only the most conspicuous symptom of the present sickness; far more dangerous are their teachers and supporters. Marx probably would have enjoyed this spectacle of a conflict led and directed by the upper middle class, though it plainly shows that most of his ideas were nonsense. It is from that group, the most wealthy and best educated in history, and their brats, that life and freedom are in their greatest danger. The hoodlums that claim to represent various minority groups are also doing their share, but are hardly as significant. Whoever said that we are our own worst enemy, may not have known just how great a truth he had spoken.

JOHN L. QUEL
3233 N.W. Market St.
Seattle, Wash. 98107

It's not necessary to be over thirty to feel the Now Generation isn't all sweetness and idealism.

Dear Mr. Campbell:

I was out walking on a lonely beach near Yreka, California, when this weird, greenish glowing ball dropped out of the sky. I felt a strange tingling, and found that my compass needle was spinning madly. Suddenly, a black hole appeared in the ball, and out stepped a . . . creature! I just managed to snap off a picture on my Exacta VXII B (Tri-X film, f 16, 1/500 second) when It opened Its beak and said, "Hi! My name is Kxrrzzch, and I've got a great little saucer for sale here. Only 32,000 light-years on it, and its only



been driven by a little old dggyutn from Bbryxxtl . . ."

Hm-m-m. I probably lost your suspension of disbelief some place along there, right? Anyway, I thought you might get a kick out of this scanning electron micrograph of a biting black gnat. They are very common in the Sacramento valley in the spring and cause great misery with their highly irritating bite. It just goes to show that you don't have to go much farther than your backyard to find undreamed of BEMs. If you have a scanning electron microscope, that is.

DEAN WILSON

Box 668
Davis, California 95616
Sometimes reality and fantasy are only a matter of scale!

Dear Sir:

I would like to recommend "The Plague," by Keith Laumer, published in the November issue as required reading for all "Welfare" administrators.

Mr. Laumer has done an excellent job of building a piece of social commentary very much akin to Johnathon Swift's "Gulliver's Travels." Dean Swift did not like the social atmosphere of his day; so he translated the scene into allegorical terms transparent to anyone familiar with the subject, yet the result was nothing but pure fiction so far as the surface indication was concerned.

I particularly enjoyed the barb directed at Mr. Fraswell: What's *your* salary?" Very well put! It is notorious that it actually costs the Government more to give Welfare money away than the recipients receive. This was true during Roosevelt's first experiments; probably it is even more true today.

Social commentary such as this is very much needed. Let's have more of it!

DAVID A. KING

94 Beacon Avenue
Layton, Utah 84041
I liked it myself!

Dear Mr. Campbell:

I've never written to you before, though I have disagreed with you quite a few times in the past four years. But now, you're talking about me.

You accuse the "Now Generation" of not listening—well, I am a member of that tantrum-throwing, bomb-factory generation of eighteen-year-olds, and I resent your statements. I repeat an old statement: The people you talk about constitute a very small minority of youth today. Seems to me you said that once yourself. Letting such a small group influence your feelings on allowing eighteen year olds—citizens—to vote is as bad as denying the vote to citizens over the age of thirty because of the lynchings, bombings, burnings, et cetera, the Klan has been—*and are still*—committing in the past one hundred or so years. If we are too nervous and impulsive to vote, then we are too nervous and

impulsive to fight. *I* wouldn't pick that type of person to be in the armed forces—which are supposed to protect me—and follow orders.

By the way, you said that we are not proposing solutions of our own for the Viet Nam war. Well, I beg to differ with you. If you study the so-called "underground" papers of a few years back, you will find quite a few such proposals. An awful lot of people have been proposing solutions—peaceful ones—for an awful long time, but no one acted on them. Now, you won't find that kind of thing in those papers—people are frustrated and getting violent. That doesn't support your point, though: we have been promised by two presidents that they would end the war, but it isn't over yet. Twenty years is a long time to wait, in anybody's eyes. These aren't the days of the Hundred Years' War. You're right; people haven't changed, but technology has, as you're well aware. We Can Kill Ourselves. We *have* to change—*now.*

You infer that the "Establishment" cannot change things now. On the contrary—I feel that *without* a Dunkirk—the Viet Cong are *not* the Nazis—we could withdraw from Viet Nam. And, as you said, I do say "a plague on both your houses." The North let me down, and the South has already been exposed for the tyranny it is. We cannot trust either government, at all. Only as long as we continue to serve the purposes of Hanoi, will they continue to serve ours. Not that I'm disloyal, I'd fight alongside any man to resist a legitimate invasion of my country. But there won't be time for any invasion in case of war; we'll all be dead before the bombs stop falling. Long before. By the way, no one in his right mind ever considered pulling the troops out in a day, but it can be done in less than a year.

There is one simple way to have peace: don't fight. No matter what, don't fight. If one warring nation in this world would just stop fighting, completely, we would be on the road to peace. If just one nation would set the example of trust, other nations might catch on and follow that lead. That trust might be violated, but it's worth the chance. A strong world government might help such things along. How long has it been since one of our states, or one of the Soviet Republics, declared war on another? Each of those states and republics are separate nations. . . .

Although it's *such* a temptation to be violent, some people can be radical without being stupid. Some others, though, can't be anything without being stupid.

LAURENCE W. BROWN
25 Beacon Street
Boston, Massachusetts 02108

This letter is typical of many of the mild-to-violent protests on my "The Now Generation" editorial. I'll answer the major points raised in this and most of the other protests:

1. If the shoe fits—wear it. If it doesn't fit, why insist on jamming yourself into it? Not all individuals

between fifteen and twenty-five belong to the "Now Generation"—and don't behave in the manner typical of that group. From your response, it sounds as though you belong.

2. There is only a very small percentage of individuals who belong to such organizations as the bomb-blasting Weathermen—but do not forget that there was only a very small percentage of Germans who were activist Nazis, also. What made it possible for those fanatical, murderous Nazis to torture and kill millions of people was the passive support of a majority of the German people.

What now protects Weathermen bombers is the large number of Now Generation groups that offer them sanctuary. Legally and morally, this makes them accessories after the fact to such things as the lethal computer-bombing at Madison. The murderous Weathermen could not exist long if they did not have the passive support of a major portion of the college students—just as the Nazi death camps couldn't have existed if the majority of the German people had refused to allow their existence.

If you passively approve and support inhuman crimes—you're tarred as deeply as the one with the bloody hands.

In a lynch mob, not more than a dozen men may actually lay hands on the tortured victim—but it's possible only because an approving mob supports them passively. Would you, then, hold only the few who actually laid hands on the victim to be guilty?

3. Sure the underground has been proposing solutions. And in my editorial I pointed out that Mary had a solution to the problem of getting a horse she wanted—give up the family car and keep a horse instead. It seemed like a sensible, reasonable solution to her. Now she might add to her arguments that a horse wouldn't cause pollution, would supply natural organic fertilizer, healthful exercise, and all sorts of benefits. It would seem a sound answer to the problem to her.

The answers the Now Generation has been supplying are of about equally unrealistic structure. It doesn't seem so to them—and they do not choose to listen to realistic analyses of their ideas any more than Mary does.

Any group that presents "nonnegotiable demands" does not mean "Listen to us!" it means "Obey! Obey us instantly, and without any arguments whatever!" It means "I will listen to nothing you say; you must obey everything I say!"

They refuse to engage in an exchange of viewpoints, in a discussion. And then wonder why people won't "listen to" them!

People showing such an attitude cannot be trusted in a representative government; they want not representation, but to be the controlling dictators.

4. The idea that refusal to fight will bring peace is an example of the refusal of the Now Generation to face realistic facts. One of the very few nations of Europe that didn't get

stomped on by the Nazis during WWII achieved that peace in the midst of war by being ready, willing, and able to fight furiously and violently at the first sign of invasion. Every citizen was armed, trained, and competent. And they had a terrain that was ideal for defensive battle, and absolute hell for any attacker. Nobody chose to walk into that armed and readied bear trap. Switzerland remained at peace, not because it refused to fight, but because everybody was one hundred percent certain that the Swiss both would, and could fight with terrific ferocity.

On the other hand, Czechoslovakia was not willing to fight alone—and look what happened as a result. They were divided up by other nations without their consent, and without consulting their wishes.

Also I note you say "A strong world government might help such things along." What do you mean by "a strong . . . *" government if not "a government ready, willing and able to enforce proper conduct?"*

The great difficulty is caused by idealistic, dedicated, sincere moralists. These lead to battle cries such as the famous "Jesus—and no quarter!" They produce the dedicated tyrants such as Hitler, Stalin, Oliver Cromwell or Torquemada. These were all dedicated idealists. But such people can not be argued with—there is only One Truth and They Have it. They, therefore, have nonnegotiable demands. Only such dedicated idealists can impose such appalling cruelties.

Dear Mr. Campbell:

I have come to respect you for your generally objective and erudite analyses of world problems and moving editorials. However, I was somewhat disturbed about your latest effort (November). I couldn't agree more with your statements concerning the unruly members of the "Now Generation," but to condemn all of us is as unjust as the radicals' blanket denunciation of the establishment.

I am twenty-five years of age. My circle of friends and welcome acquaintances do not, and have not since high school, fit the mold you created in the editorial. I am a Vietnam veteran and ex-military pilot, and now a college student. I hate the Army, but not for its purpose—rather for its ineptness. Its organization is such that it can't get out of its own way.

To pretend that nothing is wrong with the U.S., or the world, would be as wrong as thinking nothing is right. You have done a beautiful job of pointing out problems in your previous editorials, but you would have done a large portion of your admirers less disservice if you had limited your remarks to the relatively small percentage of my age group to which they apply.

PAUL T. FEINSTEIN
1 N. Granada Street
Arlington, Virginia 22203

If the shoe doesn't fit, don't insist on wearing it! The "Now Generation" is not an age group, but a philosophy.

EDITORIAL

continued from page 7

ous not *ic!*—has been taken by mouth as a remedy for many centuries. Lord knows how many doses of mercury metal have been swallowed by children who chewed on the familiar fever thermometers.

It just didn't seem that that report of 50 parts per million of mercury in tuna was all that devastating . . .

So, after a few weeks of study and research, the boys finally got around to the conclusion that they'd really goofed high, wide and handsome.

Tuna fish *naturally* contains from 10 to 100 parts of mercury per million—and always has. Studies of tuna canned forty-five years ago showed the same level of mercury. Study of a preserved, dehydrated tuna from a museum collection, known to be about seventy years old, showed the same level.

An organism that lives at the top end of a food chain, with all its food base swimming in a sea containing mercury, tends to accumulate some of the mercury. If it couldn't handle that much mercury, it wouldn't have evolved to sit on top of that food chain. The tuna is way, way up on the food chain; he gets into our cans because we're one step higher!

That tuna-fish scare is a Grade A #1 example of political and hysterical pollution taking off when there was no actual pollution.

For the planet Earth, mercury in the environment is normal-natural.

That does *not* deny that excessive local concentrations of mercury are being caused by certain industrial wastes.

However, let's be a little judicious, and stay alive longer. Men of goodwill pulled a major boner in screaming "Pollution!" when they found that tuna contained mercury; men of equally goodwill—and equally blank ignorance—pulled an exactly similar ignorant-boner by dumping metallic mercury in streams and lakes and saying "No pollution."

They had no information that the mercury could be dangerous; metallic mercury is quite inert, not exceedingly toxic, and according to all then-known scientific data, would simply sink harmlessly into the mud.

The industrial polluters were no more guilty of their ignorance than the FDA was guilty of ignorance in their screams of "Pollution!" in the tuna. And . . . no less guilty.

The greatest trouble with the pollution problem is recognizing the basic laws of nothing-for-nothing, and you-can-if-you-accept-a-cost.

Consider the matter of sulfur dioxide pollution.

Sulfur dioxide is poured into the Earth's atmosphere by the cubic *mile*, in stupendous quantities. It is being dumped into the atmosphere, and the thing we must remember and weigh is that it always has been—from chimneys thousands of feet high, and miles in diameter. They're called volcanoes. Belching

out of these immense throats come vast quantities of carbon dioxide, carbon monoxide, and the even more poisonous hydrogen sulfide. And I don't mean dribbles—I mean quantities on a planetary, not a mere industrial scale!

Every living organism is absolutely dependent on sulfur in its metabolism; most of your proteins depend on sulfur-bond cross-linkages to hold them in shape. Quite literally, a little sulfur's good for a man!

But *anything* in excess is poisonous—including oxygen, nitrogen, water, sugar, salt—anything. Sugar and salt are used for preserving foods, because in concentration they kill almost all living cells. And no organism can live without them.

Balance and judgment are required—and what we get in the current political and hysterical pollution is imbalance and insanity. Actual pollution is lost sight of, and practical balances that could be achieved are being made impossible by the hysterical demands of absolute elimination.

You want pure water to drink? O.K., friend—try the flavor of laboratory standard pure water, "conductivity water" so pure that it is an insulator.

You don't want *pure* water; you want a reasonable amount of flavoring substances added—some air, carbon dioxide, various salts and minerals—the kind of water your species evolved on!

Let's consider a Perfect Power Plant. Ideally, it would burn no fuel whatever, deliver power of the type we want directly, have no exhaust whatever, weigh nothing, and occupy no space.

You want to wait for it?

Well, how about a power plant that delivers immense quantities of power, causes no sulfur, carbon dioxide, carbon monoxide or hydrocarbon pollution, and requires no attention but simply sends out its floods of power unceasingly, while we don't have to supply any fuel to keep it going?

That one's available right now. It's called the Sun, and isn't very portable, and does cause a great deal of radiation pollution—it keeps throwing out X rays, cosmic rays, high-energy particle radiation and lethal photons of ultraviolet. The shielding we have is inadequate; the ultraviolet that leaks through is known to cause considerable cancer, and the particle radiation is also known to cause thousands of mutations and cancers, and to produce aging effects in human beings.

So we really ought to do something about that pollution, and order the Sun turned off?

Moreover, the Earth itself has been very badly constructed; many of the atoms it's built of—potassium, thorium and uranium in the common granites, for instance, and in seawater—are poorly constructed and keep falling apart. They give off lethal radiation, and the heavier ones keep contaminating the air with an

exceedingly toxic gas, radon, which, on being inhaled, causes radiation damage inside the body.

People living on the Colorado Plateau get a considerable dosage from the uranium and thorium deposits in the local rocks; they should force the Original Constructor of the place to replace the defective atoms with good ones, maybe?

Let's get really hysterical about this pollution business and throw all judgment out, and demand *absolute* perfection, and see what sort of system we wind up with, shall we?

Now we can't tolerate the mining and burning of coal, because coal contains radioactive material that's been safely buried away under thick rock. When it's mined and burned, it releases radioactive materials into our air, water, and ground. And because everybody knows radioactivity is terribly dangerous, we'll enact laws to stop that poisoning of our environment.

Then since oil and gas release hydrocarbons into the air and water, and those produce smog which is very toxic, we'll have to stop all use of those dangerous, polluting materials.

Of course we can't have nuclear power plants; everybody knows radioactivity causes cancer and mutations, and we can't have *that.*

And we'll just have to do something about the radiation pollution the Sun is causing, and cut off those carcinogenic ultraviolet rays.

So move the Earth into intergalactic space—and drop dead. You can't take the hazards of life.

One anti-radiation hysteric fanatic—he has a degree in science, which means he knows facts, but evidently doesn't use much judgment—says the present AEC standards of permissible radiation from nuclear power plants would cause some tens of thousands of added mutation deaths per year in the United States.

I doubt his figures, to begin with; nobody knows enough to make any such guesses. Dr. Hermann Muller, the Nobel medalist in genetics, given for his studies of radiation-induced mutations, was deeply concerned about radioactive mutations because, while the total organism can tolerate some radiation, and make repairs, he was sure that when radiation damaged a gene, there would, necessarily, be a mutation—that genetic cells could tolerate *no* damage from radiation. That, therefore, the only permissible radiation dosage for genetic cells would have to be zero.

That was his position just after WWII, when the atomic problems were just being studied—and before the RNA-DNA chemistry of genes was discovered.

We now know that genes have built-in self-repair kits, and can very rapidly and neatly repair damage to the genes caused by radiation or other disruptive forces—within limits, of course!

What those limits are, we don't know—and the bird who comes out

with figures on how many mutations and cancers a given amount of radiation will cause has no more solid data than Dr. Muller had. The "reasonable level of radiation" obviously must be greater than zero—there *is* self-repair. But nobody knows what it is, and we're a long way from finding out.

Moreover, remember the second basic law—you can get what you want if you can pay the cost.

We want electric power. The cost is not just so many dollars; it, like the automobile, will have a cost in terms of human lives. And *don't think you can escape it.* Even the Sun takes a toll in lives, with its radiations causing deaths, mutations, and cancers. (And deaths by exposure to its heat, too.)

Let's assume that the wild-guess figure of 30,000 deaths, mutations, et cetera, a year resulted from widespread use of nuclear power plants. (That's a wild assumption, completely unprovable, and almost certainly wrong—but assume it for discussion.)

Compare those 30,000 deaths and maimings per year with the life-cost per year of the automobile. And the way things are going, it's evident that we hold that the mobility that the automobile gives us would be cheap at twice the price; the death rate is rising, and yet no one says anything about banning the use of the deadly machines.

Of course, the automobile is the principal cause of death by smog, too. There's great to-do about anti-pollution devices to attach to the car—but nobody is proposing laws that end the problem once and completely by banning the automobile.

With respect to the automobile, in other words, there is none of the hysterical absolutistic, all-one-sided solution of "Ban the car!"

But the hysterical and political pollution on the "Ban the power plant!" is going great guns.

Of course, we demand our full quota of electric power; we just want them to give it to us from a power plant that produces no pollution whatever, and we want it *now.*

Too bad.

Even God's design of power plant gives off some radiation leakage.

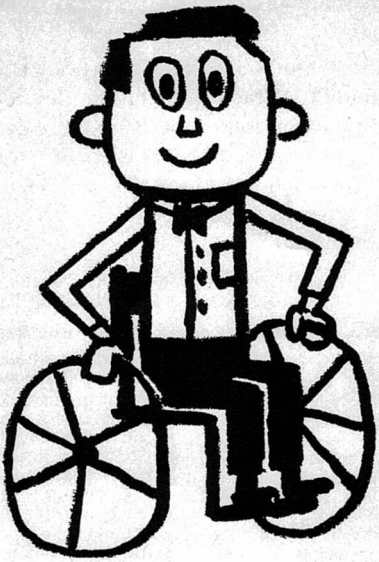
May I suggest that we'll get a lot better results if we accept that the Universe gives nothing for nothing, and that there will be a cost for every worthwhile thing.

That there is no such thing as a Perfect Solution, and the use of good judgment and design are an Optimum Engineering Compromise.

As of right now, there is a lot of far-from-optimum design in use; it can be cleaned up, and damned well has to be before we start paying the bankruptcy price the Universe charges those who don't acknowledge their bills. Disastrous Collapse.

But we can *not* solve the actual pollution problem with either political or hysterical pollution.

It calls for judgment—not paranoia on the subject. ■ The Editor.



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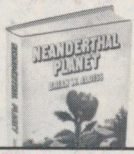

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