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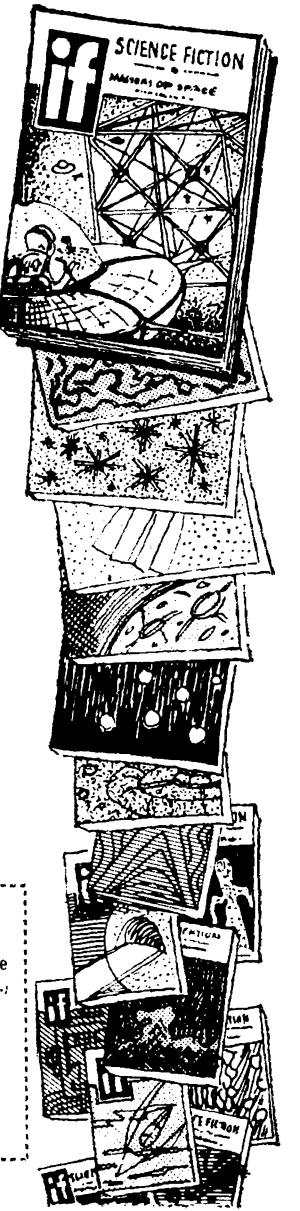

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SEPTEMBER, 1963
VOL. 13, NO. 4

WORLDS OF IF SCIENCE FICTION

ALL NEW STORIES

Frederik Pohl, *Editor* — Theodore Sturgeon, *Feature Editor*
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NOVELETTES

SHORT STORIES

SERIAL

SPECIAL FEATURES

Cover by Wenzel from The Course of Logic

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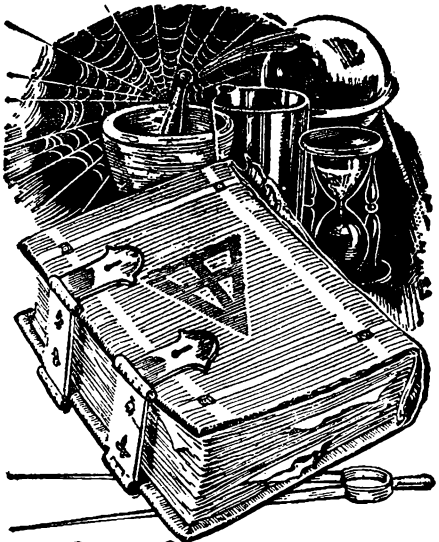
KICK YOURSELF AGAIN

A local feller just got himself a patent on a new cigarette filter. Seems that the semi-precious mineral tourmaline is pyroelectric; that is, when heated, tourmaline crystals become polarized, with a negative charge at one end and a positive charge at the other. Cigarette smoke is warm enough to bring this about. The charged crystals attract and trap tar particles. He claims his filters can compete favorably with lesser breeds.

Here's a perfect candidate for what I called here, about a year ago, the Kick Yourself Department. This contains all the ideas that were staring you right in the face all along, you fool you, until some other guy came along and turned it into money. Not that this odd quality of tourmaline is exactly staring you in the face. It has, however, surely been known for a long time; but it takes one guy with that special connection in his cranial wiring to put it to work. The man who invented the filter had been ordered by his doctor to quit smoking, which he reluctantly did; he was annoyed enough to work on the problem. He actually built an electrostatic filter in a holder, powered by batteries. Then, when his son brought some books home from college, he bumped into the tourmaline thing — and there you go.

My son's exhibit in the Science Fair last year was a microscope made of a juice can and a soup can, some wood scraps and some slips of window-glass. The lens is a drop of

Secrets entrusted to a few



The Unpublished Facts of Life

THERE are some things that cannot be generally told—*things you ought to know.* Great truths are dangerous to some—but factors for *personal power* and *accomplishment* in the hands of those who understand them. Behind the tales of the miracles and mysteries of the ancients, lie centuries of their secret probing into nature's laws—their amazing discoveries of *the hidden processes of man's mind,* and *the mastery of life's problems.* Once shrouded in mystery to avoid their destruction by mass fear and ignorance, these facts remain a useful heritage for the thousands of men and women who privately use them in their homes today.

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water. The design came from a mechanical magazine, but we redesigned it a little and made an illuminator for it and dressed it up with flat black paint. It's a pretty good little instrument — 60 power or so. Won a prize, too. Well, the phenomenon of drops of water that magnify *was* in front of people's faces — literally for thousands of years. Dew in the bushes, in the early morning with the sun low and shining right through the drops — you almost *have* to see such a thing. Yet apparently nobody did! And can you imagine world history if someone had, say in ancient Egypt or Babylon? Wouldn't glass lenses follow as a matter of course? There's a Kick Yourself if there ever was one.

There are plenty of phenomena kicking around waiting to get broke and harnessed. Some are right out front, and some are hiding in Joe College's science book, but they're around. For instance, if you use palladium as one electrode in an electrolysis tank, you won't get any hydrogen gas for quite a time, because the palladium will absorb nearly a thousand times its own volume of hydrogen. It gloms on to the H2 good and hard, too — you can't scrape it off, knock it off or pump it out. Heat will do it easily. Hasn't anyone got a home for that? Then there's the Barr Effect — the ballet a drop of water will perform on a sheet of hot metal — which I haven't space to describe here but which Steve Himself Barr has written up. Sugar-lumps will sometimes give off light when rubbed or broken in the dark. A balloon filled with CO2 is attracted to the resonance box of a tuning fork. One filled with hydrogen is repelled. An iron tank containing gas under pressure will lose it all if heated red, even though no measurable opening appears, and it becomes gas-tight when it cools. . .

Do you have any like these — useless, or little-used, or little-known unharnessed phenomena? If so, send 'em in! When we've accumulated enough, we'll run a column on them. with names of the donors included.

Who knows? You might be responsible for the invention-ignition process in an Edison or Steinmetz who won't know he is one until he sees your contribution.

If I sparked some stranger that way, I might kick myself a little — but I think I'd be glad to do it!

—T.H.S.

THE EXPENDABLES

BY A. E. VAN VOGT

The alien was deadly, dangerous and inhuman—but he was not the most feared enemy on the ship!

ILLUSTRATED BY FINLAY

I

One hundred and nine years after leaving Earth, the spaceship, *Hope of Man*, went into orbit around Alta III.

The following "morning" Captain Browne informed the shipload of fourth and fifth generation colonists that a manned lifeboat would be dropped to the planet's surface.

"Every member of the crew must consider himself expendable," he said earnestly. "This is the day that our great grandparents, our forefathers, who boldly set out for the new space frontier so long ago, looked forward to with unfaltering courage. We must not fail them."

He concluded his announcement over the intercom system of the big ship by saying that the names of the crew members of the lifeboat would be given out within the hour.

"And I know that every real man aboard will want to see his name there."

John Lesbee, the fifth of his line aboard, had a sinking sensation as he heard those words — and he was not mistaken.

Even as he tried to decide if he should give the signal for a desperate act of rebellion, Captain Browne made the expected announcement.

The commander said, "And I know you will all join him in his moment of pride and courage when I tell you that John Lesbee will lead the crew that carries the hopes of man in this remote area of space. And now the others —"

He thereupon named seven of the nine persons with whom Lesbee had been conspiring to seize control of the ship.

Since the lifeboat would only hold eight persons, Lesbee recognized that Browne was dispatching as many of his enemies as he could. He listened with a developing dismay, as the commander ordered all persons on the ship to come to the recreation room. "Here I request that the crew of the lifeboat join me and the other officers on stage. Their instructions are to surrender themselves to any craft which seeks to intercept them. They will be equipped with instruments whereby we here can watch, and determine the stage of scientific attainments of the dominant race on the planet below."

Lesbee hurried to his room on the technicians' deck, hoping that perhaps Tellier or Cantlin would seek him out there. He felt himself in need of a council of war, however brief. He waited five minutes, but not one member of his conspiratorial group showed.

Nonetheless, he had time to grow calm. Peculiarly, it was the smell of the ship that soothed him most. From the earliest days of his life, the odor of energy and the scent of metal under stress had been perpetual companions. At the moment, with the ship in orbit, there was a letting up of stress. The smell was of old energies rather than new. But the effect was similar.

He sat in the chair he used for reading, eyes closed, breathing in that complex of odors, product of so many titanic energies. Sitting there, he felt the fear leave his mind and body. He grew brave again, and strong.

Lesbee recognized soberly that his plan to seize power had involved risks. Worse, no one would question Browne's choice of him as the leader of the mission. "I am," thought Lesbee, "probably the most highly trained technician ever to be on this ship." Browne Three had taken him when he was ten, and started him on the long grind of learning that led him, one after the other, to master the mechanical skills of all the various technical departments. And Browne Four had continued his training.

He was taught how to repair relay systems. He gradually came to understand the purposes of countless analogs. The time came when he could visualize the entire automation. Long ago, the colossal cobweb

THE EXPENDABLES

of electronic instruments within the walls had become almost an extension of his nervous system.

During those years of work and study, each daily apprenticeship chore left his slim body exhausted. After he came off duty, he sought a brief relaxation and usually retired to an early rest.

He never did find the time to learn the intricate theory that underlay the ship's many operations.

His father, while he was alive, had made numerous attempts to pass his knowledge on to his son. But it was hard to teach complexities to a tired and sleepy boy. Lesbee even felt slightly relieved when his parent died. It took the pressure off him. Since then, however, he had come to realize that the Browne family, by forcing a lesser skill on the descendant of the original commander of the ship, had won their greatest victory.

As he headed finally for the recreation room, Lesbee found himself wondering: Had the Brownes trained him with the intention of preparing him for such a mission as this?

His eyes widened. If that was true, then his own conspiracy was merely an excuse. The decision to kill him might actually have been made more than a decade ago, and light years away...

As the lifeboat fell toward Alta III, Lesbee and Tellier sat in the twin control chairs and watched on the forward screen the vast, misty atmosphere of the planet.

Tellier was thin and intellectual, a descendant of the physicist Dr. Tellier who had made many speed experiments in the early days of the voyage. It had never been understood why spaceships could not attain even a good fraction of the speed of light, let alone velocities greater than light. When the scientist met his untimely death, there was no one with the training to carry on a testing program.

It was vaguely believed by the trained personnel who succeeded Tellier that the ship had run into one of the paradoxes implicit in the Lorenz-Fitzgerald Contraction theory.

Whatever the explanation, it was never solved.

Watching Tellier, Lesbee wondered if his companion and best friend felt as empty inside as he did. Incredibly, this was the first time he — or anyone — had been outside the big ship. "We're actually heading down," he thought, "to one of those great masses of land and water, a planet."

As he watched, fascinated, the massive ball grew visibly bigger.

They came in at a slant, a long, swift, angling approach, ready to jet away if any of the natural radiation belts proved too much for their defense systems. But as each stage of radiation registered in turn, the dials showed that the lifeboat machinery made the proper responses automatically.

The silence was shattered suddenly by an alarm bell.

Simultaneously, one of the screens focused on a point of rapidly mov-

ing light far below. The light darted toward them.

A missile!

Lesbee caught his breath.

But the shining projectile veered off, turned completely around, took up position several miles away, and began to fall with them.

His first thought was: "They'll never let us land," and he experienced an intense disappointment.

Another signal brrred from the control board.

"They're probing us," said Tellier, tensely.

An instant after the words were uttered, the lifeboat seemed to shudder and to stiffen under them. It was the unmistakable feel of a tractor beam. Its field clutched the lifeboat, drew it, held it.

The science of the Alta III inhabitants was already proving itself formidable.

Underneath him the lifeboat continued its movement.

The entire crew gathered around and watched as the point of brightness resolved into an object, which rapidly grew larger. It loomed up close, bigger than they.

There was a metallic bump. The lifeboat shuddered from stem to stern.

Even before the vibrations ceased Tellier said, "Notice they put our airlock against theirs."

Behind Lesbee, his companions began that peculiar joking of the threatened. It was a coarse comedy, but it had enough actual humor suddenly to break through his fear. Involuntarily he found himself laughing.

Then, momentarily free of anxiety, aware that Browne was watching and that there was no escape, he said, "Open the airlock! Let the aliens capture us as ordered."

II

A few minutes after the outer airlock was opened, the airlock of the alien ship folded back also. Rubberized devices rolled out and contacted the Earth lifeboat, sealing off both entrances from the vacuum of space.

Air hissed into the interlocking passageway between the two craft. In the alien craft's lock, an inner door opened.

Again Lesbee held his breath.

There was a movement in the passageway. A creature ambled into view. The being came forward with complete assurance, and pounded with something he held at the end of one of his four leathery arms on the hull.

The creature had four legs and four arms, and a long thin body held straight up. It had almost no neck, yet the many skin folds between the head and the body indicated great flexibility was possible.

Even as Lesbee noted the details of its appearance, the being turned his head slightly, and its two large expressionless eyes gazed straight at the hidden wall receptor that was photographing the scene, and therefore straight into Lesbee's eyes.

Lesbee blinked at the creature, then tore his gaze away, swallowed hard, and nodded at Tellier. "Open up!" he commanded.

The moment the inner door of the Earth lifeboat opened, six more of the four-legged beings appeared one after another in the passageway, and walked forward in the same confident way as had the first.

All seven creatures entered the open door of the lifeboat.

As they entered their thoughts came instantly into Lesbee's mind...

As Dzing and his boarding party trotted from the small Karn ship through the connecting airlock, his chief officer thought a message to him.

"Air pressure and oxygen content are within a tiny percentage of what exists at ground level on Karn. They can certainly live on our planet."

Dzing moved forward into the Earth ship, and realized that he was in the craft's control chamber. There, for the first time, he saw the men. He and his crew ceased their forward motion; and the two groups of beings — the humans and the Karn — gazed at each other.

The appearance of the two-legged beings did not surprise Dzing. Pulse viewers had, earlier, penetrated the metal walls of the lifeboat and had accurately photographed the shape and dimension of those aboard.

His first instruction to his crew was designed to test if the strangers were, in fact, surrendering. He commanded: "Convey to the prisoners that we require them as a precaution to remove their clothing."

... Until that direction was given, Lesbee was still uncertain as to whether or not these beings could receive human thoughts as he was receiving theirs. From the first moment, the aliens had conducted their mental conversations *as if* they were unaware of the thoughts of the human beings. Now he watched the Karn come forward. One tugged suggestively at his clothing. And there was no doubt.

The mental telepathy was a one-way flow only — from the Karn to the humans.

He was already savoring the implications of that as he hastily undressed... It was absolutely vital that Browne do not find it out.

Lesbee removed all his clothes; then, before laying them down, took out his notebook and pen. Standing there naked he wrote hurriedly:

"Don't let on that we can read the minds of these beings."

He handed the notebook around, and he felt a lot better as each of the men read it, and nodded at him silently.

Dzing communicated telepathically with someone on the ground. "These strangers," he reported, "clearly acted under command to surrender. The problem is, how can we now let them overcome us without arousing their suspicion that this is what we want them to do?"

Lesbee did not receive the answer directly. But he picked it up from Dzing's mind: "Start tearing the lifeboat apart. See if that brings a reaction."

The members of the Karn boarding party went to work at once. Off came the control panels; floor plates were melted and ripped up. Soon instruments, wiring,

controls were exposed for examination. Most interesting of all to the aliens were the numerous computers and their accessories.

Browne must have watched the destruction; for now, before the Karn could start wrecking the automatic machinery, his voice interjected:

"Watch out, you men! I'm going to shut your airlock and cause your boat to make a sharp right turn in exactly twenty seconds."

For Lesbee and Tellier that simply meant sitting down in their chairs, and turning them so that the acceleration pressure would press them against the backs. The other men sank to the ripped-up floor, and braced themselves.

Underneath Dzing, the ship swerved. The turn began slowly, but it propelled him and his fellows over to one wall of the control room. There he grabbed with his numerous hands at some handholds that had suddenly moved out from the smooth metal. By the time the turn grew sharper, he had his four short legs braced, and he took the rest of the wide swing around with every part of his long, sleek body taut. His companions did the same.

Presently, the awful pressure eased up, and he was able to estimate that their new direction was almost at right angles to what it had been.

He had reported what was happening while it was going on. Now, the answer came: "Keep on destroying. See what they do, and be prepared to succumb to anything that looks like a lethal attack."

Lesbee wrote quickly in his notebook: "Our method of capturing them doesn't have to be subtle. They'll make it easy for us — so we can't lose."

Lesbee waited tensely as the notebook was passed around. It was still hard for him to believe that no one else had noticed what he had about this boarding party.

Tellier added a note of his own: "It's obvious now that these beings were also instructed to consider themselves expendable."

And that settled it for Lesbee. The others hadn't noticed what he had. He sighed with relief at the false analysis, for it gave him that most perfect of all advantages: that which derived from his special education.

Apparently, he alone knew enough to have analyzed what these creatures were.

The proof was in the immense clarity of their thoughts. Long ago, on earth, it had been established that man had a faltering telepathic ability, which could be utilized consistently only by electronic amplification *outside* his brain. The amount of energy needed for the step-up process was enough to burn out brain nerves, if applied directly.

Since the Karn were utilizing it directly, they couldn't be living beings.

Therefore, Dzing and his fellows were an advanced robot type.

The true inhabitants of Alta III were not risking their own skins at all.

Far more important to Lesbee, he could see how he might use these

marvellous mechanisms to defeat Browne, take over the *Hope of Man*, and start the long journey back to Earth.

III

He had been watching the Karn at their work of destruction, while he had these thoughts. Now, he said aloud: "Hainker, Graves."

"Yes?" The two men spoke together.

"In a few moments I'm going to ask Captain Browne to turn the ship again. When he does, use our specimen gas guns!"

The men grinned with relief. "Consider it done," said Hainker.

Lesbee ordered the other four crewmen to be ready to use the specimen-holding devices at top speed. To Tellier he said, "You take charge if anything happens to me."

Then he wrote one more message in the notebook: "These beings will probably continue their mental intercommunication after they are apparently rendered unconscious. Pay no attention, and do not comment on it in any way."

He felt a lot better when that statement also had been read by the others, and the notebook was once more in his possession. Quickly, he spoke to the screen:

"Captain Browne! Make another turn, just enough to pin them."

And so they captured Dzing and his crew.

As he had expected, the Karn continued their telepathic conversation. Dzing reported to his ground contact: "I think we did that rather well."

There must have been an answering message from below, because he went on, "Yes, commander. We are now prisoners as per your instructions, and shall await events... The imprisoning method? Each of us is pinned down by a machine which has been placed astride us, with the main section adjusted to the contour of our bodies. A series of rigid metal appendages fasten our arms and legs. All these devices are electronically controlled, and we can of course escape at any time. Naturally, such action is for later..."

Lesbee was chilled by the analysis; but for expendables there was no turning back.

He ordered his men: "Get dressed. Then start repairing the ship. Put all the floor plates back except the section at G-8. They removed some of the analogs, and I'd better make sure myself that it all goes back all right."

When he had dressed, he reset the course of the lifeboat, and called Browne. The screen lit up after a moment, and there staring back at him was the unhappy countenance of the forty-year-old officer.

Browne said glumly: "I want to congratulate you and your crew on your accomplishments. It would seem that we have a small scientific superiority over this race, and that we can attempt a limited landing."

Since there would never be a landing on Alta III, Lesbee simply waited without comment as Browne seemed lost in thought.

The officer stirred finally. He

still seemed uncertain. "Mr. Lesbee," he said, "as you must understand, this is an extremely dangerous situation for me — and —" he added hastily — "for this entire expedition."

What struck Lesbee, as he heard those words, was that Browne was not going to let him back on the ship. But he had to get aboard to accomplish his own purpose. He thought: "I'll have to bring this whole conspiracy out into the open, and apparently make a compromise offer."

He drew a deep breath, gazed straight into the eyes of Browne's image on the screen and said with the complete courage of a man for whom there is no turning back: "It seems to me, sir, that we have two alternatives. We can resolve all these personal problems either through a democratic election or by a joint captaincy, you being one of the captains and I being the other."

To any other person who might have been listening the remark must have seemed a complete non sequitur. Browne, however, understood its relevance. He said with a sneer, "So you're out in the open. Well, let me tell you, Mr. Lesbee, there was never any talk of elections when the Lesbees were in power. And for a very good reason. A spaceship requires a technical aristocracy to command it. As for a joint captaincy, it wouldn't work."

Lesbee urged his lie: "If we're going to stay here, we'll need at least two people of equal authority — one on the ground, one on the ship."

"I couldn't trust you on the ship!" said Browne flatly.

"Then you be on the ship," Lesbee proposed. "All such practical details can be arranged."

The older man must have been almost beside himself with the intensity of his own feelings on this subject. He flashed, "Your family has been out of power for over fifty years! How can you still feel that you have any rights?"

Lesbee countered, "How come you still know what I'm talking about?"

Browne said, a grinding rage in his tone, "The concept of inherited power was introduced by the first Lesbee. It was never planned."

"But here you are," said Lesbee, "yourself a beneficiary of inherited power."

Browne said from between clenched teeth: "It's absolutely ridiculous that the Earth government which was in power when the ship left — and every member of which has been long dead — should appoint somebody to a command position ... and that now his descendant think that command post should be his, and his family's, for all time!"

Lesbee was silent, startled by the dark emotions he had uncovered in the man. He felt even more justified, if that were possible, and advanced his next suggestion without a qualm.

"Captain, this is a crisis. We should postpone our private struggle. Why don't we bring one of these prisoners aboard so that we can question him by use of films, or play acting? Later, we can discuss your situation and mine."

He saw from the look on Browne's face that the reasonableness of the suggestion, *and its potentialities*, were penetrating.

Browne said quickly, "Only you come aboard — and with one prisoner only. No one else!"

Lesbee felt a dizzying thrill as the man responded to his bait. He thought: "It's like an exercise in logic. He'll try to murder me as soon as he gets me alone and is satisfied that he can attack without danger to himself. But that very scheme is what will get me aboard. And I've got to get on the ship to carry out *my* plan."

Browne was frowning. He said in a concerned tone: "Mr. Lesbee, can you think of any reason why we should not bring one of these beings aboard?"

Lesbee shook his head. "No reason, sir," he lied.

Browne seemed to come to a decision. "Very well. I'll see you shortly, and we can then discuss additional details."

Lesbee dared not say another word. He nodded, and broke the connection, shuddering, disturbed, uneasy.

"But," he thought, "what else can we do?"

He turned his attention to the part of the floor that had been left open for him. Quickly, he bent down and studied the codes on each of the programming units, as if he were seeking exactly the right ones that had originally been in those slots

He found the series he wanted: an intricate system of cross-connected units that had originally been designed to program a remote-control landing system, an advanced Waldo mechanism capable of landing the craft on a planet and taking off again, all directed on the pulse level of human thought.

He slid each unit of the series into its sequential position and locked it in.

Then, that important task completed, he picked up the remote control attachment for the series and casually put it in his pocket.

He returned to the control board and spent several minutes examining the wiring and comparing it with a wall chart. A number of wires had been torn loose. These he now re-connected, and at the same time he managed with a twist of his pliers to short-circuit a key relay of the remote control pilot.

Lesbee replaced the panel itself loosely. There was no time to connect it properly. And, since he could easily justify his next move, he pulled a cage out of the storeroom. Into this he hoisted Dzing, manacles and all.

Before lowering the lid he rigged into the cage a simple resistor that would prevent the Karn from broadcasting on the human thought level. The device was simple merely in that it was not selective. It had an on-off switch which triggered, or stopped, energy flow in the metal walls on the thought level.

When the device was installed, Lesbee slipped the tiny remote control for *it* into his other pocket. He did not activate the control. Not yet.

From the cage Dzing telepathed: "It is significant that these beings have selected me for this special attention. We might conclude that it is a matter of mathematical accident, or else that they are very observant and so noticed that I was the one who directed activities. Whatever the reason, it would be foolish to turn back now."

A bell began to ring. As Lesbee watched, a spot of light appeared high on one of the screens. It moved rapidly toward some crossed lines in the exact center of the screen. Inexorably, then, the *Hope of Man,* as represented by the light, and the lifeboat moved toward their fateful rendezvous.

IV

Browne's instructions were: "Come to Control Room Below!"

Lesbee guided his powered dolly with the cage on it out of the big ship's airlock P — and saw that the man in the control room of the lock was Second Officer Selwyn. Heavy brass for such a routine task. Selwyn waved at him with a twisted smile as Lesbee wheeled his cargo along the silent corridor.

He saw no one else on his route. Other personnel had evidently been cleared from this part of the vessel. A little later, grim and determined, he set the cage down in the center of the big room and anchored it magnetically to the floor.

As Lesbee entered the captain's office, Browne looked up from one of the two control chairs and stepped down from the rubber-sheathed dais to the same level as Lesbee. He came forward, smiling, and held out his hand. He was a big man, as all the Brownes had been, bigger by a head than Lesbee, good-looking in a clean-cut way. The two men were alone.

"I'm glad you were so frank," he said. "I doubt if I could have spoken so bluntly to you without your initiative as an example."

But as they shook hands, Lesbee was wary and suspicious. Lesbee thought: "He's trying to recover from the insanity of his reaction. I really blew him wide open."

Browne continued in the same hearty tone: "I've made up my mind. An election is out of the question. The ship is swarming with untrained dissident groups, most of which simply want to go back to Earth."

Lesbee, who had the same desire, was discreetly silent.

Browne said, "You'll be ground captain; I'll be ship captain. Why don't we sit down right now and work out a communique on which we can agree and that I can read over the intercom to the others?"

As Lesbee seated himself in the chair beside Browne, he was thinking: "What can be gained from publicly naming me ground captain?"

He concluded finally, cynically, that the older man could gain the confidence of John Lesbee — lull him, lead him on, delude him, destroy him.

Surreptitiously Lesbee examined the room. Control Room Below was a large square chamber adjoining the massive central engines. Its control board was a duplicate of the

one on the bridge located at the top of the ship. The great vessel could be guided equally from either board, except that pre-emptive power was on the bridge. The officer of the watch was given the right to make Merit decisions in an emergency.

Lesbee made a quick mental calculation, and deduced that it was First Officer Miller's watch on the bridge. Miller was a staunch supporter of Browne. The man was probably watching them on one of his screens, ready to come to Browne's aid at a moment's notice.

A few minutes later. Lesbee listened thoughtfully as Browne read their joint communique over the intercom, designating him as ground captain. He found himself a little amazed, and considerably dismayed, at the absolute confidence the older man must feel about his own power and position on the ship. It was a big step, naming his chief rival to so high a rank.

Browne's next act was equally surprising. While they were still on the viewers, Browne reached over, clapped Lesbee affectionately on the shoulders and said to the watching audience:

"As you all know, John is the only direct descendant of the original captain. No one knows exactly what happened half a hundred years ago when my grandfather first took command. But I remember the old man always felt that only he understood how things should be. I doubt if he had any confidence in *any* young whippersnapper over whom he did not have complete control. I often felt that my father was the victim rather than the beneficiary of my grandfather's temper and feelings of superiority."

Browne smiled engagingly. "Anyway, good people, though we can't unbreak the eggs that were broken then, we can certainly start healing the wounds, without —" his tone was suddenly firm — "negating the fact that my own training and experience make me the proper commander of the ship itself."

He broke off. "Captain Lesbee and I shall now jointly attempt to communicate with the captured intelligent life form from the planet below. You may watch, though we reserve the right to cut you off for good reason." He turned to Lesbee. "What do you think we should do first, John?"

Lesbee was in a dilemma. The first large doubt had come to him, the possibility that perhaps the other was sincere. The possibility was especially disturbing because in a few moments a part of his own plan would be revealed.

He sighed, and realized that there was no turning back at this stage. He thought: "We'll have to bring the entire madness out into the open, and only then can we begin to consider agreement as real."

Aloud, he said in a steady voice, "Why not bring the prisoner out where we can see him?"

As the tractor beam lifted Dzing out of the cage, and thus away from the energies that had suppressed his thought waves, the Karn telepathed to his contact on Alta III:

"Have been held in a confined space, the metal of which was energized against communication. I shall now attempt to perceive and evalute the condition and performance of this ship —"

At that point, Browne reached over and clicked off the intercom. Having shut off the audience, he turned accusingly to Lesbee, and said, "Explain your failure to inform me that these beings communicated by telepathy."

The tone of his voice was threatening. There was a hint of angry color in his face.

It was the moment of discovery.

Lesbee hesitated, and then simply pointed out how precarious their relationship had been. He finished frankly, "I thought by keeping it a secret I might be able to stay alive a little longer, which was certainly not what you intended when you sent me out as an expendable."

Browne snapped, "But how did you hope to utilize? —"

He stopped. "Never mind," he muttered.

Dzing was telepathing again:

"In many ways this is mechanically a very advanced type ship. Atomic energy drives are correctly installed. The automatic machinery performs magnificently. There is massive energy screen equipment, and they can put out a tractor beam to match anything we have that's mobile. But there is a wrongness in the energy flows of this ship, which I lack the experience to interpret. Let me furnish you some data..."

The data consisted of variable wave measurements, evidently — so Lesbee deduced — the wavelengths of the energy flows involved in the "wrongness."

He said in alarm at that point, "Better drop him into the cage while *we* analyze what he could be talking about."

Browne did so — as Dzing telepathed: "If what you suggest is true, then these beings are completely at our mercy —"

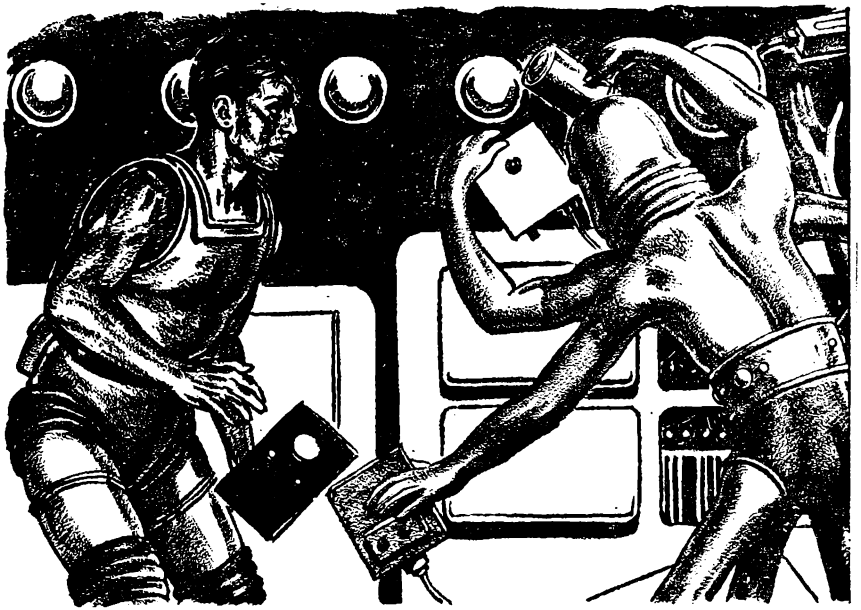
Cut off!

Browne was turning on the intercom. "Sorry I had to cut you good people off," he said. "You'll be interested to know that we have managed to tune in on the thought pulses of the prisoner and have intercepted his calls to someone on the planet below. This gives us an advantage." He turned to Lesbee. "Don't you agree?"

Browne visibly showed no anxiety, whereas Dzing's final statement flabbergasted Lesbee. "... *completely at our mercy ...*" surely meant exactly that. He was staggered that Browne could have missed the momentous meaning.

Browne addressed him enthusiastically, "I'm excited by this telepathy! It's a marvelous short-cut to communication, if we could build up our own thought pulses. Maybe we could use the principle of the remote-control landing device which, as you know, can project human thoughts on a simple, gross level, where ordinary energies get confused by the intense field needed for the landing."

What interested Lesbee in the



suggestion was that he had in his pocket a remote control for precisely such mechanically produced thought pulses. Unfortunately, the control was for the lifeboat. It probably would be advisable to tune the control to the ship landing system also. It was a problem he had thought of earlier, and now Browne had opened the way for an easy solution.

He held his voice steady as he said, "Captain, let me program those landing analogs while you prepare the film communication project. That way we can be ready for him either way."

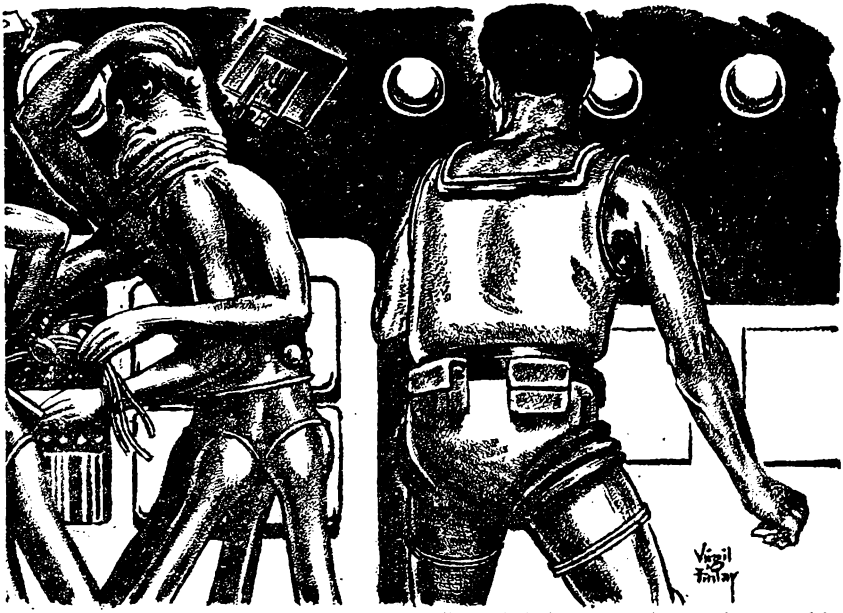
Browne seemed to be completely trusting, for he agreed at once.

At Browne's direction, a film projector was wheeled in. It was swiftly mounted on solid connections at one end of the room. The cameraman and Third Officer Mindel — who had come in with him — strapped themselves into two adjoining chairs attached to the projector, and were evidently ready.

While this was going on, Lesbee called various technical personnel. Only one technician protested. "But, John," he said, "that way we have a double control — with the lifeboat control having pre-emption over the ship. That's very unusual."

It was unusual. But it was the lifeboat control that was in his pocket where he could reach it quickly; and so he said adamantly, "Do you want to talk to Captain Browne? Do you want his okay?"

"No, no." The technician's doubts



seemed to subside. "I heard you being named joint captain. You're the boss. It shall be done."

Lesbee put down the closed-circuit phone into which he had been talking, and turned. It was then he saw that the film was ready to roll, and that Browne had his fingers on the controls of the tractor beam. The older man stared at him questioningly.

"Shall I go ahead?" he asked.

At this penultimate moment, Lesbee had a qualm.

Almost immediately he realized that the only alternative to what Browne planned was that he reveal his own secret knowledge.

He hesitated, torn by doubts. Then: "Will you turn that off?" He indicated the intercom.

Browne said to the audience, "We'll bring you in again on this in a minute, good people." He broke the connection and gazed questioningly at Lesbee.

Whereupon Lesbee said in a low voice, "Captain, I should inform you that I brought the Karn aboard in the hope of using him against you."

"Well, that is a frank and open admission," the officer replied very softly.

"I mention this," said Lesbee, "because if you had similar ulterior motives, we should clear the air completely before proceeding with this attempt at communication."

A blossom of color spread from Browne's neck over his face. At last he said slowly, "I don't know how I can convince you, but I had no schemes."

Lesbee gazed at Browne's open countenance, and suddenly he realized that the officer was sincere. Browne had accepted the compromise. The solution of a joint captaincy was agreeable to him.

Sitting there, Lesbee experienced an enormous joy. Seconds went by before he realized what underlay the intense pleasurable excitement. It was simply the discovery that — communication worked. You could tell your truth and get a hearing ... if it made sense.

It seemed to him that his truth made a lot of sense. He was offering Browne peace aboard the ship. Peace at a price, of course; but still peace. And in this severe emergency Browne recognized the entire validity of the solution.

So it was now evident to Lesbee. Without further hesitation he told Browne that the creatures who had boarded the lifeboat, were robots — not alive at all.

Browne was nodding thoughtfully. Finally he said: "But I don't see how this could be utilized to take over the ship."

Lesbee said patiently, "As you know, sir, the remote landing control system includes five principal ideas which are projected very forcibly on the thought level. Three of these are for guidance — up, down and sideways. Intense magnetic fields, any one of which could partially jam a complex robot's thinking processes. The fourth and fifth are instructions to blast either up or down. The force of the blast depends on how far the control is turned on. Since the energy used is overwhelming those simple commands would take pre-emption over the robot. When that first one came aboard the lifeboat, I had a scan receiver — nondetectable — on him. This registered two power sources, one pointing forward, one backward, from the chest level. That's why I had him on his back when I brought him in here. But the fact is I could have had him tilted and pointing at a target, and activated either control four or five, thus destroying whatever was in the path of the resulting blast. Naturally, I took all possible precautions to make sure that this did not happen until you had indicated what you intended to do. One of these precautions would enable us to catch this creature's thoughts without —"

As he was speaking, he eagerly put his hand into his pocket, intending to show the older man the tiny on-off control device by which — when it was off — they would be able to read Dzing's thoughts without removing him from the cage.

He stopped short in his explanation, because an ugly expression had come suddenly into Browne's face.

The big man glanced at Third Officer Mindel. "Well, Dan," he said, "do you think that's it?"

Lesbee noticed with shock that Mindel had on sound amplifying earphones. He must have overheard every word that Browne and he had spoken to each other.

Mindel nodded. "Yes, Captain," he said. "I very definitely think he

has now told us what we wanted to find out."

Lesbee grew aware that Browne had released himself from his acceleration safety belt and was stepping away from his seat. The officer turned and, standing very straight, said in a formal tone:

"Technician Lesbee, we have heard your admission of gross dereliction of duty, conspiracy to overthrow the lawful government of this ship, scheme to utilize alien creatures to destroy human beings, and confession of other unspeakable crimes. In this extremely dangerous situation, summary execution without formal trial is justified. I therefore sentence you to death and order Third Officer Dan Mindel to —"

He faltered, and came to a stop.

V

Two things had been happening as he talked, Lesbee squeezed the "off" switch of the cage control, an entirely automatic gesture, convulsive, a spasmodic movement, result of his dismay. It was a mindless gesture. So far as he knew consciously, freeing Dzing's thoughts had no useful possibility for him. His only real hope — as he realized almost immediately — was to get his other hand into his remaining coat pocket and with it manipulate the remote-control landing device, the secret of which he had so naively revealed to Browne.

The second thing that happened was that Dzing, released from mental control, telepathed:

"Free again — and this time of course permanently! I have just now activated by remote control the relays that will in a few moments start the engines of this ship, and I have naturally re-set the mechanism for controlling the rate of acceleration —"

His thoughts must have impinged progressively on Browne, for it was at that point that the officer paused uncertainly.

Dzing continued: "I verified your analysis. This vessel does not have the internal energy flows of an interstellar ship. These two-legged beings have therefore failed to achieve the Light Speed Effect which alone makes possible trans-light velocities. I suspect they have taken many generations to make this journey, are far indeed for their home base, and I'm sure I can capture them all."

Lesbee reached over, tripped on the intercom and yelled at the screen: "All stations prepare for emergency acceleration! Grab anything!"

To Browne he shouted: "Get to your seat — *quick!*"

His actions were automatic responses to danger. Only after the words were spoken did it occur to him that he had no interest in the survival of Captain Browne. And that in fact the only reason the man was in danger was because he had stepped away from his safety belt, so that Mindel's blaster would kill Lesbee without damaging Browne.

Browne evidently understood his danger. He started toward the control chair from which he had released himself only moments before.

His reaching hands were still a foot or more from it when the impact of Acceleration One stopped him. He stood there trembling like a man who had struck an invisible but palpable wall. The next instant Acceleration Two caught him and thrust him on his back to the floor. He began to slide toward the rear of the room, faster and faster, and because he was quick and understanding he pressed the palms of his hands and his rubber shoes hard against the floor and so tried to slow the movement of his body.

Lesbee was picturing other people elsewhere in the ship desperately trying to save themselves. He groaned, for the commander's failure was probably being duplicated everywhere.

Even as he had that thought, Acceleration Three caught Browne. Like a rock propelled by a catapult he shot toward the rear wall. It was cushioned to protect human beings, and so it reacted like rubber, bouncing him a little. But the stuff had only momentary resilience.

Acceleration Four pinned Browne halfway into the cushioned wall. From its imprisoning depths, he managed a strangled yell.

"Lesbee, put a tractor beam on me! Save me! I'll make it up to you. I —"

Acceleration Five choked off the words.

The man's appeal brought momentary wonder to Lesbee. He was amazed that Browne hoped for mercy . . . after what had happened.

Browne's anguished words did produce one effect in him. They reminded him that there was something he must do. He forced his hand and his arm to the control board and focussed a tractor beam that firmly captured Third Officer Mindel and the cameraman. His intense effort was barely in time. Acceleration followed acceleration, making movement impossible. The time between each surge of increased speed grew longer. The slow minutes lengthened into what seemed an hour, then many hours. Lesbee was held in his chair as if he were gripped by hands of steel. His eyes felt glassy; his body had long since lost all feeling.

He noticed something.

The rate of acceleration was different from what the original Tellier had prescribed long ago. The actual increase in forward pressure each time was less.

He realized something else. For a long time, no thoughts had come from the Karn.

Suddenly, he felt an odd shift in speed. A physical sensation of slight, very slight, angular movement accompanied the maneuver.

Slowly, the metal-like bands let go of his body. The numb feeling was replaced by the pricking as of thousands of tiny needles. Instead of muscle-compressing acceleration there was only a steady pressure.

It was the pressure that he had in the past equated with gravity.

Lesbee stirred hopefully, and when he felt himself move, realized what had happened. The artificial gravity had been shut off. Simultaneously, the ship had made a half turn within its outer shell. The drive

power was now coming from below, a constant one gravity thrust.

At this late, late moment, he plunged his hand into the pocket which held the remote control for the pilotless landing mechanism — and activated it.

"That ought to turn on his thoughts," he told himself savagely.

But if Dzing was telepathing to his masters, it was no longer on the human thought level. So Lesbee concluded unhappily.

The ether was silent.

He now grew aware of something more. The ship smelled different: better, cleaner, purer.

Lesbee's gaze snapped over to the speed dials on the control board. The figures registering there were unbelievable. They indicated that the spaceship was traveling at a solid fraction of the speed of light.

Lesbee stared at the numbers incredulously. "We didn't have time!" he thought. "How could we go so fast so quickly — in hours only to near the speed of light!"

Sitting there, breathing hard, fighting to recover from the effects of that prolonged speed-up, he felt the fantastic reality of the universe. During all this slow century of flight through space, the *Hope of Man* had had the potential for this vastly greater velocity.

He visualized the acceleration series so expertly programmed by Dzing as having achieved a shift to a new state of matter in motion. The "light speed effect," the Karn robot had called it.

"And Tellier missed it," he thought.

All those experiments the physicist had performed so painstakingly, and left a record of, had missed the great discovery.

Missed it! And so a shipload of human beings had wandered for generations through the black deeps of interstellar space.

Across the room Browne was climbing groggily to his feet. He muttered, "... Better get back to ... control chair."

He had taken only a few uncertain steps when a realization seemed to strike him. He looked up then, and stared wildly at Lesbee. "Oh!" he said. The sound came from the gut level, a gasp of horrified understanding.

As he slapped a complex of tractor beams on Browne, Lesbee said, "That's right, you're looking at your enemy. Better start talking. We haven't much time."

Browne was pale now. But his mouth had been left free and so he was able to say huskily, "I did what any lawful government does in an emergency. I dealt with treason summarily, taking time only to find out what it consisted of."

Lesbee had had another thought, this time about Miller on the bridge. Hastily, he swung Browne over in front of him. "Hand me your blaster," he said. "Stock first."

He freed the other's arm, so that he could reach into the holster and take it out.

Lesbee felt a lot better when he had the weapon. But still another idea had come to him. He said harshly, "I want to lift you over to

the cage, and I don't want First Officer Miller to interfer. Get that, *Mister* Miller!"

There was no answer from the screen.

Browne said uneasily, "Why over to the cage?"

Lesbee did not answer right away. Silently he manipulated the tractor beam control until Browne was in position. Having gotten him there, Lesbee hesitated. What bothered him was, why had the Karn's thought impulses ceased? He had an awful feeling that something was very wrong indeed.

He gulped, and said, "Raise the lid!"

Again, he freed Browne's arm. The big man reached over gingerly, unfastened the catch, and then drew back and glanced questioningly at Lesbee.

"Look inside!" Lesbee commanded.

Browne said scathingly, "You don't think for one second that —" He stopped, for he was peering into the cage. He uttered a cry: "He's gone!"

VI

Lesbee discussed the disappearance with Browne.

It was an abrupt decision on his part to do so. The question of where Dzing might have got to was not something he should merely turn over in his own head.

He began by pointing at the dials from which the immense speed of the ship could be computed, and then, when that meaning was absorbed by the older man, said simply, "What happened? Where did he go? And how could we speed up to just under 186,000 miles a second in so short a time?"

He had lowered the big man to the floor, and now he took some of the tension from the tractor beam but did not release the power. Browne stood in apparent deep thought. Finally, he nodded. "All right," he said, "I know what happened."

"Tell me."

Browne changed the subject, said in a deliberate tone, "What are you going to do with me?"

Lesbee stared at him for a moment unbelievingly. "You're going to withhold this information?" he demanded.

Browne spread his hands. "What else can I do? Till I know my fate, I have nothing to lose."

Lesbee suppressed a strong impulse to rush over and strike his prisoner. He said finally, "In your judgment is this delay dangerous?"

Browne was silent, but a bead of sweat trickled down his cheek. "*I* have nothing to lose," he repeated.

The expression in Lesbee's face must have alarmed him, for he went on quickly, "Look, there's no need for you to conspire any more. What you really want is to go home, isn't it? Don't you see, with this new method of acceleration, we can make it to Earth in a few *months!*"

He stopped. He seemed momentarily uncertain.

Lesbee snapped angrily, "Who are you trying to fool? Months! We're a dozen light years in actual distance

from Earth. You mean years, not months."

Browne hesitated then: "All right, a few years. But at least not a lifetime. So if you'll promise not to scheme against me further, I'll promise —"

"*You'll* promise!" Lesbee spoke savagely. He had been taken aback by Browne's instant attempt at blackmail. But the momentary sense of defeat was gone. He knew with a stubborn rage that he would stand for no nonsense.

He said in an uncompromising voice, "Mister Browne, twenty seconds after I stop speaking, you start talking. If you don't, I'll batter you against these walls. I mean it!"

Browne was pale. "Are you going to kill me? That's all I want to know. Look —" his tone was urgent — "we don't have to fight any more. We can go home. Don't you see? The long madness is just about over. Nobody has to die."

Lesbee hesitated. What the big man said was at least partly true. There was an attempt here to make twelve years sound like twelve days, or at most twelve weeks. But the fact was, it *was* a short period compared to the century-long journey which, at one time, had been the only possibility.

He thought: "Am I going to kill him?"

It was hard to believe that he would, under the circumstances. All right. If not death, then what? He sat there uncertain. The vital seconds went by, and he could see no solution. He thought finally, in desperation: "I'll have to give in for the moment. Even a minute thinking about this is absolutely crazy."

He said aloud in utter frustration, "I'll promise you this. If you can figure out how I can feel safe in a ship commanded by you I'll give your plan consideration. And now, mister, start talking."

Browne nodded. "I accept that promise," he said. "What we've run into here is the Lorenz-Fitzgerald Contraction Theory. Only it's not a theory any more. We're living the reality of it."

Lesbee argued, "But it only took us a few hours to get to the speed of light."

Browne said, "As we approach light speed, space foreshortens and time compresses. What seemed like a few hours would be days in normal time and space."

What Browne explained then was different rather than difficult. Lesbee had to blink his mind to shut out the glare of his old ideas and habits of thought, so that the more subtle shades of super-speed phenomena could shine through into his awareness.

The time compression — as Browne explained it — was gradational. The rapid initial series of accelerations were obviously designed to pin down the personnel of the ship. Subsequent increments would be according to what was necessary to attain the ultra-speed finally achieved.

Since the drive was still on, it was clear that some resistance was being encountered, perhaps from the fabric of space itself.

It was no time to discuss technical details. Lesbee accepted the remarkable reality and said quickly, "Yes, but where is Dzing?"

"My guess," said Browne, "is that he did not come along."

"How do you mean?"

"The space-time foreshortening did not affect him."

"But —" Lesbee began blankly.

"Look," said Browne harshly, "don't ask me how he did it. My picture is, he stayed in the cage till after the acceleration stopped. Then, in a leisurely fashion, he released himself from the electrically locked manacles, climbed out, and went off to some other part of the ship. He wouldn't have to hurry since by this time he was operating at a rate of, say, five hundred times faster than our living pace."

Lesbee said, "But that means he's been out there for hours — his time. What's he been up to?"

Browne admitted that he had no answer for that.

"But you can see," he pointed out anxiously, "that I meant what I said about going back to Earth. We have no business in this part of space. These beings are far ahead of us scientifically."

His purpose was obviously to persuade. Lesbee thought: "He's back to *our* fight. That's more important to him than any damage the real enemy is causing."

A vague recollection came of the things he had read about the struggle for power throughout Earth history. How men intrigued for supremacy while vast hordes of the invader battered down the gates. Browne was a true spiritual descendant of all those mad people.

Slowly, Lesbee turned and faced the big board. What was baffling to him was, what could you do against a being who moved five hundred times as fast as you did?

VII

He had a sudden sense of awe, a picture ... At any given instant Dzing was a blur. A spot of light. A movement so rapid that, even as the gaze lighted on him, he was gone to the other end of the ship — and back.

Yet Lesbee knew it took time to traverse the great ship from end to end. Twenty, even twenty-five minutes, was normal walking time for a human being going along the corridor known as Center A.

It would take the Karn a full six seconds there and back. In its way that was a significant span of time, but after Lesbee had considered it for a moment he felt appalled.

What could they do against a creature who had so great a time differential in his favor?

From behind him, Browne said, "Why don't you use against him that remote landing control system that you set up with my permission?"

Lesbee confessed: "I did that, as soon as the acceleration ceased. But he must have been — back — in the faster time by then."

"That wouldn't make any difference," said Browne.

"Eh!" Lesbee was startled.

Browne parted his lips evidently intending to explain, and then he

closed them again. Finally he said, "Make sure the intercom is off."

Lesbee did so. But he was realizing that Browne was up to something again. He said, and there was rage in his tone, "I don't get it, and you do. Is that right."

"Yes," said Browne. He spoke deliberately, but he was visibly suppressing excitement. "I know how to defeat this creature. That puts me in a bargaining position."

Lesbee's eyes were narrowed to slits. "Damn you, no bargain. Tell me, or else!"

Browne said, "I'm not really trying to be difficult. You either have to kill me, or come to some agreement. I want to know what that agreement is, because of course I'll do it."

Lesbee said, "I think we ought to have an election."

"I agree!" Browne spoke instantly. "You set it up." He broke off. "And now release me from these tractors and I'll show you the neatest space-time trick you've ever seen, and that'll be the end of Dzing."

Lesbee gazed at the man's face, saw there the same openness of countenance, the same frank honest that had preceded the execution order, and he thought, "What can he do?"

He considered many possibilities, and thought finally, desperately: "He's got the advantage over me of superior knowledge — the most undefeatable weapon in the world. The only thing I can really hope to use against it in the final issue is *my* knowledge of a multitude of technician-level details."

But — what could Browne do against Lesbee?

He said unhappily to the other, "Before I free you, I want to lift you over to Mindel. When I do, you get his blaster for me."

"Sure," said Browne casually.

A few moments later he handed Mindel's gun over to Lesbee. So that wasn't it.

Lesbee thought: "There's Miller on the bridge — can it be that Miller flashed him a ready signal when my back was turned to the board?"

Perhaps, like Browne, Miller had been temporarily incapacitated during the period of acceleration. It was vital that he find out Miller's present capability.

Lesbee tripped the intercom between the two boards. The rugged, lined face of the first officer showed large on the screen. Lesbee could see the outlines of the bridge behind the man and, beyond, the starry blackness of space. Lesbee said courteously, "Mr. Miller, how did you make out during the acceleration?"

"It caught me by surprise, Captain. I really got a battering. I think I was out for a while. But I'm all right now."

"Good," said Lesbee. "As you probably heard, Captain Browne and I have come to an agreement, and we are now going to destroy the creature that is loose on the ship. Stand by!"

Cynically, he broke the connection.

Miller was there all right, wait-

ing. But the question was still, what could Miller do? The answer of course was that Miller could pre-empt. And — Lesbee asked himself — what could *that* do?

Abruptly, it seemed to him, he had the answer.

It was the technician's answer that he had been mentally straining for.

He now understood Browne's plan. They were waiting for Lesbee to let down his guard for a moment. Then Miller would pre-empt, cut off the tractor beam from Browne and seize Lesbee with it.

For the two officers it was vital that Lesbee not have time to fire the blaster at Browne. Lesbee thought: "It's the only thing they can be worried about. The truth is, there's nothing else to stop them."

The solution was, Lesbee realized with a savage glee, to let the two men achieve their desire. But first—

"Mr. Browne," he said quietly, "I think you should give your information. If I agree that it is indeed the correct solution, I shall release you and we shall have an election. You and I will stay right here till the election is over."

Browne said, "I accept your promise. The speed of light is a constant, and does not change in relation to moving objects. That would also apply to electromagnetic fields."

Lesbee said, "Then Dzing was affected by the remote-control device I turned on."

"Instantly," said Browne. "He never got a chance to do anything. How much power did you use?"

"Only first stage," said Lesbee. "But the machine-driven thought pulses in that would interfere with just about every magnetic field in his body. He couldn't do another coherent thing."

Browne said in a hushed tone, "It's got to be. He'll be out of control in one of the corridors, completely at our mercy." He grinned. "I told you I knew how to defeat him — because, of course, he was already defeated."

Lesbee considered that for a long moment, eyes narrowed. He realized that he accepted the explanation, but that he had preparations to make, and quickly — before Browne got suspicious of his delay.

He turned to the board and switched on the intercom. "People," he said, "strap yourselves in again. Help those who were injured to do the same. We may have another emergency. You have several minutes, I think, but don't waste any of them."

He cut off the intercom, and he activated the closed-circuit intercom of the technical stations. He said urgently, "Special instruction to Technical personnel. Report anything unusual, particularly if strange thought forms are going through your mind."

He had an answer to that within moments after he finished speaking. A man's twangy voice came over: "I keep thinking I'm somebody named Dzing, and I'm trying to report to my owners. Boy, am I incoherent!"

"Where is this?"

"D — 4 — 19."

Lesbee punched the buttons that gave them a TV view of that particular ship location. Almost immediately he spotted a shimmer near the floor.

After a moment's survey he ordered a heavy-duty mobile blaster brought to the corridor. By the time its colossal energies ceased, Dzing was only a darkened area on the flat surface.

While these events were progressing, Lesbee had kept one eye on Browne and Mindel's blaster firmly gripped in his left hand. Now he said, "Well, sir, you certainly did what you promised. Wait a moment while I put this gun away, and then I'll carry out my part of the bargain."

He started to do so, then, out of pity, paused.

He had been thinking in the back of his mind about what Browne had said earlier: that the trip to Earth might only take a few months. The officer had backed away from that statement, but it had been bothering Lesbee ever since.

If it were true, then it was indeed a fact that nobody need die!

He said quickly, "What was your reason for saying that the journey home would only take — well — less than a year?"

"It's the tremendous time compression," Browne explained eagerly. "The distance as you pointed out is over 12 light-years. But with a time ratio of 3, 4, or 500 to one, we'll make it in less than a month. When I first started to say that, I could see that the figures were incomprehensible to you in your tense mood. In fact, I could scarcely believe them myself."

Lesbee said, staggered, "We can get back to Earth in a couple of weeks — my God!" He broke off, said urgently, "Look, I accept you as commander. We don't need an election. The status quo is good enough for any short period of time. Do you agree?"

"Of course," said Browne. "That's the point I've been trying to make."

As he spoke, his face was utterly guileless.

Lesbee gazed at that mask of innocence, and he thought hopelessly: "What's wrong? Why isn't he really agreeing? Is it because he doesn't want to lose his command so quickly?"

Sitting there, unhappily fighting for the other's life, he tried to place himself mentally in the position of the commander of a vessel, tried to look at the prospect of a return to view. It was hard to picture such a reality. But presently it seemed to him that he understood.

He said gently, feeling his way, "It would be kind of a shame to return without having made a successful landing anywhere. With this new speed, we could visit a dozen sun systems, and still get home in a year."

The look that came into Browne's face for a fleeting moment told Lesbee that he had penetrated to the thought in the man's mind.

The next instant, Browne was shaking his head vigorously. "This is no time for side excursions," he said. "We'll leave explorations of

new star systems to future expeditions. The people of this ship have served their term. We go straight home."

Browne's face was now completely relaxed. His blue eyes shone with truth and sincerity.

There was nothing further that Lesbee could say. The gulf between Browne and himself could not be bridged.

The commander had to kill his rival, so that he might finally return to Earth and report that the mission of the *Hope of Man* was accomplished.

VIII

In the most deliberate fashion Lesbee shoved the blaster into the inner pocket of his coat. Then, as if he were being careful, he used the tractor beam to push Browne about four feet away. There he set him down, released him from the beam, and — with the same deliberateness — drew his hand away from the tractor controls. Thus he made himself completely defenseless.

It was the moment of vulnerability.

Browne leaped at him, yelling: "Miller — pre-empt!"

First Officer Miller obeyed the command of his captain.

What happened then, only Lesbee, the technician with a thousand bits of detailed knowledge, expected.

For years it had been observed that when Control Room Below took over from Bridge, the ship speeded up slightly. And when Bridge took over from Control Room Below, the ship slowed instantly by the same amount — in each instance, something less than half a mile an hour.

The two boards were not completely synchronized. The technicians often joked about it, and Lesbee had once read an obscure technical explanation for the discrepancy. It had to do with the impossibility of ever getting two metals refined to the same precision of internal structure.

It was the age-old story of, no two objects in the universe are alike. But in times past, the differential had meant nothing. It was a technical curiosity, an interesting phenomenon of the science of metallurgy, a practical problem that caused machinists to curse good-naturedly when technicians like Lesbee required them to make a replacement part.

Unfortunately for Browne, the ship was now traveling near the speed of light.

His strong hands, reaching towards Lesbee's slighter body, were actually touching the latter's arm when the momentary deceleration occured as Bridge took over. The sudden slow-down was at a much faster rate than even Lesbee expected. The resistance of space to the forward movement of the ship must be using up more engine power than he had realized; it was taking a lot of thrust to maintain a one gravity acceleration.

The great vessel slowed about 150 miles per hour in the space of a second.

Lesbee took the blow of that deceleration partly against his back, partly against one side — for he had half-turned to defend himself from the bigger man's attack.

Browne, who had nothing to grab on to, was flung forward at the full 150 miles per hour. He struck the control board with an audible thud, stuck to it as if he were glued there; and then, when the adjustment was over — when the *Hope of Man* was again speeding along at one gravity — his body slid down the face of the board, and crumpled into a twisted position on the rubberized dais.

His uniform was discolored. As Lesbee watched, blood seeped through and dripped to the floor.

"Are you going to hold an election?" Tellier asked.

The big ship had turned back under Lesbee's command, and had picked up his friends. The lifeboat itself, with the remaining Karn still aboard, was put into an orbit around Alta III and abandoned.

The two young men were sitting now in the Captain's cabin.

After the question was asked, Lesbee leaned back in his chair, and closed his eyes. He didn't need to examine his total resistance to the suggestion. He had already savored the feeling that command brought.

Almost from the moment of Browne's death, he had observed himself having the same thoughts that Browne had voiced — among many others, the reasons why elections were not advisable aboard a spaceship. He waited now while Eleesa, one of his three wives — she being the younger of the two young widows of Browne — poured wine for them, and went softly out. Then he laughed grimly.

"My good friend," he said, "we're all lucky that time is so compressed at the speed of light. At 500-times compression, any further exploration we do will require only a few months, or years at most. And so I don't think we can afford to take the chance of defeating at an election the only person who understands the details of the new acceleration method. Until I decide exactly how much exploration we shall do, I shall keep our speed capabilities a secret. But I did, and do, think one other person should know where I have this information documented. Naturally, I selected First Officer Tellier."

"Thank you, sir," the youth said. But he was visibly thoughtful as he sipped his wine. He went on finally, "Captain, I think you'd feel a lot better if you held an election. I'm sure you could win it."

Lesbee laughed tolerantly, shook his head. "I'm afraid you don't understand the dynamics of government," he said. "There's no record in history of a person who actually had control, handing it over."

He finished with the casual confidence of absolute power. "I'm not going to be presumptuous enough to fight a precedent like that!"

END

★ ★ ★ ★

THE TIME OF COLD

BY MARY CARLSON

Queer creatures! They fled the lifegiving sun and hid where even tin froze solid!

Curt felt the airship going out of control as he passed over a rock spattered stretch of sand. Automatically he looked for a smooth place to land and steered the bucking ship for it. The jolt of the landing triggered the ejector seat and in a second he was hurtling through the air away from the explosion of the damaged vehicle. Just before he blacked out, he thought — almost calmly — "a good hundred and fifty miles from the colony."

When he regained consciousness, night was passing and the first of the three suns was peeking over the horizon. Curt lay still for a while, afraid to find out what might be wrong with him. And the rescue ship could take anything from an hour to a week to find him. He moved his head to discover if there might be anything left of his ship; he saw nothing but pieces.

"Well," he said aloud, "so much for that." He reached back gingerly and undid the seat straps. Carefully,

he sat up and began to ease his weight onto his feet. A sharp twinge of pain in his knee dropped him back to a sitting position. He probed at the knee but found no broken bones.

"Well," he said again, quietly. The colony leaders had had very little to offer in the way of survival. Rule number 1: Mark the crash site and your direction of travel. Number 2: Get into shade before the combined heat of the three suns boils your blood. Number 3: Carry your pistol for protection against liquid scorpions, and always save the last pellet for yourself.

Curt glanced about nervously at the thought of the liquid scorpions — the one form of animal life the colonist had found on this mineral-rich planet. Liquid scorpions were enormous masses of clear, jellyish liquid that oozed forward across the rock and sand with remarkable speed. A liquid scorpion changed shape constantly, its mass shooting out legs wherever they were needed. Only the eyes, fixed in a bulge over the center of its mass, and the almost-solid, curved stinger that arched over its back remained the same.

The first landing party had stood transfixed while one of the crew was attacked and absorbed before their eyes. Clear, the scorpion had been almost invisible to them until it flowed about the navigator's legs and paralyzed him with the swaying stinger. When his frantic struggles had ceased, the creature flowed over his body and absorbed it. As the party watched, the clearness slowly became a thin, dark red, and the body could no longer be seen.

Avengers had poured out of the ship after the giant scorpion, which reared back, tripling its height and halving its width. At the apex, the two protuding eyes bulged at them and the stinger swayed back and forth, reaching out and retreating. Explosive pellets fired into its flesh were absorbed with a slurping sound. The captain in the end, had knelt and taken careful aim at the right eye, behind which was the only unreddened sector of the mass. When the right eye disappeared, the clear area spurted out of the hole and drained over the jelly-like surface. Slowly, silently, the first of the liquid scorpions died.

Curt counted the pellets in his belt — an even hundred. Enough . . . if he managed to keep out of sight and had good enough aim. He surveyed the surrounding countryside. Farther along the valley were shaded caves where he could find protection once he had marked his course.

If he could walk that far.

Xen came sluggishly awake, feeling the warmth penetrate his mass. The time of heat had come again, the time to search for what would halt the hunger that ached through every inch of him.

Slowly, his cold-stiffened mass flowed forward from its hiding place in the warmth-holding sand. The heat melted the stiffness out of him and he began to slide across the sand, his alert senses functioning again. Sense of touch led him across rocks and over ridges easily. The touchy sense of vibration wait-

ed apprehensively for movement that would shake the ground. And the third sense, the one that could be called only "sense" or "sense of knowing," functioned as always without his understanding. Today, this third sense told Xen, was different from other days.

Extra-cautious, Xen oozed over rocky barriers in the direction that his "sense" told him held food. Once he felt a slight tremor, and in terror flooded out over the rock into thin, transparent nothing. He waited several degrees of heat, but no further movement touched the sensitive receivers in his mass.

A falling rock, he decided, collecting himself and starting forward again. He slithered down rocky walls, pouring almost like water when the drop was long and drawing together at the bottom. When his feeling of touch warned him of the shade whose coolness might solidify him and leave him helpless in the open, he drew hurriedly away and changed direction.

Finally, he reached an open spot that was likely to contain food. His mass ached for something to consume, but he flooded himself thin again and waited, feeling. There was no vibration through the surface, nor did his "sense" tell him of anything other than the possibility of nourishment. Xen hesitated only a degree of heat before bubbling excitedly into the open space.

Touch found him something edible almost immediately—he flowed around and over it, absorbing it hungrily. His mass dissolved it almost immediately and ached for more. He slid thin, reaching out in every direction until contact was made, then absorbing the food instantly and moving on.

Curt, lying in meager shade that would be gone in half an hour when the third and largest sun rose, first saw the movement when it was on the rocks. His already frayed nerves gave a frightened leap. He lay perfectly still. Where he had seen the movement on the rocky shelf there was now nothing.

The nothing moved forward.

Curt shivered. He was certain he was seeing nothing, and yet his eyes were trying to tell him there was movement. When it reached the flat place and flowed swiftly forward, he realized that it was a liquid animal and was suddenly pointedly conscious of the weight of the pistol against his hip.

He watched carefully for the eyes and the stinger, but saw none. That frightened him. If he could not find the brain, he had no mark to shoot at. As he watched, the liquid creature flowed against one of the hardy, sun-browned plants and jerked in reaction. Instantly, it flowed over the plant and absorbed it. The liquid turned momentarily a thin brownish green and then cleared again.

Curt watched it with narrowed eyes. It was just possible that this creature ate only plant life. The colonists had realized that the liquid scorpions had fed upon something else before they arrived, but no one had been able to discover what that something was.

Xen was in the process of absorbing a plant when the vibration sense alerted him. Terror shot through him and he spread thinly across thirty feet of ground and lay motionless, his "sense" telling him frantically that a Sting was hunting nearby.

He lay for many degrees of heat, waiting. Sense of vibration and knowing both told him that the Sting was approaching, but uncertainly, searching. Then both senses reacted startledly to a new danger on the other side. New movement! A new feeling that his "sense" could not understand.

The Sting was approaching at an angle that would inevitably bring it in contact with Xen. Absorption was the penalty for being caught. Xen was resigned to death, for he could not possibly escape the Sting. And now there was this new sensation on the other side of him. Whatever it was, he had no idea; but likely it was as voracious as the Sting.

Now the new thing vibrated jerkily around him and stopped between him and the Sting. The vibrations from the eager Sting accelerated rapidly, eagerly, as it flowed over the ground. Then, for no reason except that the new creature had moved slightly, the Sting recoiled. The jerks were plainly recorded through the earth to Xen; and as he felt the heavy jar, his "sense" told him that the danger from the Sting was past. The Sting was dead.

Xen drew himself together and considered that.

The new thing vibrated jerkily the place from which Xen had first felt it move. It must be solid as the rocks to move so jerkily, Xen thought. The Sting-killer drew itself back under the enormous rock and ceased to move.

Curiosity drew Xen forward, fear dragged him back. He spread thin and drew together with uncertainty. At last, he oozed forward carefully until he reached the rock. The Sting-killer was pressed back under the rock, where touch told Xen a tiny amount of the cold-carrying shade remained. Xen puzzled at that. Why should this creature hide from the life-giving suns?

He reached out and absorbed a plant thoughtfully. This thing was different from the liquid structures he had always known. If it was solid where they were liquid, perhaps then it was also opposite in its needs. Maybe this Sting-killer needed cold instead of heat.

While Xen was considering this difficult thought, the Sting-killer began to move again.

Curt gasped. The shade was gone. The third sun was reaching long rays under the rock to sear his already-burned flesh. He had to find more shade.

Movements were very painful. His lips were cracking and his face had blackened. The injured knee had swollen inside the protective suit; it throbbed and ached. Dazedly, he pulled himself to his feet.

On the rock beside him, spread an inch thick, was the almost-invisible creature he had been forced to circle in order to stop the liquid scorpion. He wondered tiredly if it

was dangerous. It lay completely motionless, just as it had when the liquid scorpion had approached. So it was probably more afraid of him than he was of it. He turned away. There appeared to be shade down the valley — perhaps a mile, perhaps three. Too much for him, he knew, but he set out, feeling the sun beat cruelly at him, crying out when the pain in his knee forced him to catch his balance against the sun-heated rock.

He knew without turning that the liquid creature was following him, stopping when he stopped, starting when he started. When he knew he could go no farther and felt his knee give weakly to his weight, he saw it ooze forward and began to flow over his legs. He tried to reach his pistol, but it seemed so far away.

Xen, following the Sting-killer curiously, put together all that he had learned. This creature was different from himself. It needed shade. It had killed his enemy, which was possibly also its own enemy. Now it was trying to reach the shade, but its progress grew steadily slower.

He considered that progress. The only thing he could liken it to was one of his own kind, caught out in the time of cold, trying to reach the heat-retaining sands, slowly congealing into a solid mass and dying. This, then, was the reverse process. Perhaps the Sting-killer would become liquid after a certain degree of heat.

Xen's sense of knowing warned him gently about too much wandering in the open, where countless Stings could be hiding. He drew back, unwilling to stop following this interesting creature. The Sting-killer vibrated the ground and lay still suddenly. Xen waited for a "sense" of death but none came. This might be for the new thing a stage similar to that when one of Xen's own kind became unable to move from the cold, but still lived and feared.

Caught between his own fear and a very strange sensation that he could not interpret, Xen waited a degree of heat. Then he oozed forward and spread himself over the still shape, until it floated within him. When he flowed over one part, the thing struggled pitiably. Xen drew back startedly and the movement ceased. Carefully, he retraced his course, leaving the part free. This time there was no struggling.

Spurred by fear of Stings, Xen began to flow across the land, letting his "Sense" guide him to the coldness. He slithered up slopes, poured over steep drops, always collecting himself in time to catch his burden.

He found a place that would stay cold until the next time of heat and halted in front of it, his anxiety evident in the way he spread and collected himself, back and forth. At last he inched forward, feeling the agony of the cold bite into every cell. Bunching himself behind the Sting-killer, he made it flow along him until it broke free and lay upon the shaded rock. Xen drew back as hurriedly as his already-sluggish mass would allow. He spread thin across the earth and let

the heat liquefy his body again...

It was when the time of cold was only a few degrees away that Xen felt the heavy vibration which nearly made him dissolve with fear. It lasted for a few degrees and then weakened and made only a small tremor. Now many smaller vibrations reached him, like many creatures moving about. The tremors spread out, moving slowly toward the rocky valley.

Xen lay still trying to identify the vibrations. They were not those of Stings. As they approached, he recognized them as resembling in great numbers the creature he had put upon the rock.

Curt imagined he heard voices, an incoherent babble of them. He struggled to sit up, but there was an incredible weight on his chest.

"Lie still," a voice said clearly, and his mind echoed, "Still ... still ... still..."

He struggled again. "Liquid," he croaked painfully, "liquid animal ... liquid..." The weight was still there. He heard one last voice say, "Poor guy, he must have run into scorpions."

Then he was lifted and it seemed as though the lifting would never cease.

Xen waited until the small tremor was gone and the great vibration had roared and disappeared. He knew by the sense of emptiness that the Sting-killer had gone back to his own kind. For a moment he felt very alone, though he knew the sand was full of Xens.

Slowly, he drew himself together. For the time of cold was but a few degrees away, and he must seek the warm sands. END

MANNERS AND CUSTOMS OF THE THRID

BY MURRAY LEINSTER

ILLUSTRATED BY NODEL

The Thrid were the wisest creatures in space — they even said so themselves!

I

The real trouble was that Jorgenson saw things as a business man does. But also, and contradictorily, he saw them as right and just, or as wrong and intolerable. As a business man, he should have kept his mind on business and never bothered about Ganti. As a believer in right and wrong, it would have been wiser for him to have stayed off the planet Thriddar altogether. Thriddar was no place for him, anyhow you look at it. On this particular morning it was especially the wrong place for him to be trying to live and do business.


RIM STAR
TRADING CORP.
NODEL

He woke up thinking of Ganti, and in consequence he was in a bad mood right away. Most humans couldn't take the sort of thing that went on on Thriddar. Most of them wanted to use missile weapons — which the Thrid did not use — to change the local social system. Most humans got off Thriddar — fast! And boiling mad.

Jorgenson had stood it longer than most because in spite of their convictions he liked the Thrid. Their minds did do outside loops, and come up with intolerable convictions. But they were intelligent enough. They had steam-power and even steam-driven atmosphere fliers, but they didn't have missile weapons and they did have a social system that humans simply couldn't accept — even though it applied only to Thrid. The ordinary Thrid, with whom Jorgenson did business, weren't bad people. It was the officials who made him grind his teeth. And though it was his business only to run the trading post of the Rim Stars Trading Corporation, sometimes he got fed up.

This morning was especially beyond the limit. There was a new Grand Panjandrum — the term was Jorgenson's own for the supreme ruler over all the Thrid — and when Jorgenson finished his breakfast a high Thrid official waited in the trading-post compound. Around him clustered other Thrid, wearing the formal headgear that said they were Witnesses to an official act.

Jorgenson went out, scowling, and exchanged the customary ceremonial greetings. Then the high official beamed at him and extracted a scroll from his voluminous garments. Jorgenson saw the glint of gold and was suspicious at once. The words of a current Grand Panjandrum were always written in gold. If they didn't get written in gold they didn't get written at all; but it was too bad if anybody ignored any of them.

The high official unrolled the scroll. The Thrid around him, wearing Witness hats, became utterly silent. The high official made a sound equivalent to clearing his throat. The stillness became deathlike.

"On this day," intoned the high official, while the Witnesses listened reverently, "on this day did Glen-U the Never-Mistaken, as have been his predecessors throughout the ages; — on this day did the Never-Mistaken Glen-U speak and say and observe a truth in the presence of the governors and the rulers of the universe."

Jorgenson reflected sourly that the governors and the rulers of the universe were whoever happened to be within hearing of the Grand Panjandrum. They were not imposing. They were scared. Everybody is always scared under an absolute ruler, but the Grand Panjandrum was worse than that. He couldn't make a mistake. Whatever he said had to be true, because he said it, and sometimes it had drastic results. But past Grand Panjandrums had spoken highly of the trading post. Jorgenson shouldn't have much to worry about. He waited. He thought of Ganti. He scowled.

"The great and Never-Mistaken Glen-U," intoned the official again, "in the presence of the governors and the rulers of the universe, did speak and say and observe that it is the desire of the Rim Star Trading Corporation to present to him, the great and never-mistaken Glen-U, all of the present possessions of the said Rim Stars Trading Corporation, and thereafter to remit to him all moneys, goods, and benefactions to and of the said Rim Stars Trading Corporation as they shall be received. The great and Never-Mistaken Glen-U did further speak and say and observe that anyone hindering this loyal and admirable gift must, by the operation of truth, vanish from sight and nevermore be seen face to face by any rational being."

The high official rolled up the scroll, while Jorgenson exploded inside.

A part of this was reaction as a business man. A part was recognition of all the intolerable things that the Thrid took as a matter of course. If Jorgenson had reacted solely as a business man he'd have swallowed it, departed on the next Rim Stars trading-ship — which would not have left any trade-goods behind — and left the Grand Panjandrum to realize what he had lost when no off-planet goods arrived on Thriddar. In time he'd speak and say and observe that he, out of his generosity, gave the loot back. Then the trading could resume. But Jorgenson didn't feel only like a business man this morning. He thought of Ganti, who was a particular case of everything he disliked on Thriddar.

It was not wise to be moved by such sympathetic feelings. The Grand Panjandrum could not be mistaken. It was definitely unwise to contradict him. It could even be dangerous. Jorgenson was in a nasty spot.

The Witnesses murmured reverently:

"We hear the words of the Never-Mistaken Glen-U."

The high official tucked away the scroll and said blandly:

"I will receive the moneys, goods, and benefactions it is the desire of the Rim Stars Trading Corporation to present to the great and Never-Mistaken Glen-U."

Jorgenson, boiling inside, nevertheless knew what he was doing. He said succinctly:

"Like hell you will!"

There was an idiom in Thrid speech that had exactly the meaning of the human phrase. Jorgenson used it.

The high official looked at him in utter stupefaction. Nobody contradicted the Grand Panjandrum! Nobody! The Thrid had noticed long ago that they were the most intelligent race in the universe. Since that was so, obviously they must have the most perfect government. But no government could be perfect if its officials made mistakes. So no Thrid official ever made a mistake. In particular the great and Never-Mistaken Glen-U could not conceivably blunder! When he said a thing, it was true!

It had to be! He'd said it! And this was the fundamental fact in the culture of the Thrid.

"Like hell you'll receive moneys and goods and such!" snapped Jorgenson. "Like hell you will!"

The high official literally couldn't believe his ears.

"But — but the great and Never-Mistaken Glen-U —"

"Is mistaken!" said Jorgenson bitingly. "He's wrong! The Rim Stars Trading Corporation does *not* want to give him anything! What he has said is not true!" This was the equivalent of treason, blasphemy and the ultimate of indecorous behavior toward a virgin Pelean princess. "I won't give him anything! I'm not even vanishing from sight! Glen-U is wrong about that, too! Now — git!"

He jerked out his blaster and pulled the trigger.

There was an explosive burst of flame from the ground between the official and himself. The official fled. With him fled all the Witnesses, some even losing their headgear in their haste to get away.

Jorgenson stamped into the trading-post building. His eyes were stormy and his jaw was set.

He snapped orders. The hired Thrid of the trading-post staff had not quite grasped the situation. They couldn't believe it. Automatically, as he commanded the iron doors and shutters of the trading post closed, they obeyed. They saw him turn on the shocker-field so that nobody could cross the compound without getting an electric shock that would discourage him. They began to believe.

Then he sent for the trading-post Thrid consultant. On Earth he'd have called for a lawyer. On a hostile world there'd have been a soldier to advise him. On Thrid the specialist to be consulted wasn't exactly a theologian, but he was nearer that than anything else.

Jorgenson laid the matter indignantly before him, repeating the exact phrases that said the trading company wanted — wanted! — practically to give itself to the Never-Mistaken Glen-U, who was the Grand Panjandrum of Thriddar. He waited to be told that it couldn't have happened; that anyhow it couldn't be intended. But the theologian's Thriddish ears went limp, which amounted to the same thing as a man's face turning pale. He stammered agitatedly that if the Grand Panjandrum said it, it was true. It couldn't be otherwise! If the trading company wanted to give itself to him, there was nothing to be done. It wanted to! The Grand Panjandrum had said so!

"He also said," said Jorgenson irritably, "that I'm to vanish and nevermore be seen face to face by any rational being. How does that happen? Do I get speared?"

The trading-post theologian quivered. Jorgenson made things much worse.

"This," he raged, "this is crazy! The Grand Panjandrum's an ordinary Thrid just like you are! Of course he can make a mistake! There's nobody who can't be wrong!"

The theologian put up feebly protesting, human-like hands. He begged hysterically to be allowed to go home before Jorgenson vanished, with unknown consequences for any Thrid who might be nearby.

When Jorgenson opened a door to kick him out of it, the whole staff of the trading-post plunged after him. They'd been eavesdropping and they fled in pure horror.

Jorgenson swore impartially at all of them and turned the shocker-field back on. He plugged in a capacity circuit which would turn on warning sirens if anything like a steam-driven copter passed or hovered over the trading-post. He put blasters in handy positions. The Thrid used only spears, knives and scimitars. Blasters would defend the post against a multitude.

As a business man, he'd acted very foolishly. But he'd acted even less sensibly as a human being. He'd gotten fed up with a social system and a — call it — theology it wasn't his business to change. True, the Thrid way of life was appalling, and what had happened to Ganti was probably typical. But it wasn't Jorgenson's affair. He'd been unwise to let it disturb him. If the Thrid wanted things this way, it was their privilege.

In theory, no Thrid should ever make a mistake, because he belonged to the most intelligent race in the universe. But a local governor was even more intelligent. If an ordinary Thrid challenged a local governor's least and lightest remark — why — he must be either a criminal or insane. The local governor decided — correctly, of course — which he was. If he was a criminal, he spent the rest of his life in a gang of criminals chained together and doing the most exhausting labor the Thrid could contrive. If he was mad, he was confined for life.

There'd been Ganti, a Thrid of whom Jorgenson had had much hope. He believed that Ganti could learn to run the trading post without human supervision. If he could, the trading company could simply bring trade goods to Thriddar and take away other trade goods. The cost of doing business would be decreased. There could be no human-Thrid friction. Jorgenson had been training Ganti for this work.

But the local Thrid governor had spoken and said and observed that Ganti's wife wanted to enter his household. He added that Ganti wanted to yield her to him.

Jorgenson had fumed — but not as a business man — when the transfer took place. But Ganti had been conditioned to believe that when a governor said he wanted to do something, he did. He couldn't quite grasp the contrary idea. But he moped horribly, and Jorgenson talked sardonically to him, and he almost doubted that an official was necessarily right. When his former wife died of grief, his disbelief became positive. And immediately afterward he disappeared.

Jorgenson couldn't find out what had become of him. Dour reflection on the happening had put him in the bad mood which had started things, this morning.

Time passed. He had the trading-post in a position of defense. He prepared his lunch, and glowered. More time passed. He cooked his dinner, and ate. Afterward he went up on the trading-post roof to smoke and to coddle his anger. He observed the sunset. There was always some haze in the air on Thriddar, and the colorings were very beautiful. He could see the towers of the capital city of the Thrid. He could see a cumbersome but still graceful steam-driven aircraft descend heavily to the field at the city's edge. Later he saw another steam-plane rise slowly but reliably and head away somewhere else. He saw the steam helicopters go skittering above the city's buildings.

He fumed because creatures intelligent enough to build steam fliers weren't intelligent enough to see what a racket their government was. Now that the new Grand Panjandrum had moved against him, Jorgenson made an angry, dogged resolution to do something permanent to make matters better. For the Thrid themselves. Here he thought not as a business man only, but as a humanitarian. As both. When a whim of the Grand Panjandrum could ruin a business, something should be done. And when Ganti and countless others had been victims of capricious tyranny... And Jorgenson was slated to vanish from sight and never again be seen... It definitely called for strong measures!

He reflected with grim pleasure that the Grand Panjandrum would soon be in the position of a Thrid whom everybody knew was mistaken. With the trading-post denied him and Jorgenson still visible, he'd be notoriously wrong. And he couldn't be, and still be Grand Panjandrum!

It would be a nice situation for Glen-U. He'd have to do something about it, and there was nothing he could do. He'd blundered, and it would soon be public knowledge.

Jorgenson dozed lightly. Then more heavily. Then more heavily still. The night was not two hours old when the warning sirens made a terrific uproar. The Thrid for miles around heard the wailing, ullulating sound of the sirens that should have awakened Jorgenson.

But they didn't wake him. He slept on.

When he woke, he knew that he was cold. His muscles were cramped. Half awake, he tried to move and could not.

Then he tried to waken fully, and he couldn't do that either. He stayed in a dream-like, frustrated state which was partly like a nightmare, while very gradually new sensations came to him. He felt a cushioned throbbing against his chest, in the very hard surface on which he lay face down. That surface swayed and rocked slightly. He tried again to move, and realized that his hands and feet were bound. He found that he shivered, and realized that his clothing had been taken from him.

He was completely helpless and lying on his stomach in the cargo-space of a steam helicopter: now

he could hear the sound of its machinery.

Then he knew what had happened. He'd committed the unthinkable crime — or lunacy — of declaring the Grand Panjandrum mistaken. So by the operation of truth, which was really an anesthetic gas cloud drifted over the trading post, he had vanished from sight.

Now it was evidently to be arranged that he would never again be seen face to face by a rational being. The Grand Panjandrum had won the argument. Within a few months a Rim Stars trading ship would land, and Jorgenson would be gone and the trading post confiscated. It would be hopeless to ask questions, and worse than hopeless to try to trade. So the ship would lift off and there'd be no more ships for at least a generation. Then there might — there might! — be another.

Jorgenson swore fluently and with passion.

"It will not be long," said a tranquil voice.

Jorgenson changed from human-speech profanity to Thrid. He directed his words to the unseen creature who'd spoken. That Thrid listened, apparently without emotion. When Jorgenson ran out of breath, the voice said severely:

"You declared the great and Never-Mistaken Glen-U mistaken. This could not be. It proved you either a criminal or insane, because no rational creature could believe him mistaken. He declared you insane, and he cannot be wrong. So soon you will arrive where you are to be confined and no rational being will ever see you face to face."

Jorgenson switched back to human swearing. Then he blended both languages, using all the applicable words he knew both in human speech and Thrid. He knew a great many. The soft throbbing of the steam-driven rotors went on, and Jorgenson swore both as a business man and a humanitarian. Both were frustrated.

Presently the motion of the copter changed. He knew the ship was descending. There were more violent swayings, as if from wind gusts deflected by something large and solid. Jorgenson even heard deep-bass rumblings like sea upon a rocky coast. Then there were movements near him, a rope went around his waist, a loading-bay opened and he found himself lifted and lowered through it.

He dangled in midair, a couple of hundred feet above an utterly barren island on which huge ocean swells beat. The downdraft from the copter made him sway wildly, and once it had him spinning dizzily. The horizon was empty. He was being lowered swiftly to the island. And his hands and feet were still securely tied.

Then he saw a figure on the island. It was a Thrid, stripped of all clothing like Jorgenson and darkened by the sun. That figure came agilely toward where he was let down. It caught him. It checked his wild swingings, which could have broken bones. The rope slackened. The Thrid laid Jorgenson down.

He did not cast off the rope. He seemed to essay to climb it.

It was cut at the steam-copter and came tumbling down all over both of them. The Thrid waved his arms wildly and seemed to screech gibberish at the sky. There was an impact nearby, of something dropped. Jorgenson heard the throbbing sound of the copter as it lifted and swept away.

Then he felt the bounds about his arms and legs being removed. Then a Thrid voice — amazingly, a familiar Thrid voice — said:

"This is not good, Jorgenson. Who did you contradict?"

The Thrid was Ganti, of whom Jorgenson had once had hopes as a business man, and for whose disaster he had felt indignation as something else. He loosened the last of Jorgenson's bonds and helped him sit up.

Jorgenson glared around. The island was roughly one hundred feet by two. It was twisted. curdled yellow stone from one end to the other. There were stone hillocks and a miniature stony peak. and a narrow valley between two patches of higher rock. Huge seas boomed against the windward shore, throwing spray higher than the island's topmost point. There were some places where sand had gathered. There was one spot — perhaps a square yard of it — where sand had been made fertile by the droppings of flying things and where two or three starveling plants showed foliage of sorts. That was all. Jorgenson ground his teeth.

"Go ahead," said Ganti grimly, "but it may be even worse than you think."

He scrambled over the twisted stone of the island. He came back, carrying something.

"It isn't worse," he said. "It's only as bad. They did drop food and water for both of us. I wasn't sure they would."

His calmness sobered Jorgenson. As a business man, he was moved to make his situation clear. He told Ganti of the Grand Panjandrum's move to take over the Rim Stars trading post, which was bad business. He told of his own reaction, which was not a business-like one at all. Then he said dourly:

"But he's still wrong. No rational being is supposed ever to see me face to face. But you do."

"But I'm crazy," said Ganti calmly. "I tried to kill the governor who'd taken my wife. So he said I was crazy and that made it true. So I wasn't put in a chained group of laborers. Somebody might have seen me and thought about it. But, sent here, it's worse for me and I'm probably forgotten by now."

He was calm about it. Only a Thrid would have been so calm. But they've had at least hundreds of generations in which to get used to injustice. He accepted it. But Jorgenson frowned.

"You've got brains, Ganti. What's the chance of escape?"

"None," said Ganti unemotionally. "You'd better get out of the sun. It'll burn you badly. Come along."

He led the way over the bare, scorching rocky surface. He turned past a small pinnacle. There was shadow. Jorgenson crawled into it, and found himself in a cave. It was not a natural one. It had been hacked out, morsel by morsel. It was cool inside. It was astonishingly roomy.

"How'd this happen?" demanded Jorgenson the business man.

"This is a prison," Ganti explained matter-of-factly. "They let me down here and dropped food and water for a week. They went away. I found there'd been another prisoner here before me. His skeleton was in this cave. I reasoned it out. There must have been others before him. When there is a prisoner here, every so often a copter drops food and water. When the prisoner doesn't pick it up, they stop coming. When, presently, they have another prisoner they drop him off, like me, and he finds the skeleton of the previous prisoner, like me, and he dumps it overboard as I did. They'll drop food and water for me until I stop picking it up. And presently they'll do the same thing all over again."

Jorgenson glowered. That was his reaction as a person. Then he gestured to the cave around him. There was a pile of dried-out seaweed for sleeping purposes.

"And this?"

"Somebody dug it out," said Ganti without resentment. "To keep busy. Maybe one prisoner only began it. A later one saw it started and worked on it to keep busy. Then others in their turn. It took a good many lives to make this cave."

Jorgenson ground his teeth a second time.

"And just because they'd contradicted somebody who couldn't be wrong! Or because they had a business an official wanted!"

"Or a wife," agreed Ganti. "Here!

He offered food. Jorgenson ate, scowling. Afterward, near sundown, he went over the island.

It was rock, nothing else. There was a pile of small broken stones from the excavation of the cave. There were the few starveling plants. There was the cordage with which Jorgenson had been lowered. There was the parcel containing food and water. Ganti observed that the plastic went to pieces in a week or so, so it couldn't be used for anything. There was nothing to escape with. Nothing to make anything to escape with.

Even the dried seaweed bed was not comfortable. Jorgenson slept badly and waked with aching muscles. Ganti assured him unemotionally that he'd get used to it.

He did. By the time the copter came to drop food and water again, Jorgenson was physically adjusted to the island. But neither as a business man or as a person could he adjust to hopelessness.

He racked his brains for the most preposterous or faintest hope of deliverance. There were times when as a business man he reproached himself for staying on Thriddar after he became indignant with the way the planet was governed. It was very foolish. But much more often he felt such hatred of the manners and customs of the Thrid — which

had put him here —that it seemed that something must somehow be possible if only so he could take revenge.

III

The copter came, it dropped food and water, and it went away. It came, dropped food and water, and went away. Once a water-bag burst when dropped. They lost nearly half a week's water supply. Before the copter came again they'd gone two days without drinking.

There were other incidents, of course. The dried seaweed they slept on turned to powdery trash. They got more seaweed hauling long kelp-like strands of it ashore from where it clung to the island's submerged rocks. Ganti mentioned that they must do it right after the copter came, so there would be no sign of enterprise to be seen from aloft. The seaweed had long, flexible stems of which no use whatever could be made. When it dried, it became stiff and brittle but without strength.

Once Ganti abruptly began to talk of his youth. As if he were examining something he'd never noticed before, he told of the incredible conditioning-education of the young members of his race. They learned that they must never make a mistake. Never! It did not matter if they were unskilled or inefficient. It did not matter if they accomplished nothing. There was no penalty for anything but making mistakes or differing from officials who could not make mistakes.

So Thrid younglings were trained not to think; not to have any opinion about anything; only to repeat what nobody questioned; only to do what they were told by authority. It occurred to Jorgenson that on a planet with such a population, a skeptic could make a great deal of confusion.

Then, another time, Jorgenson decided to make use of the weathering cord which had been cut from the copter when he was landed. He cut off a part of it with a sharp-edged fragment of stone from the pile some former prisoner on the island had made. He unravelled the twisted fibers. Then he ground fish-hooks from shells attached to the island's rocky walls just below water-line. After that they fished. Sometimes they even caught something to eat. But they never fished when the copter was due.

Jorgenson found that a fish-fillet, strongly squeezed and wrung like a wet cloth, would yield a drinkable liquid which was not salt and would substitute for water. And this was a reason to make a string bag in which caught fish could be let back into the sea so they were there when wanted but could not escape.

They had used it for weeks when he saw Ganti, carrying it to place it where they left it overboard, swinging it idly back and forth as he walked.

If Jorgenson had been only a businessman, it would have had no particular meaning. But he was

also a person, filled with hatred of the Thrid who had condemned him for life to this small island. He saw the swinging of the fish. It gave him an idea.

He did not speak at all during all the rest of that day. He was thinking. The matter needed much thought. Ganti left him alone.

But by sunset he'd worked it out. While they watched Thrid's red sun sink below the horizon, Jorgenson said thoughtfully:

"There is a way to escape, Ganti."

"On what? In what?" demanded Ganti.

"In the helicopter that feeds us," said Jorgenson.

"It never lands," said Ganti practically.

"We can make it land," said Jorgenson. Thrid weren't allowed to make mistakes; he could make it a mistake not to land.

"The crew is armed," said Ganti. "There are three of them."

"They've only knives and scimitars," said Jorgenson. "They don't count. We can make better weapons than they have."

Ganti looked skeptical. Jorgenson explained. He had to demonstrate crudely. The whole idea was novel to Ganti, but the Thrid were smart. Presently he grasped it. He said:

"I see the theory. If we can make it work, all right. But how do we make the copter land?"

Jorgenson realized that they talked oddly. They spoke with leisurely lack of haste, with the lack of hope normal to prisoners to whom escape is impossible, even when they talk about escape. They could have been discussing a matter that would not affect either of them. But Jorgenson quivered inside. He hoped.

"We'll try it," said Ganti detachedly, when he'd explained again. "If it fails, they'll only stop giving us food and water."

That, of course, did not seem either to him or Jorgenson a reason to hesitate to try what Jorgenson had planned.

It was not at all a direct and forthright scheme. It began with the untwisting of more of the rope that had lowered Jorgenson. It went on with the making of string from that fiber. They made a great deal of string. Then, very clumsily and awkwardly, they wove strips of cloth, a couple of inches wide and five or six long. They made light strong cords extend from the ends of the cloth strips. Then they practiced with these bits of cloth and the broken stones a former prisoner had piled so neatly.

The copter came and dropped food and water. When it left, they practiced. When it came again they were not practicing, but when it went away they practiced. They were a naked man and a naked Thrid, left upon a morsel of rock in a boundless sea, rehearsing themselves in an art so long-forgotten that they had to reinvent the finer parts of the technique. They experimented. They tried this. They tried that. When the copter appeared, they showed themselves. They rushed upon the dropped bag containing food and water as if fiercely trying to deny each other a full share. Once they seemed to fight over the

dropped bag. The copter hovered to watch. The fight seemed furious and deadly, but inconclusive.

When the copter went away Jorgenson and Ganti went briskly back to their practicing.

They were almost satisfied with their proficiency, now. They had lost some of the small stones, but there were many left. They began to work with seaweed, the kind with long central stems which dried to brittle stiffness. They determined exactly how long they should be allowed to dry. They studied the way in which the flat seaweed foliage must be dried on rounded stone spaces to form seemingly solid surfaces of almost any shape. But they were utterly brittle when they were dry. It was not possible to make them hold any form for more than a day or so, even if sprinkled with cold water to keep them from crumbling to dust.

And they practiced with the strip of cloth and the stones. Ganti became more skilful than Jorgenson, but even Jorgenson became an expert.

There came a day when the copter dropped the bag of food and Ganti danced with seeming rage and shook his fist at it. The crew-Thrid saw him, but paid no attention. They went away. And Ganti and Jorgenson went to work.

They hauled seaweed ashore. It had to dry to some degree before it could hold a form at all. While it dried, they practiced. The leaves were ready before the stems. They spread them on rounded surfaces, many leaves thick. They dried to dark-gray-greenish stuff looking like the crudest possible cardboard without a fraction of cardboard's strength or stiffness. Presently the stems were dry enough to be stiff but not yet entirely brittle. They made a framework, uniting its members with string from the dropped rope.

Two days before the copter was due again, they used the cardboard-like but fragile curved sheet of seaweed-leaves to cover the frame. Finished, they had what looked like the fuselage of a landed copter.

Thicker but brittle sections of the stems seemed rotor-blades when more seaweed-cardboard was attached. From two hundred feet, the crudities of the object would not show. It would look like a helicopter landed on the island where Jorgenson and Ganti were confined.

It would look like a rescue.

When the copter arrived, it checked in midair as if it braked. It hung in the air. Its crew stared down. They saw a strange aircraft there. The helicopter whirled and went streaking away toward the horizon.

Jorgenson and Ganti immediately attacked their own creation. The framework was brittle; barely able to sustain its own weight. They furiously demolished the whole thing. They hauled its fragments into the cave. They worked furiously to remove every trace of its former presence.

Within two hours a fleet of six steam-copters came driving across the sea. They swept over the island.

They looked. They saw Jorgenson and Ganti — naked man and naked Thrid — glaring up at them. They saw nothing else. There was nothing else to see.

There was a Thrid official on one of the copters. The matter had been reported to him. A helicopter could only have landed on this island to rescue the prisoners. They were not rescued. There had been no helicopter. The crew of the craft which made the report had made a mistake!

Jorgenson and Ganti gloated together when darkness had fallen. The copter-crew had made a false report. They would face an angry official. Either they'd take back their original report, or stick to it. If they took it back, they'd tried to deceive an official, who could not be wrong. Jorgenson and Ganti gloated over what they'd done to their jailers.

IV

When a copter came again a week later, it was not the same flier or the same crew. The bag of food and water was dropped from a different height. The copter hovered until it saw both Jorgenson and Ganti. Then it went away.

They set to work again on seaweed hauled from the sea, and leaves smoothed over each other on suitable surfaces of rock. Stems up to four and five inches in diameter to be straightened out and almost dried to seem rotor-shafts, and lesser stems to make a framework. The mockup was tied together with string. They finished it the night before the copter was due again, and they practiced with their bits of cloth and the stones until the light ended. They practiced again at daybreak, but when the helicopter came across the sea they were nowhere visible.

But there was an aircraft aground upon the island. From the air it looked remarkably convincing.

The prisoners listened eagerly from the hollowed-out cave. The mockup on the ground was in a miniature valley between sections of taller stone. It could be seen from above, but not well from the side. From one end it could not be seen at all, but from the other it was a remarkable job. It would deceive any eyes not very close indeed.

The flying helicopter hovered and hovered, sweeping back and forth. Its crew-members saw no movement anywhere, which was not possible. If there was an aircraft aground, there must be Thrid who had flown it here. They were not to be seen. The prisoners were not to be seen. The situation was impossible.

Jorgenson and Ganti waited.

The flying jailers could not report what they saw. A previous crew had done that, and when they were proved mistaken or worse, they donned chains to do hard labor so long as they lived. But the Thrid in the copter over the island dared not not-report. Somebody else might sight it, and they'd be condemned for not reporting. They couldn't report it and they couldn't not-report it!

Jorgenson grinned when the

throbbing of the rotors became louder and louder as the steam-helicopter descended. He and Ganti made ready.

The flying vehicle landed. They heard it. Its crew got out, fearful but alert and with weapons handy. One stayed close by the ship, his ears shriveled with terror. The other two, weapons very much to the fore, moved cautiously to examine the aircraft which could not possibly be here.

Jorgenson and Ganti, together, scrambled from the hollowed-out cave.

Ganti swung his strip of cloth. It had a strong cord attached to each end, and he held the cords so the cloth formed a pocket in which a stone lay. The whole whirled furiously. Ganti released one cord. The stone flew. It struck the Thrid on guard by the machine squarely in the middle of his forehead. Jorgenson's stone arrived the fraction of a second later, before the Thrid started to fall. They moved out, Jorgenson grinning in a most unbusinessman-like manner. They heard the startled exclamation of the other two newcomers as they realized that they saw only a mock-up of a landed flier, a thing which crumbled as they touched it.

Jorgenson and Ganti swung their slings together. The jailer-Thrid turned just in time to see what was happening to them. It was final.

And the copter took off again with Ganti and Jorgenson clothed and with an adequate supply of stones in improvised pockets in their garments.

It was perfectly simple from that time on. They walked into a village of the Thrid, on the mainland. It was the village where Ganti had lived; whose governor had spoken and said and observed that Ganti's wife wished to enter his household and that Ganti wished her to. Ganti marched truculently down its wider street. Astonished eyes turned upon him. Ganti said arrogantly:

"I am the new governor. Call others to see."

The villagers could not question the statement of an official. Not even the statement that he *was* an official. So Ganti — with Jorgenson close behind — swaggered into the local governor's palace. It wasn't impressive, but merely a leafy, thatched, sprawling complex of small buildings. Ganti led the way into the inmost portion of the palace and found a fat, sleeping Thrid with four villager-Thrid fanning him with huge fans. Ganti shouted, and the fat Thrid sat up, starkly bewildered.

"I speak and say and observe," said Ganti coldly, "that I am the new governor and that you are about to die, with no one touching you."

The fat Thrid gaped at him. It was incredible. In fact, to a Thrid who had never heard of a missile weapon — it was impossible. Ganti swung his strip of cloth by the two cords attached to it. It whirled too swiftly to be seen clearly. A stone flew terribly straight. There was an impact.

The local governor who had

spoken and said and observed that Ganti's wife wanted to enter his household was quite dead.

"I," said Ganti to his former fellow-villagers, "I am the governor. If any deny it, they will die with no one touching them."

And that was that.

Ganti grimaced at Jorgenson:

"I'll speak and say and observe something useful for you presently, Jorgenson. Right now I'm going to march on foot and talk to the provincial governor. I'll take a train of attendants, so he'll receive me. Then I'll tell him that he's about to die with nobody touching him. He's earned it!"

Unquestionably, Ganti was right.

Any Thrid official, to whom it was impossible to be mistaken, would develop eccentric notions.

Most humans couldn't stand by and watch. They got off Thriddar as soon as possible. At the moment, Jorgenson couldn't leave the planet, but he didn't want to see what Ganti could and would and by human standards probably ought to do. He camped in the steam-copter, in hiding, until Ganti sent him a message.

Then he started up the copter and flew back to the trading post. It was empty. Gutted. Looted. But there was a high official waiting for him in the courtyard. He held a scroll in his hand. It glinted golden. When Jorgenson regarded him grimly, the high official made a sound equivalent to clearing his throat, and the Witness-hatted Thrid around him became silent.

"On this day," intoned the high official, "on this day did Ganti, the Never-Mistaken, as have been his predecessors through the ages; — on this day did the Never-Mistaken Ganti speak and say and observe a truth in the presence of the governors and the rulers of the universe."

Jorgenson listened grimly. The new Grand Panjandrum had made him — Jorgenson — a provincial governor.

Ganti was grateful. The contents of the trading post would be returned. From this time on the Rim Stars Trading Corporation would prosper as never before.

But Jorgenson wasn't a Thrid. He saw things as a businessman does, but also and contradictorily he saw them as right and just or wrong and intolerable. As a businessman, he saw that everything had worked out admirably. As a believer in right and wrong, it seemed to him that nothing in particular had happened.

He'd have done better, he considered, to do what most humans did after understanding what went on on Thriddar, and what seemingly always must go on on Thriddar. Because the Thrid had noticed that they were the most intelligent race in the universe, and therefore must have the most perfect possible government whose officials must inevitably be incapable of making a mistake...

When the Rim Stars trading ship came to ground, a month later, Jorgenson went on board and stayed there. He remained on board when the ship left. Thriddar was no place for him. END

SCIENCE on a SHOESTRING — or LESS

BY THEODORE STURGEON

Shyly and silently, there has sidled into our cosmos one of the most extraordinary and potentially influential volumes ever put between covers.

It's a heady experience to hold this book in your hands and reflect what the world would be if Newton, Da Vinci or Eratosthenes had had the same privilege. You might say that this is only marvelling, and what's so heady? and you're right. It becomes heady when you realize that in this season of the proliferation of laws, no one has yet passed one proclaiming that there shall be no more Da Vincis — though most people seem to feel that somehow or other there can be no more giants. They're wrong.

And just as this book could have moved the earth 'way back yonder,

so it can today — and it is very likely that it will; because it is being distributed all over the world.

It's a paperback, and about the only way it could have been promoted less would be if it had never existed. I ran across it last Christmas in a toy catalog. Then when the local elementary school overcrowded itself into split sessions, the PTA started a sort of *al fresco* school to add a little something to a four-hour school day, and included a science demonstrations course. I bethought me of this book and had the Library order it.

As soon as it came in it went straight to my desk for this treatment, so you may pride yourself (if such be your pride) that on your account there is a long and angry waiting list at the Library for it. Some of 'em got angry enough to buy it for themselves, which is a pretty beneficial side effect, at that.

Some time ago I wrote for information as to price, ordering address, and permission to reproduce some of the illustrations; but as I said, promotion they ain't got. My letter remains, at this writing, unanswered. Therefore I made the drawings on these pages myself; they are not, then, reproductions, but illustrations of matter in the book.

SOURCE BOOK FOR SCIENCE TEACHING is published by UNESCO, printed in France. A footnote in the bibliography referring to UNESCO publications says they may be obtained from "Place de Fontenoy, Paris 7e, France. Copies may also be obtained in most countries from UNESCO's national distributors."

The catalog describes it: "Over 700 science demonstrations and experiments, using everyday materials. Prepared by the UNESCO office, with the help of world science education leaders."

Now, this is more than just an elementary science handbook. All over the world, in the Far East, in Africa, in Latin America, literacy is rising. With it rises the number of communities with shacks or tents or just the shade of a tree for schools, and somewhat less than nothing at all for materials. Science teaching therefore becomes a matter of real basics, right down to the level of the wedge and the lever, because you can always lay hands on a rock and a stick to demonstrate with. But this has its virtue. Simple materials call for more honest-to-God *science* (along with h-t-G *teaching*) than any amount of crackle-finished black boxes full of technology. In addition, the jungle (or desert, or Outback) youngster who learns his science this way is far more likely to relate science to his everyday life than our kids, who can coexist with years of film-strips and closed-circuit TV teaching aids, and remain untouched.

Compactly described, this big (6x9½") paperback has 252 closely printed pages with hundreds of excellent illustrations. It has no index, but the contents page is quite comprehensive. The appendices include a booklist, periodicals from all over the world, and a chart of rocks and minerals. Then there are 15 pages

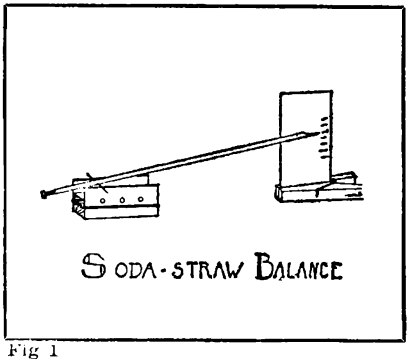


Fig 1

of reference tables, conversions and the like, and even a rule, a protractor. and a 30 degree and a 60 degree triangle.

The tone and purpose of the book are best demonstrated by drawings. The scale in Fig. 1 is amazingly sensitive, and can be made as accurate as an expensive instrument if you are willing to take care in calibrating it. The small bolt (it happens that one from an Erector set is just right) gives you the finest of fine adjustments. The bearing, a fine needle resting on the edges of two razor blades, is about as frictionless as a bearing can be (but see Fig. 2!) and the long lever arm makes small movements easy to see. You calibrate it by setting it to the zero point and then hanging weights made of aluminium (sic) from the pointer. "A common gauge of foil," says the book, "weighs 5 mg. for 2 sq. cm. of area." Having gotten your gross divisions with these, you proceed to subdivide as much as your patience and your steady hand permit. This scale will readily weigh a single human hair, or. with a tiny foil bucket (you'll have to reset it to zero) almost microscopic beads of liquid.

Zehnder balance (and I wish I knew who and where Mr. Z is so I could shake his hand) will do more than a boy scout knife plus Mr. Clean. If you look carefully at the drawing you will see that the large cork rests only on the points of the two pins. No matter how carefully you look you won't see that they rest on two slips of glass placed on top of the wooden base, because I couldn't figure out how to draw them. The balance beam is a knitting needle. The sensitivity adjustment lies in the amount the pins are pushed through the cork.

Now listen to this: 2 mg. (the weight of a short piece of fine cotton thread) on one arm of the beam will rotate it about 2 cm. (about 3/4" — enough to see easily.) If an experiment yields an almost immeasurably small jet of gas, this balance will detect it. A lighted match below the beam will demonstrate air convection. The beam is an insulated conductor, and therefore can be electrified, showing the slightest trace of static electricity.

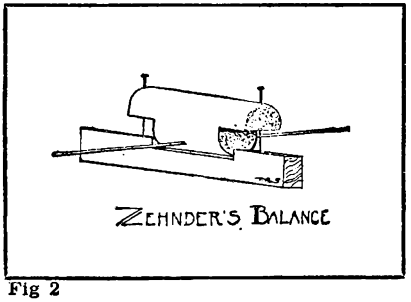


Fig 2

Magnetized, it becomes a dip needle. It is also a galvanometer: a coil of 22 turns of copper wire, connected to a thermocouple, and held near the beam, will cause the beam to rotate appreciably when the thermocouple is heated with a candle, delivering about .01 volt. Attach a tiny mirror to one end of the beam, and project a beam of light off it to a distant wall, and the balance will detect the current generated when you grasp the thermocouple with your fingers!

Fig. 3 is drawn from various parts of the book. The upright is half of one of those flat brass telescopic curtain rods, screwed to the wooden base. The ring is made of coat-hanger wire with the ends folded back on themselves to make a close sliding fit inside the upright. (This is my own design; the book uses one of those snivvies which clamps on to the light-bulb to hold a lampshade. I was unable to find one locally without the whole lampshade attached.) Note the three segments of asbestos tape on the ring; these keep the dish from cracking along the line of the ring. The alcohol lamp is made of an ink bottle. The tube is half a brass rifle cartridge soldered to a hole in the bottle cap. The inset shows how the other half of the cartridge can make a stopper for the lamp. If no cartridge is available, an adequate tube can be made with tin from a can formed around a dowel and soldered.

The dish is the top of an old electric-light bulb, and the book gives most explicit instructions for sal-

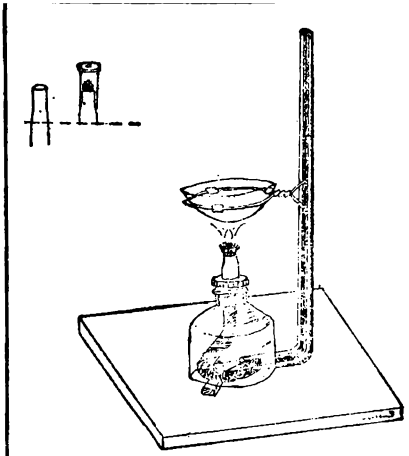


Fig 3

vaging great wealth from these little-regarded treasures. A light bulb, variously cut and serviced, will give you a funnel, a flask, a set of ready-made electrodes, and a good many other things. You can cut one by scoring it with a three-cornered file, tieing a string along the score, soaking it with kerosene and setting it afire. When the fire goes out, plunge it into ice water. You may also use a soldering iron, run along the scratch. The sharp edge can be treated by playing a fine gas flame along it.

I wish I had space to describe the demonstration gears made of pop-bottle caps, or the optical illusions, or the plant bio experiments, or the astronomy demonstrations, or — oh, hell, go buy the book!

END

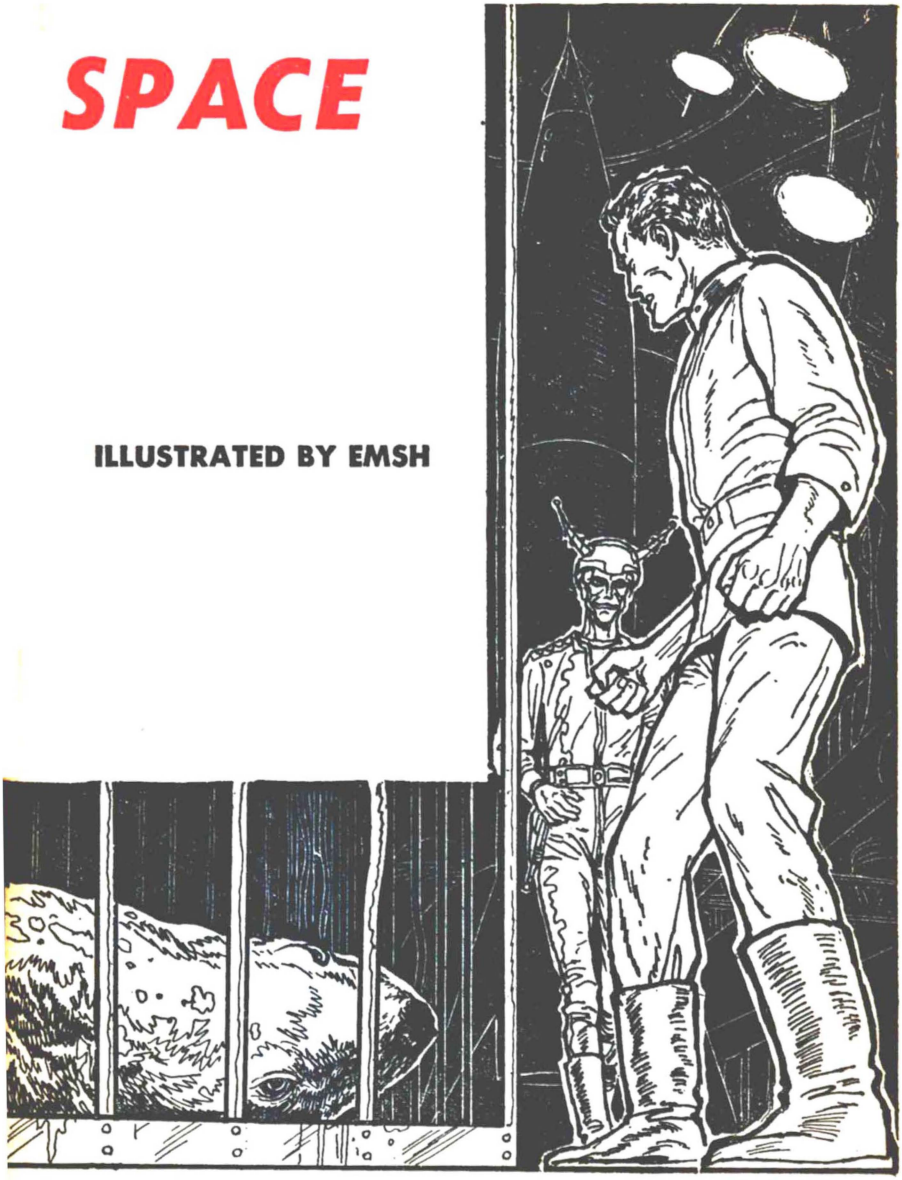
THE REEFS OF

BY JACK WILLIAMSON AND FREDERIK POHL

Everybody had to be useful. If he was totally useless in every respect—there was still a use!

SPACE

ILLUSTRATED BY EMSH



THE CHARACTERS

STEVE RYELAND knew that he was a criminal, who had failed the Plan of Man . . . but he could not remember his crime. Around his neck he wore the iron collar that contained an explosive charge that would destroy him if he tried escape; but what the deed was that had put it there he could only remember in tantalizing fragments. With his fellow convicted Risk,

ODDS OPORTO, Ryeland was ordered to take up a new job in the service of the Plan. Still a prisoner, he traveled aboard the luxurious private subtrain car of

THE PLANNER, the great, powerful man who was the voice of The Machine, unquestioned ruler of the world's thirteen billion people. The Planner told him that his job was to develop a "jetless drive"—a new space propulsion system that would permit the forces of the Plan to expand into the Reefs of Space, the half-mythical bodies that circled the solar system far beyond the orbit of Pluto.

DONNA CREERY, the daughter of the Planner, also told Ryeland of the spaceling, the strange creature from the distant Reefs that lived on energy and itself seemed to have a "jetless drive". Arriving at his destination, Ryeland was astonished to find that he himself was in charge of a whole project under the Plan of Man—although a convicted Risk, wearing the iron collar, he had authority over high-ranking officers and important research workers. Yet there was something strange about his authority, almost as though he were not so much the conductor of an experimental project as its subject. And there was the chronic, nagging worry of his past always in his mind! For he could not remember the parts of his life that should have been crystal-clear . . .

PART II

VII

Ryeland's new authority as leader of the Attack Team did nothing to endear him to his colleagues.

He didn't care. He had work enough to keep him busy. Oddball Oporto made himself useful. The little man's talent for lightning computing saved Ryeland a good deal of time. Not that Oporto was faster than a computer. He wasn't; but Oporto had a distinct advantage over the binary digital types in that problems didn't have to be encoded and taped, then decoded.

Still, in the final analysis there were not too many problems to compute. In fact, that was the *big* problem: Ryeland could find no handle by which to grasp the question of the jetless drive.

But Oporto made himself useful in other ways as well. He had a prying nose for news, for example, which kept Ryeland informed of what was going on in the Team Project. "Fleemer's got the sulks," he reported one day. "Holed up in his room, doesn't come out."

"All right," said Ryeland absently. "Say, where's my *Physical Constants of Steady-State Equations?*"

"It's indexed under 603.811," Oporto said patiently. "The word is that Fleemer is having an argument with the Machine. Messages are going back and forth, back and forth, all the time."

"What?" Ryeland looked up, momentarily diverted from the task of scribbling out a library requisition for the book he needed. "Nobody can argue with the Machine!"

Oporto shrugged. "I don't know what you'd call it, then."

"General Fleemer is filing reports," Ryeland said firmly. He beckoned to Faith, brooding in a corner. The Togetherness girl came eagerly forward, saw the slip, looked glum, shrugged and went off to get the book.

"Sure," said Oporto. "Say, have you heard anything from Donna Creery?"

Ryeland shook his head.

"I hear she's in Port Canaveral."

Ryeland snapped: "That's her problem. No doubt the Planner's daughter has plenty of occasions for off-Earth trips."

"No doubt," agreed Oporto, "but —"

"But you could mind your business," said Ryeland, closing the discussion.

Faith came back with the book. Ryeland verified a couple of figures and turned a sheet of calculations over to Oporto. "Here, solve these for me. It'll give you something to do," he said. He stood up, looking absently around the room. This was his A Section, devoted to the Hoyle Effect. He had a whole sub-Team of workers going here. Still, he thought, it was a waste of time.

"No sweat," said Oporto cheerfully, handing back to the completed equations.

"Thanks." Ryeland glanced at them, then dumped them on the desk of one of the other workers. There wasn't much to be done but

routine; he could leave it to the others now. That was why it was a waste of time. All the prior art was in hand and digested; it was only a matter of checking out the math now. Then he could answer the Machine's questions — but in fact, he knew, he could pretty well answer them now. Under what conditions could hydrogen growth occur? That was easy. Basic theory gave most of the answer; an analysis of the data from Lescure's expedition in the *Cristobal Colon* gave a clue to the rest. And what was the possibility of halting or reversing the formation? That was easy too. Humans could have little control over the processes that could build stars. With finite equipment, in finite time. the probability was zero.

But it was a measure of the Machine's — desperation? Was that a word you could apply to the Machine — a measure of the Machine's, well, urgency that it could even ask such questions as these.

Ryeland said uncomfortably: "Come on, Oporto. Let's go take a look at the spaceling."

And that was B Section, and it was going badly indeed.

Jetless drive! It was impossible, that was all. If Ryeland hadn't had the maddening spectacle of the spaceling right there before him, he would have sworn that the laws were right.

For every action, Newton had stated centuries before, there is an equal and opposite reaction. That law of motion accounted for every movement of every creature on Earth. The cilia of the first swimming paramecium propelled the creature forward by propelling an equal mass of water backward. It was the same with the thrust of a propeller, in water or in air. Rockets thrust forward by reaction, as the mass of the ejected jet's hot molecules went one way, the vessel the rockets drove went another. Action and reaction!

It was an equation that was easy to write — Mass times Acceleration equals Mass-prime times Acceleration-prime — and it was an equation that was hard to doubt.

But it did not happen to be true. The evidence of the dazed little creature from space made a liar out of Newton. The spaceling's trick of floating without visible reaction confounded the greatest genius the world has ever known.

The spaceling showed no reaction mass at all.

Whatever it was that permitted the spaceling to hover, it (call it "X") did not:

Disturb the currents of the air; affect plumb-bobs hung all about; register on photographic film; discharge a gold-leaf electroscope; disturb a compass; produce a measurable electric, magnetic or electronic field; add to the weight of the cage when the entire structure was supported on a scale; make any audible sound; affect the basal metabolism of the spaceling itself; or produce a discoverable track in a cloud chamber.

"X" did, on the other hand, do a few things.

It affected the "brain waves" of

the spaceling; there was a distinctive trace on the EEG.

It seemed to have a worrisome effect on certain other mammals. This was noticed by chance when a cat happened to wander into the rocket pit; when the spaceling lifted itself the cat was "spooked", leaping about stiff-legged, fur bristling, eyes aglare.

And finally, it worked. Whatever "X" was, it lifted the spaceling with great ease.

They even wrapped the spaceling in chains once, more than six hundred pounds of them. And as if amused the spaceling floated with all six hundred pounds for an hour, purring to itself.

It was maddening.

Still, thought Ryeland, though the comfort was small — at least the thing seemed healthier. The wounds were healing. The small symbiotic animals that were left seemed to survive. The spaceling showed life and energy.

Donna Creery would be pleased.

Nobody else seemed very pleased with Ryeland, though. General Fleemer stayed in his room, venturing forth only occasionally to make sardonic comments and get in the way. The other high brass of the Team didn't have Fleemer's ready escape, since they had specific tasks; but they made sure to be as unpleasant to Ryeland as they could manage.

Only Major Chatterji was affable at all, and that was second nature to him. He came by every hour on the hour for a report. He was very little trouble. If Ryeland was busy, the major waited inconspicuously in the background. If Ryeland was free, the major asked a minimum of questions and then departed. Ryeland was pretty sure that all the information went, first, to the Machine and, second, almost as promptly to General Fleemer; but he could see no reason why he should attempt to interfere with the process. And he could also see no reason to believe he would be successful if he tried.

He kept busy.

Oporto said one afternoon: "Say, it's definite about your girl friend."

Ryeland blinked up from his papers. "Who?" He was genuinely confused for a moment; then he remembered Oporto's previous remarks. "You mean Miss Creery?"

"Miss Creery, yeah." The little man grinned. "She's off to the Moon. Her daddy, too."

"That's nice," said Ryeland. Carefully he kept his voice noncommittal, though he wondered who he was fooling. No matter how well he diguised his interest from Oporto, he couldn't disguise it from himself: Something inside him reacted to the thought of Donna Creery.

Oporto sprawled lazily over Ryeland's desk. "Well, I don't know if it is so nice, Steve," he said seriously. "Maybe they ought to stay home and attend to business. Did you hear about the Paris tube collapse?"

"What?" Ryeland wearily put down the sheaf of reports and blinked at his friend. His eyes smarted. He rubbed them, wondering if he needed sleep. But that

didn't seem reasonable, he figured; he'd had at least eight hours sleep in the previous forty-eight. In any case, he didn't have the time; so he put the thought out of his mind and said: "What the devil are you talking about, Oporto?"

The little man said: "Just what I said. The Paris subtrain to Finland. The tube collapse. More than a hundred people missing — and that means dead, of course. When a tube gives out a hundred miles down you aren't 'missing.'"

Ryeland said, startled: "But that isn't possible! I mean, I know the math for those tubes. They can collapse, all right, but not without plenty of warning. They can't break down without three hours of field degeneration — plenty of time to halt transits."

Oporto shrugged. "A hundred dead people would be glad to know that, Steve," he said.

Ryeland thought for a second. "Well," he said wearily, "maybe you're right, maybe the Planner ought to be around to keep an eye on things like that... Oh, hello, Major."

Chatterji came smiling in, peering amiably through his gold glasses. "I wondered if there was anything to report, Mr. Ryeland."

While Ryeland searched through the papers on his desk, Oporto said: "We were just talking about the Paris trouble, Major."

Chatterji's brown eyes went opaque. There was a marked silence.

Ryeland took it in, and realized that Machine Major Chatterji was concerned about the tube failure between Paris and the Finland center. Odd, he thought, why should Chatterji care? But he was too weary to pursue the subject further. He found the requisition he was looking for and silently passed it across the Chatterji.

The major glanced at it casually, then intently. His crew-cut black hair seemed to stand on end. "But, dear Ryeland!" he protested, blinking through his gold-rimmed glasses. "This equipment —"

"I've checked it with the Machine," Ryeland said obstinately. "Here." He showed the teletape to Major Chatterji.

> Action Request approved. Action. Concert with Major Chatterji. Information. Power sources at Point Circle Black not adequate to demands.

"But, my dear *Ryeland!*" The major's expression was tortured. "It isn't only a matter of power sources. Think of the other considerations!"

"What the Plan requires, the Plan shall have," Ryeland quoted, beginning to enjoy himself.

"Of course, of course. But—" The major studied the list. "You have enough electronic equipment here to run a university lab," he wailed. "And some of it is dangerous. After the, uh, accident Mr. Oporto was talking about, surely you understand that we can't take chances."

Ryeland stared. "What does that have to do with the Team project?"

The major said angrily, "The Plan can't stand accidents, Mr. Ryeland! This equipment creates radiation hazards, if nothing else, and

there are eighty thousand people in Points Circle Black, Triangle Gray, Crescent Green and Square silver alone. They can't be exposed to this sort of thing!"

Ryeland tapped the teletape meaningfully.

"Oh," sighed the major, "if the Machine approves..." He thought for a moment, then brightened. "I have it! An orbiting rocket!"

Ryeland was taken aback. "What?"

"An orbiting rocket filled with all the equipment you want," Chatterji said eagerly. "Why not? Everything run by remote control. I can requisition one for you at once, Mr. Ryeland! And you can fill it with all the dangerous equipment you like — what do we care what happens to any wandering spacelings, eh?" He winked and giggled.

"Well," said Ryeland doubtfully, "we could do it that way."

"Of course we could! We'll arrange a TV repeater circuit with remote-controlled apparatus. You work in your lab, the equipment is out in space. Perform any experiments you like. And that way," he beamed, "if you blow the lab up you destroy only one ship, not all of *us*." He bustled off.

It was astonishing what the Plan of Man could accomplish. The rocket was loaded, launched and orbited in forty-eight hours.

Ryeland never saw it. He monitored the installation of the equipment he wanted via TV circuits, tested the instruments, gave the okay — and watched the fire-tailed bird leap off its launching pad through a cathode screen. At once he put it to work. The only thing they had learned about the force the spaceling generated, what the Planner had called the "jetless drive", was that it was indetectable. But that in itself was a great piece of knowledge. Ryeland's researchers had turned up another fact — a high-energy nuclear reaction which turned out less energy than went into it — and it was just possible, it was more than possible, it was perhaps a fact, that that missing energy was not missing at all, but merely not detectable.

Like the energy of the spaceling... Ryeland determined to recreate the nuclear reactions which were involved.

Until the morning that the Togetherness girl woke him with news: "Rise and shine, Steve," she sang, bringing him his breakfast. "Guess what! General Fleemer's going to be at the Teamwork conference today."

Steve got groggily to his feet. "That's his privilege," he said thickly, and looked at her, young, pretty, fresh — though she had been with him, tirelessly running errands, through half the night. "Don't you ever get tired?" he asked sourly.

"Oh, no, Steve! Eat your breakfast." She perched on his chair, watching him, and said earnestly: "We're not here to get tired, Steve. We have our job! We Togetherness girls are the connecting wires that hold the Plan of Man's circuit together."

He gaped at her, but she was

serious. "That's right," she nodded. "The Plan of Man depends as much on us as on the transistors and condensers and capacitors — that's you and the other brass. Everyone is important! Don't forget, Steve: 'To each his own job — and his own job only.' "

"I won't forget," he said, and wearily drank his citrus juice. But the girl had something on her mind, he saw. She was waiting for an opportunity to speak to him. "Well? What is it?"

She seemed embarrassed. "Oh, "Uh — it's just that —well, there's talk, Steve. The girls were wondering about something."

"For heaven's sake, say it!"

"We wondered," she said primly. "if our Team really had anything to do with these accidents."

Ryeland blinked and rubbed his eyes. But rubbing his eyes didn't change anything; the girl still sat there with the mildly embarrassed, mildly apologetic expression. "Accidents? Faith, what are you talking about?"

"The Paris-Finland tube," she recited. "The Bombay power plant explosion. The cargo-jet crash in Nevada. *You* know."

"No, I didn't know. Half those things I never heard of. Oporto's been falling down on the job."

"There are others, Steve. And what the girls are saying —" She paused. "I only wondered if it was true. They say our Team project has caused them. They even say that you, Steve —"

"That I what?"

"Oh, I suppose it's ridiculous. General Fleemer said it wasn't really true, anyway, that you had something to do with it. But they say you were involved in planning the subtrains. . ."

He grumbled, "They say some weird things. Excuse me while I dress, will you?"

He couldn't put it out of his mind. It was foolish, he thought testily. How did rumors like that start?

At the day's Teamwork conference, sure enough, General Fleemer had done them the unusual honor of attending. Ryeland scowled at him thoughtfully, then remembered the silly rumor. "Before we get started," he demanded, "has anybody heard anything about our work causing accidents?"

A dozen blank expressions met his stare. Then the head of the computer section coughed and said hesitantly, "Well, there was some talk, Mr. Ryeland."

"What kind of talk?"

The computerman shrugged. "Just talk. One of the data-encoders had heard from a cousin who heard from somebody else. You know how it goes. The story is that our work here has upset the radio-control circuits, heaven knows how."

"That's preposterous!" Steve exploded. "What the devil do they mean by that?" He stopped himself. It wasn't the computerman's fault, after all. "Well," he said grimly, "if anybody hears anything else like that, I want it reported to me!"

Heads nodded; every head but General Fleemer's. He barked testily: "Ryeland! Are we going to gossip

about accidents, or is the Team going to chart its course for the day?"

Ryeland swallowed his temper. In spite of the fact that Donna Creer had put him in charge of the Team, General Fleemer's seniority made him a bad man to tangle with.

"All right," said Ryeland, "let's get on with it." Then he brightened. "I saw your report, Lescure. Want to elaborate on it?"

Colonel Lescure cleared his throat. "After a suggestion by Mr. Ryeland," he said, nodding, "we instituted a new series of X-ray examinations of the spaceling. By shadowgraphing its interior and using remote-chromotography analytic techniques I have discovered a sort of crystalline mass at the conflux of its major nervous canals. This is in accordance with the prediction made by Mr. Ryeland."

Fleemer demanded harshly: "What does it mean?"

Ryeland said eagerly: "It means we're making headway! There had to be some sort of such arrangement for controlling and directing the jetless drive. After yesterday's computer run, and some further calculations Oporto did for me, I asked Colonel Lescure to make the tests. He did — on overtime, as you see.

"What this means," he said, beginning to lecture, "is that we have found *where* the spaceling's force is generated and directed. And there's one other thing we learned from yesterday's calculations. Phase-rule analysis indicates zero possibility of any electromagnetic or gravitic force. I have the report here, ready

for transmission to the Machine."

General Fleemer nodded slowly, looking at Ryeland. After a moment he said, "Does it account for what happened to the mining colonies in Antarctica?"

Ryeland was puzzled. "I don't understand. . ."

"No? I refer to the explosion of the power reactor last night, which destroyed them, at a very great loss to the Plan of Man. Not the only loss, Ryeland. A spaceship has been lost through a failure of its helical field accelerator. The same helical field which was involved in the reactor explosion — and in other accidents, Ryeland. The same field which you helped to design."

"The design is not to blame," Ryeland protested desperately. "If there have been accidents, they must be due to mechanical failure or human error or deliberate sabotage —"

"Exactly!"

"How could I be to blame for accidents in Antarctica and a hundred miles down and out beyond the Moon?"

"That's exactly what the Machine will want to know."

"Perhaps it is only chance," he suggested wildly. "Coincidence. Accidents have happened in series before —"

"When?"

"I don't remember. I — I can't recall."

He stammered and gulped, and walked away. The veil of gray fog across his past was thicker. Everything except his science was a swirl of unreality and contradiction.

Alone in his room, he tried again to come to grips with that old riddle of the three days missing from his life. What had the therapists suspected that he had done in that lost interval? Why had they expected him to know anything about a call from Dan Horrock, or about fusorians and pyropods and spacelings or about how to design a reactionless drive?

Lescure's story had given him clues, but they were too fragmentary to make much sense. Horrock had left the *Cristobal Colon* with unauthorized specimens and descriptions of the life of space. Did the Machine suspect that he had been in contact with Ryeland, before he was recaptured and consigned to the Body Bank?

Ryeland turned the puzzle over, and saw no light.

According to Donna Creery, there had really been three days between the knocking on his door and the arrival of the Plan Police. Had the knocking he remembered really been Horrock?

If so, what had erased his memory?

He stared at the wall and probed through the fog in his mind. He tried to remember Horrock, still perhaps in his uniform, soiled from his flight, perhaps bleeding from some wound, panting with terror and exhaustion, lugging the black canvas space bag that held his stolen notes and specimens —

The images had become queerly real. Were they all imagination?

Had Horrock brought him some information vital to the invention of a jetless drive? He couldn't recall.

He fell at last into a restless sleep, into a nightmare in which he and Horrock were in flight from the Plan Police.

The next morning Ryeland went directly from his room to the spaceling's cage in the rocket pit — and stopped, appalled.

The spaceling lay crushed and bleeding in its cage.

Ryeland ran to the cage and let himself in. The creature had grown to know him. It lay wrapped in a fading glow of misty green, eyes dulled; but as he entered its eyes brightened angrily. It lifted off the floor. Suddenly apprehensive, Ryeland dodged outside and slammed the cage door — just in time. The spaceling darted toward him with flashing speed. The cage rocked as she struck the closing door. Anchor chains clanked. Fresh blood ran down the bars, and a flap of golden fur was torn loose. She collapsed again, mewing piteously.

Ryeland felt the first real rage he had known in years.

He spun on his heel. "Gottling!" he bawled. "What the devil have you been up to?"

The colonel appeared, looking sardonically self-satisfied. "Mr. Ryeland," he nodded.

Ryeland took a firm grip on himself. Gottling looked more like a skull than ever, the radar horns giving a Satanic expression to a face that was cold and cruel enough to begin with.

But those radar horns were not merely ornament. Team leader or not, Ryeland was a risk. The cold, complacent smile that twisted the corners of Gottling's thin lips was enough of a reminder of their relative status. One touch of the radar button on Gottling's harness and it was the end of Ryeland.

But this was too much. Ryeland blazed: "You've been torturing the thing again!"

"I suppose so," Gottling agreed mildly.

"Damn you! My orders were —"

"Shut up, Risk!" There was no smile at all now. Gottling thrust a teletape at Ryeland. "Before you go too far, read this!"

Ryeland hesitated, then took the tape. It read:

> Information. Agreed present line of investigation unnecessarily slow. Information. Danger of additional accidents possibly related Ryeland method of research must be investigated. Information. Possibility Ryeland engaged in direct sabotage subtrains, reactors, ion drives. Action. Direction of Team project returned to General Fleemer. Action. Supplementary lines to be initiated at discretion Colonel Gottling.

Ryeland stared at it, dazed. The Machine had reversed itself again!

But in truth it wasn't his own position, difficult though it had suddenly become, that concerned him. It was the spaceling. "Supplementary lines!" he thundered. "Man, you'll kill her!"

Gottling shrugged, contemplating the spaceling. It lay gasping on the steel floor, looking up at them.

"Perhaps I will not wait for her to die," the colonel said meditatively. "Pascal does not wish to perform a vivisection, but he would hardly dare refuse the orders of the Machine. Even he." He smiled frostily and commented: "You are all alike, Pascal Lescure and the Planner's daughter and you, Risk. Blood frightens you. But pain is not contagious. You need not fear to observe it in others, it will not infect you. Indeed," he beamed, "there is much to learn in the pain of others."

Ryeland said tightly: "I'm going to report this to Donna Creery."

The colonel widened his eyes. "Oh? You need the Planner's daughter to fight your battles?" He allowed a silence to hang over them for a moment. Then, forgivingly: "But it does not matter, for you will not find that possible, Ryeland. Miss Creery is on the Moon. So you see, Risk, what happens to the spaceling from now on is entirely up to me."

VIII

Ryeland flung open the door of his room and headed for the teletype in the corner. Oporto and the Togetherness girl were there. He paused, distracted for a moment; he seemed to have interrupted something, but what? It didn't matter. He barked: "Oporto! What's Donna Creery's call number?"

Oporto coughed. "Gee, Steve. I don't know. Three? Fifteen?"

"Cut it out, Oporto," Ryeland warned dangerously.

"Three." Ryeland thumped the teletype keyboard:

Query. Permission for direct hookup communication Donna Creery station 3.

The teletype hardly hesitated:

Information. Refused.

"Well," Oporto said reasonably, "what did you expect? The Machine can't have its circuits tied up with—"

"Shut up." Ryeland was typing again, demanding a connection with the Planner himself.

Information. Refused.

"You see, Steve? You aren't getting anywhere. What's got you so steamed up?"

Ryeland told him in half a dozen sentences what was getting him so steamed up. "Oh, that's too bad," murmured the Togetherness girl. "The poor thing."

Oporto seconded: "Tough. Well, what are you going to do? We're only Risks. We can't buck Gottling and all those." He sneezed, and complained: "See, Steve, you're gedding me all upset. I bet I'm catching a code."

Ryeland looked at him blankly; he had not heard what Oporto had said, and hardly knew the other two were in the room with him. What could he do? Cut off from the Planner or his daughter, he had no chance to keep Gottling from murdering the spaceling. That was the end of the project. If what the Planner had told him was true, it actual-

ly endangered the Plan itself; for the jetless drive, the spaceling's queer method of propulsion, was important to the safety of all the Plan. Yet the Planning Machine would not allow him to —

He blinked and the room came into focus. "The Planning Machine!" he said aloud.

"What? Steve," moaned Oporto, "*now* what are you going to do?" But Ryeland didn't answer. He sat at the keyboard of the machine and with a steady hand tapped out an account of what had happened. Colonel Gottling had deliberately controverted the orders of Donna Creery and the Machine itself. The spaceling was in danger. The Plan itself was threatened. He finished, and waited.

And waited.

And waited for long minutes, while Oporto and the girl whispered behind him. It was incredible that the Machine should take so long to answer! Ryeland asked himself feverishly: Was it turned on, was the wire cut, could it be possible that the Machine's circuits were so overloaded that the message was not received? He was actually bending over, hardly aware of what he was doing, to be sure that the machine was properly plugged in when abruptly it whirred and rattled.

Ryeland was up like a shot.

But the message was unbelievably short. It said only:

R.

"Received and understood," Oporto said sympathetically from behind him. "Gee, Steve. That's all? Well, that's the Machine for you. It isn't up to us to question — Steve. Hey. Steve! Where are you going?" But Ryeland was already gone.

Ryeland hurried down the corridors to General Fleemer's quarters. He had wasted time and it was now late; he would be waking the general up, but he didn't care about that, not now. He tapped on the door and then, without pausing, banged hard.

"A minute, a minute," mumbled a grumpy voice. A wait. Then the door was flung open.

General Fleemer was in lounging pajamas, bright purple tunic, striped purple and scarlet pants. The collar and cuffs were picked out in silver braid, and the room behind him was silver. Silver walls, silver-mounted furniture on a silvery rug. It was a startling effect. Fleemer growled irritably: "Ryeland? What the devil do you want?"

"I have to talk to you, General." He didn't wait for an invitation, but slipped past him into the room. Then something stopped him and he paused, stared, distracted even from the important mission he was on.

There was a statue by the fireplace, a bright silver statue of a girl. But it moved! It opened silver eyelids and looked at him. With pink-tinged lips, like metallic copper in a silver face, it said: "Who is this one?"

"Go in the other room!" the general barked. The silver statue shrugged and stood up. It was no

statue but a girl; the motion revealed it as she stared at Ryeland and left.

Ryeland blinked. Dusted with silver to look like living metal, even her hair silver — the general had a remarkable private life. But it was no business of Ryeland's at this moment. He said briskly: "Sir, Colonel Gottling is about to destroy the spaceling. I'm afraid he is deliberately trying to sabotage the project."

Suddenly the general was no longer a cross, sleepy little fussbudget. His cat's eyes slitted down, his face abruptly became stone. "Go on," he said after a second.

"Why — that's all there is, sir. Isn't it enough? If Colonel Gottling goes ahead with vivisection it will kill the creature, I'm certain. Miss Creery left specific orders —"

"Wait," said the general, but did not invite him to sit down. He turned his back to Ryeland and strode over to his desk. He pressed a button on his desk phone and leaned over to yell into it. "Gottling? Get down to my quarters. Ryeland's here."

Mumble-mumble from the desk phone. It was directional; Ryeland couldn't understand the words and wasn't meant to. "On the double!" the general barked, cutting off discussion, and broke the connection. Without looking at Ryeland he slumped in a chair, shading his eyes with his hands, and remained there until there was a crisp knock at the door.

Colonel Gottling walked in. He did not seem disturbed, not in the least. And he was not alone. Machine Major Chatterji came smiling and bowing behind him. "What a *lovely* room, General! Oh, really lovely. It takes exquisite taste to transform our dreary barracks into —"

"Shut up." General Fleemer stood. Ryeland waited, poised for whatever excuse Gottling might offer, ready to confront him with the facts as soon as the general began his accusation.

But the general did not begin. The general did not speak to Gottling at all. He said: "All right, Chatterji, have you got the orders?"

"Yes, General. Certainly! Here you are. I knew you'd be wanting them, so —" The general moved slightly and Chatterji was still. Fleemer took a sheet of teletype communication paper from the major's hand and passed it to Ryeland without comment. Ryeland glanced puzzledly at it.

Then he felt a sudden quick burning sensation, as though a knife had reached him unsuspected. The message said:

> Information. Ryeland, Steven, Risk, change of status approved. Action. Subject will therefore be transported to stockpile HJK without delay.

"Stockpile HJK?" Ryeland repeated aloud. He shook his head, dazed. "But — there's got to be some mistake here, because, look, stockpile HJK is Heaven. I mean—"

"You mean the Body Bank, as it is otherwise known." General Fleemer nodded wisely. "That's correct,

and that is where you're going. You were perfectly right about Gottling sabotaging the Project, you see. Your only mistake was in thinking that he was alone."

IX

Heaven was on the island of Cuba.

The subtrain took nearly an hour to get there. Ryeland hardly noticed. They rode in a gray steel ball, far less luxurious than the Planner's private car. When they stopped, Ryeland, still dazed, still shocked, got out and blinked at a massive concrete archway over a steel gate.

The letter in the concrete read:

Resurrection under the Plan

The station was gray concrete. Air ducts blew a clammy breath at them. A guard in white, a red heart stitched on the breast of his tunic, came forward to take charge.

The major who had convoyed Ryeland's detail, twenty-two new cadavers for the Body Bank, turned them over gratefully and went back into the subtrain without a look. He didn't like this escort detail. No one did. It was a reminder of mortality; even a machine major could be made to realize that one bad blunder, or one bad break, could put him in Heaven too. "Come on!" bawled the guard, and apathetically the twenty-two walking collections of spare parts followed him through the gate.

A narrow corridor. A long rectangular room, with wooden benches. Ryeland sat and waited and, one by one, they were admitted to a smaller room. When it was his turn Ryeland walked through the door and a girl grasped his arm, thrusting it under the black-light. Her hair was red, the same bright red as the heart that was stitched on her uniform. Under the light his tattoo glowed faintly. She read off his name and number in a rapid drone. "Steven Ryeland," she said in the same continuous drone, "when you entered this gate you leave life behind as an individual you have failed to justify your place in the Plan the tissues of —"

She yawned sharply. She shook her head and grinned. "Excuse me. Where was I? The tissues of your body however may still serve the Plan before you enter have you anything to say?"

Ryeland thought. What was there to say? He shook his head.

"Go ahead, then. Through that door," said the girl.

Behind Ryeland the door clanged with a steel finality.

First there were tests.

Ryeland was stripped, scrubbed weighed, measured, X-rayed, blood-tested, tissue-tested, ascaulted, palped and all but sniffed and tasted. A bit of his flesh was snipped and whisked to a complex bench where a team of girls put it through a process of staining and microscopy. From their studies a genetic map was made of his chromosomes, every allele and allomorph in place, and coded into binary symbols which were stamped on his collar.

It was interesting. Transplants of body organs did not survive, not even with suppressants, if the donor and subject were too different in their genetic makeup. Antibodies formed. The new tissue was attacked by the environment it found itself in. It died. So, usually, did the patient. The more delicate the tissue involved, the closer the genetic resemblance had to be. It was an old story. Any cornea can be imbedded in any other eye; the tissues are crude and simple, mostly water. Millions of humans can transfer blood from one to another — blood is a tissue little more complex than the cornea.

But the more highly specialized members are transferable, without suppressants, only between identical twins. Suppressants — something like the allergy-controlling pharmaceuticals which once helped hold down hay fever — can make the range of tolerance broader; but, even so, genetic patterns must be matched as closely as possible. It was good that it was interesting. Ryeland was able to keep his mind on it. He did not find himself dwelling on the fact that he was now in the position of the spaceling under Gottling. He did not have to contemplate the prospect of what was essentially (however gentle, however carefully anesthetized for him) the Death of a Thousand Cuts.

And then they turned him loose, without warning.

He had expected a cell. He was given a millionaire's playground. He tripped over a tuft of grass and, blinking in warm Caribbean afternoon sun, found himself in a broad park, with trees and comfortable-looking cabins. He started forward, then happened to think of something and returned to the guard. "What do I do now? Who do I report to?"

"Nobody," said the guard, gently closing the door. "Nobody at all, any more."

Ryeland walked down a broad green lane toward the glint of water, it was as good a direction to go as any. He had never in all his life before had the experience of being without orders. It was almost more disturbing than the sure prospect of dismemberment that lay before him. He was so absorbed in the feeling that he hardly heard someone calling to him until the man raised his voice. "You! Hey, you new fellow! Come back here!"

Ryeland turned.

The man who was calling him was about fifty years old — the prime of life. He should have been a husky, bronzed creature with all his hair. Statistically he should hardly have needed even glasses. Forty good years should still be ahead of him at least.

But the man who limp-stumped up to Ryeland had none of these things. He was totally bald. (In a moment, as the sunlight caught it, Ryeland saw that what had seemed to be the man's scalp was a plastic covering.) He walked with a shoulder-cane — almost a crutch. And what he walked on were not flesh-and-blood feet but prosthetic appliances. One eye was only a patch; the other was drawn into a squint

by another area of pink plastic that covered the place where once he had had an ear.

"You! Did you just come in?" he cried. His voice was deep and vibrant; that, at least, he had kept.

Ryeland said, keeping his expression polite with some difficulty, "Yes, that's right. My name is Steve Ryeland."

"Never mind *that*. Do you play bridge?"

The difficult expression collapsed for a second, but Ryeland got it back. "I'm afraid not."

"Damn." When the man scowled it pointed up another peculiarity of his face. He had no eyebrows. "How about chess?"

"Yes, a little."

"Speak up!" the man barked, turning his good ear irritably to Ryeland.

"I said yes!"

"Well, that's worth something," the man said, grudging the words. "Um. Maybe you could learn bridge, hey? We're a good house. No rough stuff, no stealing. And no basket cases." He said proudly: "I'm the senior inmate in the house. Take a look at me. See? I've got plenty left."

Ryeland said slowly, "You mean I can pick out the house I live in? I don't know the rules here yet."

"There aren't any rules. Oh," the man shrugged, "no fights resulting in bodily injury, no hazardous sports — they salvage you *total* for that sort of thing. You know. What you've got, it doesn't belong to you any more. It's the Plan's and you're supposed to take care of it." He hitched himself forward on his shoulder-cane. "Well, what about it? You look all right to me. Take my advice and come in with us. Never mind what the other houses say — those Jupiters will be talking about their pingpong table, and what good is that when tomorrow morning you maybe won't have what to play pingpong with!" He grinned confidentially, revealing a set of casually placed artificial teeth.

Ryeland went with the one-eyed man, whose name turned out to be Whitehurst. The man was a good salesman, but he had not exaggerated the value of choosing the right hut. Ryeland could see that for himself; some cottages had a rundown, disreputable air, the inmates lounging around, surly and bored. Whitehurst's house was busy if nothing else.

It was amazing, but Ryeland found Heaven rather pleasant. There was food — *good* food, Whitehurst told him proudly, no synthetics or retreads! (The tissues had to be kept up.) There was plenty of leisure. (The patient had to be always in shape for major surgery.) There was ... well ... freedom, said Whitehurst, almost embarrassed as he said it and unwilling to explain. But Ryeland found out that it was so. If Heaven was a jail, at least the walls were out of sight. There was no fear of making a mistake and falling to ruin; there was no farther to fall.

The physical plant was ideal. Small cottages dotted a green landscape. Palms stood on green hills. There was a grove of oaks and

cedars by a lake, and the lake contained actual fish. The tropic sky was a permanent milky blue, with high-piled cumulus to give it life.

Whitehurst's cottage called themselves the Dixie Presidents. No one remembered what doomed antiquarian, generations before, had selected the name, but it was the custom to name each house and succeeded inmates kept the names; it was a tradition. The Dixie Presidents were an all-male cottage, by choice. It was up to the inmates. Not all the houses were so monastic. There were as many women as men in Heaven, and the co-ed cottages were given to wild sounds late at night. But that was up to the inmates too.

Listening to the evening conversation of his fellow inmates, Ryeland found a few things which struck him as odd. The cottage across the way was occupied by a family group. Strange! Their name was Minton — Mr. Minton, Mrs. Minton and their five grown children. What mass crime had the Minton family committed to be scrapped en masse? It was queer.

The principle that lay behind the Body Bank he knew well. It had been explained to him in detail on his travel orders, even if he had been the one man alive under the Plan who didn't know all about it from infancy. Each human under the Plan of Man was required to make a contribution toward the good of all. If inefficiency, malevolence or carelessness kept him from doing what he was asked, he would then be permitted to contribute in another way. He would be scrapped. His limbs and organs would be put to the use of more valuable citizens, replacing parts damaged through accident or disease.

It was a project more attractive to the recipient than to the donor, of course. Yet it did have a sort of rough justice, and Ryeland thought he could bring himself to tolerate whatever might happen — the world's good was more important than his own!

And yet...

One thing *did* bother him. In his life he had known or heard of a fair number of persons who had been scrapped for the salvage of their parts in the Body Bank.

And yet he could not remember ever, not even once, having encountered a man who had benefited from these organs...

Now at last, when it was too late to matter, Ryeland had time to return to the riddle of his three missing days. He was tormented with the possibility that he had once known a precious secret which could somehow transform the Plan of Man — if he could just recall it.

That night after he had watched the bridge game for a few minutes he lay trying to remember. Had there been a knocking twice on his door, on Friday and again on Monday? If Horrock had really come to him, what message could he have brought? Even if a jetless drive could be invented, how could it threaten the Plan? Who besides Donderevo was free from the Machine?

He found no answers. The fog was thicker in his memory. Even

the fat, apologetic face of Dr. Thrale was growing dim. He no longer flinched when he remembered the cold electrodes clamped on his body. He fell asleep and dreamed that he had discovered a jetless drive.

It was a broomstick. He rode it through a jungle of five-pointed tinsel stars, with General Fleemer astride a spaceling close behind him. Fleemer was goading and spurring the spaceling, and it was screaming horribly.

"Reveille! Reveille! Everybody up!"

Ryeland woke up with a start; he had been dreaming that he was in the Body Bank, in an unusually soft bed, and woke to found it true. He sat blinking at the bunk across from him. It looked more like a surgical supply house than a human being's bed. The cords of a bone-conduction hearing aid dangled from the stainless-steel shafts of a prosthetic arm. A self-powered wheelchair bore ten pounds of assorted steel, copper, rubber and plastic. As in the ancient joke about the wedding night, there was more of Ryeland's roommate on the bureau than in the bed.

The roommate was a plump man of rosy complexion, what there was left of it, and ill temper. His name was Alden. "Come on, Ryeland," he screeched faintly in the high-pitched whisper of the newly deaf. "You know the rules of the house. Give me a hand."

"All right." There was plenty of time before morning shape-up and breakfast, so Ryeland had been told; there had to be, for the senior members of the community needed plenty of time to get their miscellaneous artificial parts in place. As a newcomer, still complete in his organs, Ryeland had obligations. The juniors took care of the seniors. Seniority ruled — not age, but length of time in Heaven. It was a fair system, it was explained to Ryeland, and it was enlightened self-interest besides. "You'll find out," Whitehurst had said grimly. "Wait till you're missing a few little chunks."

In the morning the conversation was less placid, less polite than at night. It was odd too, thought Ryeland, listening carefully. In the morning the one universal topic was Escape. Perhaps it was only the wake-up irritability of the normal human, but even the advanced basket cases from the huts next door laid their plans and carefully measured the daily patrol of the guard helicopters. Alden muttered for twenty minutes about the chance of swimming to a miraculously borrowed fishing submarine that some incredibly loyal friend from Life might arrange to have out beyond the breakers. It was foolish, it was pathetic. There was hardly enough left of him to bother escaping with. And his tone the night before had been bland resignation: "You'll learn, my boy," he told Ryeland, "we're here for a *reason*. It's *right*." It was puzzling.

In the night Ryeland had been bothered by something sticking him in the ribs.

Once Alden was wheeled away he searched, and there, thrust under the seams of the mattress, was a flat aluminum case. He opened and spilled out lump sugar, maps, terribly amateurish faked travel orders from the Machine. And a journal.

The journal was the work of some previous occupant who signed himself only by initials — D.W.H. — and it covered a period of almost three years. The first entry was sober self-appraisal:

> June 16. I arrived in Heaven this morning. I can't get out. If I did get out, there would be no place to go. But if I let myself give up the hope of *somehow* getting out I might as well be dead. Therefore I will try to escape. And I will not brood.

The last entry, in a palsied hand, was less sober, less analytic:

> May the—what? 9th, maybe. Just a min. bfr shape-up. I think I've got it! Nbdy ever looks at the scrap-heap carcasses! I've seen some that look better than I do now and, whoosh, they're down the chute & out on the barge when they clean up. So tonight's the night. All I have to dc is pass one more shape-up. I've plenty left. Aprnces don't matter. If I can just—There's the bell. More 1tr.

The remaining pages were blank.

Breakfast came before the morning shape-up and Ryeland, stuffing the journal back in the mattress, went thoughtfully out to eat.

The food was all Whitehurst had promised! There was no rationing here, none at all. Sugar. Coffee. Real, thick cream. Ham with red gravy; cereal with more of the thick cream; fruits and hot biscuits.

Ryeland ate until his stomach bulged. He began to feel better. The world seemed calmer, brighter; his housemates left off grumbling and plotting and began to laugh and shout along the long tables.

Ryeland sat next to Whitehurst and brought up the subject of the previous occupant of his bunk.

"Oh, him," said the one-eyed man "Old Danny. He was here for *ever*, considering. I mean, he must have been a very popular type, they took so much of him. I thought they'd never salvage him total, though all he had keeping him going at the end was a whirl-pump heart and twice a day filtrations on the kidney machine. Funny thing about Danny, his bidding was good enough but when he played a hand —"

"What happened to him?"

Whitehurst scowled. "Took both lungs at one time. Pity, too. He still had two arms, clear down to the fingers."

The bell summoned them out to the morning shape-up.

There were three of them a day, Whitehurst whispered, and you *had* to be present. Otherwise total salvage, right away. The white guards with red hearts appliqued on their tunics moved up and down the ragged lines, checking the tattooed identification against lists. "Gutnick, Fairweather, Breen, Morchant," the one at the house of the Dixie Presi-

dents chanted. "Nothing for you boys. You can fall out. Alden, Hensley — Hensley? Say, how did that name get on the list? Wasn't he scrapped last week?" Half a dozen voices agreed he had been; the guard scratched the name off his list. "Lousy administrative work. Say. Who are you?" He took Ryeland's arm. "Oh, Steve Ryeland. Welcome to our little community. Nothing for you today, though. Whitehurst. Oh, yes. Come on, Whitehurst, you're in business."

Ryeland got away as soon as he could. The others were laughing and relaxed, but seeing Whitehurst led away had chilled the soft warmth that had spread over Ryeland at breakfast. At any moment it might be his name that was on the list; if there was anything at all he could do about it, the time to do it was now.

He retrieved the journal from his bed, escaped the back way and found a sunny spot on a hill. He sat down against a stone retaining wall and studied the diary of the late D.W.H.

There was nothing about the man's life-in-Life in his journal. But whatever he had been he was a man of method and intelligence. He had begun by systematically investigating his surroundings. From the first month's entries Ryeland learned a number of possibly useful statistics. There had then been 327 inmates in Heaven, counting twelve children under the age of eighteen (and what had *they* done to be here?) This was not the only Heaven; there probably were a number of others; twice shipments of inmates had gone out through the gate, to replenish another Heaven temporarily low in stock. There were never any guards inside the walls except at the shape-ups. Usually about a dozen came in then, and D.W.H. had once been able to count the outside guards at fifteen more. Heaven roamed over nearly a hundred acres, and there was a map, heavily erased and redrawn, tucked into the journal. A note on the map told Ryeland that the walls were electrified and impenetrable, even down to a depth of fifty yards under the surface. Apparently someone had actually dug that far!

The beach was not fenced, but there was a heavy steel net and, beyond that, a persuasive tradition of sharks. The only other break in the wall was the building through which he had entered, and its satellite structures — the clinic, the administration building, the powerhouse. And the sanitation building. It was there that the "scrap-heap" had attracted D.W.H.'s attention. It was near the beach, and a chute led to a barge which, towed to sea, disposed of the left-over parts of the inmates as well as the more ordinary wastes of a community of several hundred.

Ryeland mused thoughtfully over the map. Only the scrap disposal chute looked promising. Yet the writer had not thought of it until after some months and, judging by the increasingly panicked and incoherent quality of his notes, his judgment must by then have begun to deteriorate. Still, it was worth a thought. He said a man could es-

cape that way. Perhaps a man could...

If he had a place to escape to.

Ryeland put that thought out of his mind and read industriously in the journal until movements outside the cottages revealed that it was time for the mid-day shape-up.

X

No Dixie President was called at noon. Only when they were dismissed did Ryeland realize he had been holding his breath almost continuously. Gutnick, the man next to him in line, winked and said: "It gets you that way at first. It keeps on getting you that way too."

Ryeland said only: "What's that?"

Gutnick turned and looked. Down the gravel path two guards were solemnly pushing a wheelchair and a handtruck of appliances. All were connected to the occupant of the wheelchair. There was little left of the man, if it was a man. All of his head was swathed in bandages — if that was his head. Only a little gap showed where the mouth was. The auxiliary handtruck carried a considerable array of pumps and tubing, stainless-steel cylinders and electric equipment.

Gutnick said, "Oh, him." Gutnick could not wave, as both his arms had been needed elsewhere, but he inclined his torso and called: "Hi, Alec. What did you lose this time?"

The bandaged head moved faintly. Nothing else moved on the man. The nearly invisible lips parted to gasp, in words like puffs of smoke. "That you, Gutnick? Just the other kidney, I think."

"You've got plenty left," lied Gutnick cheerfully, and they went in to lunch. Ryeland could not get the basket case out of his mind.

"I didn't think they bothered to keep us alive, with that much gone."

"I guess Steve's something special. He's senior in all Heaven. He's been here —" Gutnick's voice was respectful — "almost six years."

Ryeland didn't have much appetite; but after he'd taken a few bites he had to stop in order to feed Gutnick anyway; and then he himself began to perk up. It was astonishing, he marveled after lunch, trudging aimlessly around the walks of Heaven, how the food here made life so bearable. It showed that a good diet made a happy man. It showed — why, he thought with a sudden miserable flash of insight, it showed nothing at all except that even a doomed creature like himself could submerge the forebrain in a wallow of physical pleasures. He determined to go right back to the house and get the diary, study it, plan —

Someone was calling his name.

He turned, and Oddball Oporto was rushing toward him. "Gee! Ryeland! It's you!"

Oporto stopped. So did Ryeland; and then he realized that what they were doing was appraising each other, looking for missing parts. So soon it had become a habit in this place.

"You don't seem to be missing anything," said Ryeland.

"I've only been here two days. Got here right ahead of you — I

saw you come in. I guess you stopped to turn in your gear? They didn't bother with that, with me... I should've stayed in Iceland, hey? Not that I hold it against *you,*" he finished glumly.

"Sorry."

"Yeah. Well, where you living?" Ryeland told him about the Dixie Presidents, and Oporto was incredulous. "Gee! Those moldy old creeps? Say, why not come over to our place? There's two vacancies right now, and some of the boys are real sharp. You know, you lose a few parts and there isn't much left but the brain; so what you want is a few little problems to work on. Well, fellow next to me, he has a whole bunch of stuff from the *Lilavata* — old Hindu math problems, mostly diophantine equations when you come down to it, but —"

Ryeland said gently: "I'm working on a different problem right now."

Oporto waited.

"I want to get out of here."

"Oh, no. Wait a minute! Steve, don't be crazy. A fellow like you, you've got *years* here. Plenty to look forward to. You don't want to —"

"But I do want to," said Ryeland, "I want to get away. It isn't just my life, though I admit that's got a lot to do with it."

"What else? Oh. You don't have to tell me. That girl."

"Not the girl. Or not exactly. But she's part of it. Something bad's happening with the spaceling and Colonel Gottling. It ought to be stopped."

Oporto said dismally, "Gee, Steve. You don't want to talk like that. Anyway —" He stopped.

Ryeland knew Oporto well enough to wait him out. He prompted: "Anyway what?"

"Anyway," said Oporto with some hesitation, "I don't know why you want to bother with *her.* I thought that other girl was more important to you. You know, 837552—I forget her name."

Ryeland took it like a blow between the eyes. That number — he didn't have Oporto's queer memory for any arithmetical function, but surely it was the number of...

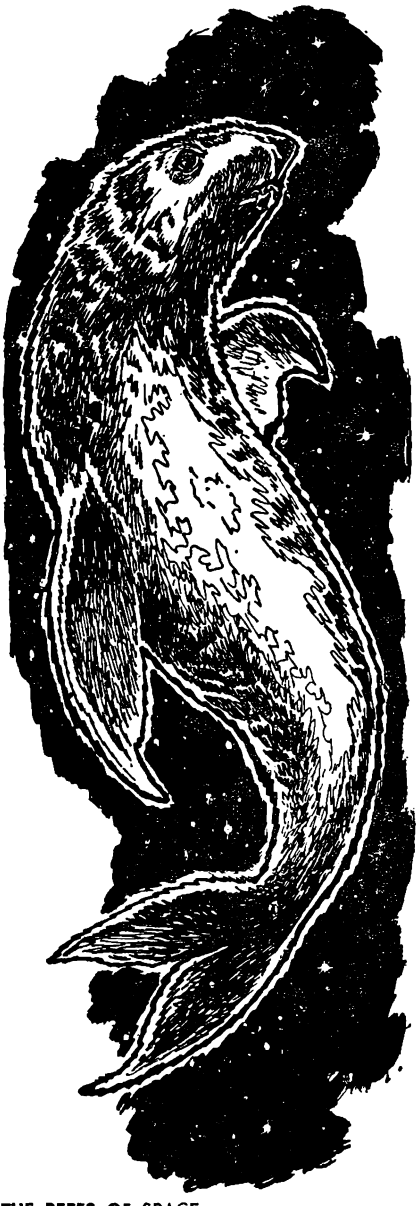
"Angela Zwick," he whispered, remembering blonde hair, blue eyes and a mouth that testified against him at his hearing.

"That's the one. Well, now! So you didn't forget her?" Oporto was enjoying his bombshell. "Why not go see her? She's been here quite a while — over in a cottage by the lake."

"She's really *here?* But she was with the Plan Police." Ryeland was dazed. Had the Plan come to this, that it scrapped its own undercover agents?

"Well," said Oporto judiciously, "I guess you'd say she's here. Anyway, there's a quorum present. Why not go see for yourself?"

The first sensation was shock, and a terrible embarrassment. Ryeland scraped one foot against another, staring at the girl in the wheelchair. He said her name gruffly, and then he met her eyes and could say nothing else. Angela? This thing in the chair, was it the girl he



had known? She had no arms and, from the flatness of the lap robe that draped her, no legs either. But her face was intact, blue-green eyes, golden hair; her husky, warm voice was the voice he had known.

"Steve! It's *good* to see you!" She was not embarrassed at all, only amused. She laughed. "Don't gawk. But I know how you feel. You've only just arrived, and I've been here twenty-one months."

Ryeland sat awkwardly on the grass before her. Her cottage lay in a little clump of woods, and there were neatly tended beds of flowers around it. Flowers! Ryeland could not remember ever having seen flowers around a dwelling before, only in parks. Though this was a kind of a park, at that.

Angela said softly: "I wondered if I would ever see you again, after what happened." She cocked her chin, and a tiny motor droned; the velvet-covered chin rest that supported her head seemed to have switches in it, so that she could move the wheels of her chair. Facing him, she said seriously: "You don't blame me, do you?"

Ryeland muttered: "You did your job under the Plan."

"So *wise* of you to say that, Steve. Ah, Steve! I'm glad to see you again." She lifted her lovely chin. "We've got so much to talk about. Take me down by the lake," she commanded...

For nearly three years Ryeland had rehearsed the speeches he would make to Angela Zwick if ever they chanced to come together, but in this place they were all wrong, he

forgot the words. He had raged silently in his bed, he had pleaded with the stony fields of the isolation camp; now, facing the girl, he found himself engaged in a little conversation. They chatted. They laughed. It was pleasant. *Pleasant!* And she had put the collar around his neck.

"There is always peace in serving the Plan," she told him wisely, reading his mind.

They stopped by the lake and he sat down. "I don't even mind the collar any more," he murmured, suppressing a yawn.

"Of course not, Steve."

He scratched his shoulderblades against the bole of a palm. "I never thought I'd stop minding that. Why, I remember talking to a fellow about it in the isolation camp. He said I'd get over it. I said —"

He stopped, and frowned faintly.

"What did you say to him, Steve?"

"Why," he said slowly, "I told him that I'd never stop hating the collar unless I was dead, or drugged."

She smiled at him with mandarin calm.

Back at the cottage of the Dixie Presidents, Ryeland thumbed through the journal that had once belonged to his predecessor in the bunk. There was an entry that he wanted to read again.

He found it:

> This place is insidious. The atmosphere is so tranquil—God knows how!—that it is very tempting to relax and let what happens happen. Today Cullen came back from the clinic giggling because a nurse had told him a joke. He had lost both eyes!

And two days later:

> Yesterday I lost my other leg. It is painful, but they gave me shots for that. I wonder why it doesn't bother me. I keep thinking of Cullen.

Frowning, Ryeland closed the book and went out to stand in the afternoon shade. The other Dixie Presidents were already there, and their greetings were chill. Ryeland paid very little attention, although he knew they were annoyed because he had spent so little time conforming with the customs of the cottage. He hardly even noticed the guards, with their scarlet hearts blazoned on their white tunics, as they came droning down the line with their rolls.

There was something more important on his mind.

Ryeland was reasonably sure that his mind was functioning as well as it ever had. But he was finding it hard to think this matter through. *He didn't mind the collar.* That was the first term in the syllogism. Something in the diary supplied the second term. What was the conclusion?

"Come on, I said!" said a guard's voice, annoyed, and Ryeland woke up to the fact that his name had been called.

He gawked. "Me? Are you calling me?"

"You. That's what I said, man! You're on orders today. Come on to the tissue bank!"

XI

The group of scrapped men waited for the elevator.

The man next to Ryeland was whispering feverishly under his breath, his eyes fixed on the elevator door as though it were the gate to hell. He caught Ryeland looking at him and threw him a wild smile. "First time for you? Me, too. But I figure it won't be much, you know."

"All right, all right." The guards began to herd them into the opening elevator door. "Move along, now!"

The elevator dropped swiftly and let them out in an underground hall. Blue asepsis lamps winked on the walls, a hum from the air ducts told of purifiers at work. The guards ordered them to sit down. There were a dozen long, wooden benches. The waiting room was not at all crowded, though there were twenty or more walking cadavers in it. Ryeland looked around at them. Some seemed to have all their faculties and parts; if there was anything missing, it was not such as would appear on the surface. Many showed signs of being nibbled away — a leg missing, an ear, a finger or two. And some were so much prosthesis, so little flesh and blood, that it was a wonder that the surgeons could find anything left to take from them.

The nervous man switched seats to join Ryeland and hissed in his ear: "See, the way I see it, they're not going to take much the first time. Why should they? For instance, your body might not transplant right. They can't tell. They'll have to do a couple little jobs first and see how they take, before they try anything big. I'm *positive* of that, friend. . ." He stopped as the door opened, his eyes like a tortured kitten's. But it was only a nurse walking through, and she paid no attention to them.

Ryeland took time from his own worries to comfort the man. "That's right," he said. "That figures." It didn't, of course; the Plan knew all it had to know about them already. But the nervous man seized at the reassurance.

He babbled: "Now, all we have to worry about is something *little*. Maybe some clumsy oaf lost a couple of fingers somewhere. Well, they'll take a finger. Or a couple of fingers. . ." He glanced wonderingly at his hand. "A couple of fingers. They'll take — But what's that? You can spare them. Or a foot, maybe. But they aren't going to take anything big the first time, because —"

The door opened.

A young, slim guard walked in. He was bored, and the look he gave the waiting cadavers was not intended for anything human. "Eckroth?" he called, reading from a list. The man next to Ryeland jumped. "Come on!"

The nervous man stared frantically at Ryeland, swallowed, stood up and left, into a door that closed, silent and final, behind him.

Ryeland sat and waited.

One by one the cadavers were summoned to their operating rooms to give to the Plan what the Plan

demanded of them. Ryeland watched them, because it was better to think of them than to think about himself: the oldster with the fire-blue eyes, weeping into the maze of tubes that had replaced his breathing apparatus; the young girl with the curiously flat dressings along one side of her body; the men and women of all sizes and descriptions. Ryeland was almost the last of them all to be called.

But at last it was his turn. A nurse beckoned to him. He stood up, feeling strangely empty. A queer premonitory tingling raced all over his peripheral nervous system, like a pain looking for its proper place to settle down and begin aching.

What would it be? A foot, an arm, a set of teeth, some internal organs?

"Oh, come *on,*" said the nurse, looking ruffled. She was a pretty girl with red hair. She even wore a ring on her finger. Ryeland marveled. This girl was engaged! Somewhere there was a Plan-fearing man who looked at her with affection and warmth. And, here, she was the embodiment of something that was going to deprive Steve Ryeland of a part of his body.

He walked stiffly after her. There was a roar in his ears: the drumming of his blood. It was very loud; he felt his heart thumping, very strong. Colors were bright, an antiseptic odor in the room was very sharp. His senses missed nothing. He felt the stiffness of his worn red uniform. The blue glare of the sterilamps was painfully bright.

He was in a small room, dominated by a neat, high operating table, stainlessly white.

Ryeland looked at the table and licked his lips.

Unexpectedly the nurse giggled. "Oh, I swear. You cadavers take everything so hard. Don't you know why you're here?"

Ryeland nodded stiffly. He knew very well. Still, it was odd that he didn't see the bright metal gleam of instruments.

She said, humorously exasperated: "I don't think you do. Your blood, friend. That's all I'm going to take from you today. Maybe next time it will be different, of course. But right now we only need half a liter of your good red blood."

Flat on his back, with his arm strapped to the table and a crisp, cool sheet covering his legs, Ryeland lay. He was watching his blood slowly fill a liter beaker up to a measured mark. His blood was wine-purple colored, and it seemed to flow very slowly.

There was nothing at all painful about the process. Of course, it wasn't exactly pure pleasure. There was a queer jumpy sensation in his skin, a sort of warning of something that *might* hurt — as though the nerve-ends, evolved to cope with grosser wounds and warn of instanter dangers, did not know quite what to tell the brain, and could only express a sort of worry. The tube made a faint vulgar sound from time to time, like a siphon sucking air, but there was no other noise. The nurse had left him. It was amazing how still the world was...

And it was amazing how clearly Ryeland could think.

He was tranquil.

More than that, he *knew* he was tranquil.

More still, he was beginning to realize that he had been tranquil — stupidly, crazily tranquil — ever since he had arrived in the Body Bank! And so was everyone else! It accounted for the cheerful amputees and his heedless roommates at the Dixie Presidents. Tranquil! But it was not natural, and so it was due to drugs.

Ryeland lay lazily watching the thick froth at the top of the beaker of his blood and marveled that he had not seen it before. Even the man who wrote the diary had never seen it, though he had come so close. Drugs!

The Plan of Man understood that there were circuits in the human brain not subject to reason. Self-preservation was one of them. The Machine would not risk a sudden flare-up of that instinct. The Machine must have known that, whatever the mood of the Body Bank's raw materials as they went in, however carefully conditioned to their duties under the Plan of Man, the threat of dismemberment and death could upset all conditioning.

Therefore the Machine had taken steps. The obvious step — how was it that no one had seen it? — was to flood the cadavers with tranquilizing drugs.

The nurse came in. She tapped the beaker lightly with a finger, fussed with the tubes, and in a moment deftly removed the needle from Ryeland's arm. She was humming to herself. She pressed an alcohol pad over the little puncture in his arm and ordered: "Hold it that way to keep the pad in place."

Ryeland was hardly listening. Tranquilizing drugs, he thought, like an echo; it explained everything. It explained why D.W.H.'s careful plans had come to nothing; before they could mature, the drive that would make them reality had been sapped. It explained why Ryeland himself had loafed for irretrievable days. The only astonishing thing was that he had found out.

The nurse straightened his arm, plucked off the pad and pointed. "Out that way."

Ryeland started obediently out the door, then stopped, shocked to alertness at last.

An orderly was guiding an electric stretcher down the hall. On it, his eyes closed, lay the nervous man from Ryeland's group of donors. He looked to be asleep. Surely he had lost something — but what? Arms were there, legs showed under the sheet, there was no mark on the motionless face.

Ryeland said to the nurse: "Excuse me. That fellow. What happened with him?"

The nurse peered past him. "Oh, that one." A shade came down over her eyes. "That was a big one. Did you know him?"

"Yes."

"I see." After a second she said briskly: "We needed a whole spine. There wasn't much point in trying to salvage any of the rest of him."

Ryeland stumbled out into the

corridor, following the corpse of the nervous man, who never again would have to be nervous. He glanced over his shoulder at the nurse and said: "Good-by."

She said: "I'll be seeing you."

Outside Heaven, thirteen billion human beings worked, studied, loved, quarreled and in general fulfilled their tiny assigned missions under the Plan of Man. In Saskatchewan an engineer turned a switch and the side of a mountain lifted itself, grumbled and slid into a lake, revealing an open vein of low-grade uranium ore, one of the last deposits left to tap. In the hillside town of Fiesole, in Italy, a Technicorps colonel made a field inspection of the new reservoir. The water level had risen a gratifying nineteen inches since his last report. He observed, from his flat-bottomed boat, how a certain jumbled pile of masonry he remembered seeing was now almost entirely submerged; it was the Pitti Palace, but he had never heard the name. (The Ponte Vecchio was already twenty feet under the bottom of his boat.) Under Honduras, a subtrain shaft collapsed and eighteen hundred migratory agricultural workers were simultaneously cremated and dissolved in molten rock. The Planner, returned from the Moon, signed an order which would ultimately lower the level of the Mediterranean sea ninety feet, creating thousands of miles of new land around its dwindled shores and providing an enormous hydroelectric station at the Straits of Gibraltar...

But on the isle of Cuba, no echo of these rumblings penetrated. Everything was calm. Everything was pleasant. And Steve Ryeland fought against it as hard as he could. He quarreled vigorously with his Dixie Presidents. The senior cadaver was hurt, shocked and mortified; as a consequence, half an hour later he lost count of trumps and suffered an eight-hundred point penalty in the afternoon's bridge game. Ryeland was well pleased. Quarreling stimulated his adrenals. He went out to find someone else to quarrel with.

His logical candidate was Angela, and he found her where he had left her, sunning herself in front of her cottage. "Steve, dear," she whispered, but he did not want to be charmed.

He said brutally: "I just made my first donation. Guess what it was?" He gave her a chance to scan him and look perturbed, then said: "Nothing much, only blood. Lucky, eh?"

It was terribly bad manners. She said, "Yes, Steve, that's lucky. Must we talk about it? Oh, I know! Let's go down to the lake again. It's warm today, and there's bound to be a breeze at the fountains —"

"That's all you care about, isn't it?"

"Steve!"

"Food and comfort. Are those the only things that matter to you?"

Angela said petulantly, "Steve, you're in an unpleasant mood this afternoon. If you don't want to come with me I'll go alone."

"Do you care?"

She opened her mouth, closed it, looked at him and shook her head. She was angry; but she was also untouched by it. As Ryeland was an irritation, she removed herself from it.

He stood there thoughtfully. Even after Angela had flounced away, as best a woman with neither arms nor legs can flounce, he stood there, thinking. Knowing that there were tranquilizers flooding his bloodstream was one thing, knowing what to do about it was something else. He could keep his adrenal glands combating the drug by quarreling, even by exercising, but it was wearing. It would be better to keep the drug from his system in the first place...

It was very simple.

It needed only one thing, Ryeland saw. He would merely have to stop eating and drinking entirely.

By lunchtime the next day he began to see the flaws in that scheme.

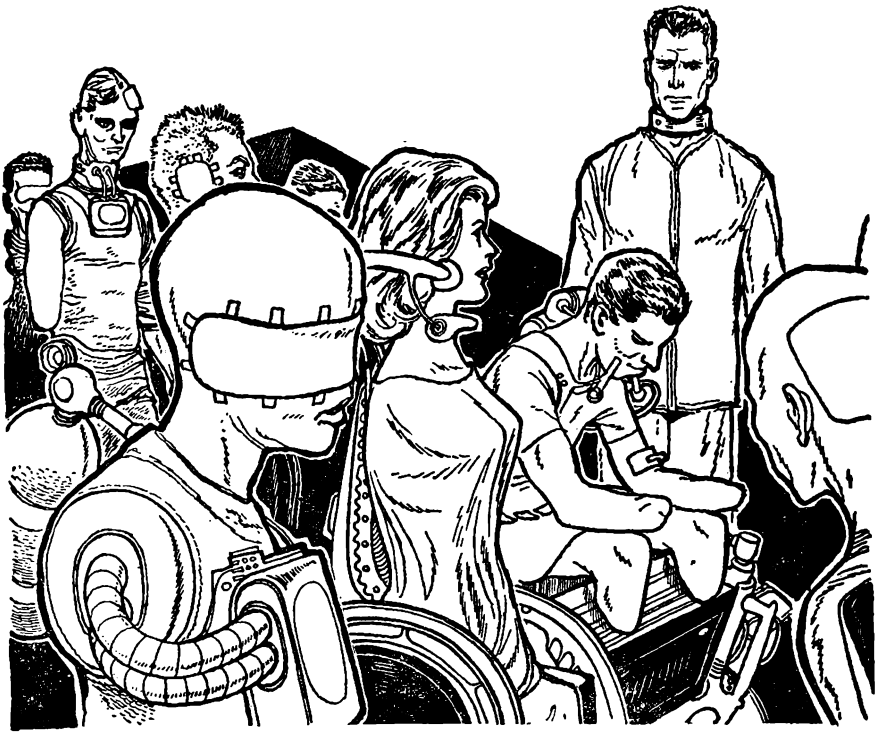
He had worked it out very carefully. He had to eat something, otherwise he would die, and that would be no improvement at all. He settled on eating sugar. That day after the noon formation he entered the messhall, carried his tray to a corner — and abandoned it there, untouched. He filled his pockets with sugar, as inconspicuously as he could. It was a calculated risk. All foods were suspect, sugar included. But even the thorough Machine would not be likely to bother with sugar.

Of course, water was out of the question. Already Ryeland was beginning to feel parched. He thought of making a still, somehow, and purifying the water from the lake. It would attract attention ... but he was getting very thirsty.

He went to see Angela and tried to take his mind off his thirst. They roamed about, the girl in her remarkably agile wheeled chair. She found him hard to endure that day. They sat by the lake and Steve Ryeland stared at it longingly. Water, lovely and clear. Beautiful water. Sweet water! But it was the source for all the drinking water in Heaven, and undoubtedly it was already treated. He talked about swimming and clinking ice in a glass and the spray from the prow of a boat until Angela, faintly exasperated, said: "Go swimming, then. No, don't worry about me." Gentle smile. "I'd rather not, for reasons which are apparent, but you go ahead. It's what you want, isn't it?"

And it was; but Ryeland refused vigorously until he thought of something and then went to get a pair of trunks. Why not go swimming? It was a trick torpedoed sailors had learned centuries before. If one merely lay in the water and relaxed, it would help control thirst. It wouldn't help much. But it would help a little — perhaps it would keep him alive until his brain was clear and he could think surely enough to find a way out. But, oh, that water was tempting!

He lay in the shallows and played a sort of game. It was for high stakes, his whole life riding on the turn of the wheel. He let the water come up to his chin. He let it touch



his lip. He even let a few drops of it into his mouth; then he filled his mouth and held the water there.

It would be so easy to swallow! So simple to ease his thirst! And surely, he said reasonably to himself, his eyes closed against the thirst, swishing the water back and forth with his cheeks and enjoying the sensation, surely *one* little drink would be of no real importance...

Sputtering and coughing, he floundered out of the lake.

That had been a close one. But he had learned something; the thirst was a counter-irritant; already he was fully aware of things that had been tempered and dull even an hour before. The puncture inside his elbow hurt. The nurse had been clumsy with the needle. The denims had chafed his thighs raw — a poor fit, miserably poor — and what a joy, he exulted, to be able to realize it.

Angela was looking at him suspiciously. "What's the matter with you?" she demanded.

"Nothing."

"You act — oh, I don't know. As if the Machine canceled your orders here. As though you were going to get rid of your collar."

And even that was not impossible,

thought Ryeland. If only he could hold out until somehow, some way there was a chance. He toweled himself dry and said, "Why not? Donderevo did it."

"Steve," she scolded, "that's unplanned thinking! I'm disappointed in you. Nobody else can escape the way Donderevo did, and even if you could, your duty to the Plan—"

"Wait a minute." He stopped toweling and turned to look at her. "What did you say? What do you know about Donderevo?"

"I know how he escaped. After all, this is where he escaped from."

Ryeland heard a ripping sound, and glanced down to see that his hands, without command from his brain, had clenched so tightly on the towel that it had parted. He dropped it to the ground and whispered: *"How?"*

Angela writhed carelessly, angling her head to start the motors that turned her chair away from the sun. She frowned thoughtfully, then said, "Well, I don't suppose it would do any harm. You can't possibly duplicate his escape. No one can."

"Angela! How did he do it?"

"Not by any method you can follow, Steve." Her smile teased him. "He found a group on the staff here who could be tempted into unplanned thinking — and he tempted them, with talk of space outside the Plan. He managed to corrupt them, with promises of freedom and wealth in the reefs of space. He bribed them to remove his collar — surgically."

"Huh?"

"The thing was expertly planned, she said. "The disloyal surgeons forged the requisitions, and issued false documents. Donderevo was called out of the lineup one morning, exactly in the ordinary way. In one operating theater, he was disassembled, down to the head and the spine. All the parts were rushed into the adjoining theater — and put back together, without the iron collar.

"But don't go getting any ideas," she warned him. "Because the plot was eventually discovered. The surgeons who had participated were

promptly junked. Unfortunately, by that time Donderevo had escaped."

"How did he get away?"

"That was the most important part," she said. "You see, the surgeons made a rather ingenious effort to cover their tracks. They used junk parts to assemble a complete patchwork man inside the collar. This junk man took Donderevo's place, until it was too late to trace him."

Ryeland shivered in the warm sunshine. That method of escape seemed gruesomely drastic, even if it had been open to him, which it was not.

"Let's do something more amusing," Angela urged him.

"There's one more thing I want to know." He looked at her, caught with an unpleasant fascination. "How did you happen to know all this?"

She stretched her torso lazily in the sunshine, with a slow, graceful, serpentine movement.

"I suppose I can tell *you*, Steve." She smiled at him confidentially. "After all, it's no secret between us that I once worked for the Plan Police. The fact is that I first came here on the Donderevo case. It was not broken until I had managed to persuade one of the guilty surgeons to use the same method to help me escape."

She yawned, smiling with a feline satisfaction.

"If you came here as a spy, why are you —"

He stopped, feeling a horrified embarrassment.

"Why am I still here? Don't be ashamed to ask that, Steve. I'm here because by the time I finished my task I was — well — as you see me. Naturally the Plan could not divert resources for my sake ... so ... I was declared surplus. Oh, I won't deny it disturbed me a little, at first. But I came to accept it. And you will too, Steve. You see, you have no other choice."

XII

Accept the fate he would not, though he was powerfully tempted. A rain shower in the middle of the night woke him and he ran out, careless that he woke his cabin mates and left them staring, to find a standpipe under the eaves and drink, drink, drink. It gave him the strength he needed. The next morning he could see a difference. He held out his hand before him and it shook. It shook! He was nervous.

He was also very hungry.

Water was not, for the moment, a problem. He had found a jug that would do and carefully filled it from the drain of a dozen roofs. It tasted of zinc and tar. But he was off the drug...

And hungry.

He did not dare to eat in the commissary.

Oporto came to see him at breakfast and that little dark face missed nothing. "Not hungry, Steve?"

Ryeland pushed aside his untouched plate — ham hash! lovely, irresistible coffee! — and said, "No. I'm not hungry." Later, in the hut of the Dixie Presidents, Oporto still tagging along, the little man pointed

at the jug of rain water. "What's that?"

"It's water. In case I get thirsty," said Ryeland, allowing himself a small drink.

Oporto's face remained thoughtful.

Ryeland found a sense of doom pressing in on him, a fear that dried his mouth and bothered his digestion — damaged already by the curious nature of the few substances he dared eat. He enjoyed it. He welcomed the flutterings of terror between his shoulderblades. He looked around him at the other cadavers of Heaven, and they were zombies, dead-alive, the victims of asphodel. They laughed and smiled and walked about (when they had what was needful to walk with), but they were dead men. Not Ryeland. He was alive, and in a panic. And very hungry.

He managed to shake Oporto just before the second shape-up, and seized time to study some of the entries in the journal:

> Oct. 16. The only examination given to the discarded parts in the trash pile is visual. They are under the observation of a guard stationed on the watch balcony of the North Clinic. Sometimes he isn't there, but I do not know why.
>
> Nov. 5. Today I was in the North Clinic on the fifth floor, where the guard is stationed. I found out why he is sometimes absent, I think. Twice he was called in to help move patients; apparently this is part of his job. Since I was strapped to the table with a spinal tap I couldn't watch closely, but it seems evident that each time he is called inside he will remain there for at least half a minute, and that the periods at which he is most likely to be called are those when the operation schedule is heavy. Probably the three hours or so following each shape-up would be the best time. The morning and lunch shape-ups are no good. First, I would not be able to conceal my absence for more than a couple of hours; second, they don't usually dump the scraps until night anyway. That leaves only the night. Unfortunately not much operating is done then . . . Today it was the left leg, including the femur.
>
> Dec. 3. Unusually heavy callouts at the shape-up this morning. The rumor is that there was a nuclear explosion in Baja California and a great many spare parts will be needed. I wonder. Tonight?

Ryeland turned the page, but he already knew what he would find.

The next entry was the last. It had been close for D.W.H., but not quite close enough.

Hunger was beginning to prey on him seriously. His system began to refuse the sugar.

Operto was openly suspicious now. He walked with Ryeland all over Heaven. Down by the palm-fringed lake he sat with his back against a boulder and watched Ryeland grimly hurling rocks at the hanging coconuts. Ryeland did not

succeed in knocking one down, but he did, after visiting a few clumps of palms, find one that had fallen. "I guess you like coconut milk a lot," Oporto said sulkily, seeing how greedily Ryeland hammered off the outer husk and bashed in the shell.

"I love it." Actually the nut was overripe, and the milk had a foul taste.

"Tastes good with garlic, huh?" Oporto was referring to some wild roots Ryeland had found, dark green spears thrusting out of the grass with a cluster of muddy little strong-favored knobs underground; Oporto had found him nibbling them experimentally.

Ryeland said: "Leave me alone, will you? I — ah — don't feel very well."

Oporto sighed. "I'm not surprised." But he wandered away after a while.

Ryeland dismissed him from his mind. He felt weak and starved. It was only psychological, he told himself; why, shipwrecked mariners had lasted for months and years on little more than what he had so easily come by!

But they had not, it was true, been subjected to the thrice-daily temptation of a loaded table from which they dared not eat.

And there was another consideration. He looked longingly at the little fish in the lake, for example. He could easily catch one. What was to stop him from broiling it over a fire?

But he had already attracted enough attention, he dared no more. Surely the guardians of Heaven would know what to do with a cadaver who had stumbled on the necessity of avoiding their drugs. Once they found one such it would be only a name on the shape-up list, a needle in the arm, and all the drug his system could absorb thrust into him at one moment. Will power would not help him then.

Yet he could not avoid suspicion entirely, not as long as he continued to reject the all but irresistable food of Heaven. Already he was concerned over his mates in the Dixie Presidents, not to mention Angela Zwick and, above all, Oporto, whose behavior was no longer suspicious but sure. There was no doubt; Oporto knew.

The next morning he got away from the others and scouted the periphery of Heaven. Reluctantly he decided that what everyone said was true; the fence was impassable. It would have to be the garbage heap.

The leftover bits from the cadavers in Heaven were deposited in a stainless steel sump next the North Clinic. The pit was empty at this hour; it had been sluiced clean, its tons of abandoned humanity chuted into a barge and towed away. The hot sun had baked it gleaming. It was surrounded by a wire fence, and that in turn screened by red-flowered bougainvillea bushes. Ryeland wondered if the fence were electrified. Probably not...

It would, he thought, be wise to make his bid for freedom soon. The quicker he tried, the more likely that he would retain all his parts. Even

now, he saw, there was some sort of activity going on; guards were on the roof of the North Clinic, working around what looked like searchlight projectors. Ryeland scowled. If they flooded the garbage heap with light, that would make things more difficult. Still, the projectors were peculiar; they had reflectors but no lenses, and they seemed to be rather small for the task involved. Ryeland crossed his fingers. Perhaps they would be for some other use entirely. He could only hope.

"Sdeve! Sdeve Ryeland!" a familiar voice called loudly. It was Oporto — shouting, waving, smiling.

Ryeland waited, suddenly wary. How had the little man known he would be here? And what was this sudden excitement in his manner? Oporto was sniffling, almost quivering. "Whad a mess, hey, Steve? You hear about id?"

"About what?"

"Another tube collabze! Eighdeen hundred people this time. You know whad I think? Sabodage. Thad's whad I think."

Ryeland shook his head. He was not feeling over-friendly to the little man; he was still wary. Still, there was the chance that Oporto knew something, even here, cut off from the world as they all were. "Sabotage by whom?"

"Anti-Plan elemends," Oporto explained cheerfully. "They've been happeding all over the world, you know. Thousands dead! Commudication wrecked!" He glanced over his shoulder, smiled, and said quite loudly: "Or don'd you think so, Steven Ryeland?"

Ryeland's nostrils flared; he smelled danger. He looked where Oporto had glanced, and saw what Oporto had seen. Three big men in the white uniforms, coming toward them with purpose. He understood why Oporto had spoken his name so loudly; and the little man nodded, quite unabashed. "Yes, Steve. Judas Isgariot, thad's my other name."

The guards looked as though they were spoiling for a touch of resistance from him. He didn't offer it. He let them take him to the clinic, and when the needle was presented to his arm he stared at it without emotion. The shot was painless enough, even though he knew what it was. It was asphodel again, but this time he was ready for it. "Don't give us any more trouble, Zero-Dome," growled the guard, and released him at the gate of the clinic.

Ryeland's body responded at once to the shot. He accepted it; it was warmly comforting; it would not matter now. He almost laughed out loud. He could not feel betrayed by Oporto, even; Oporto could no longer commit betrayal; he was no longer trusted. And meanwhile ... Ryeland could eat!

There was a guard brooding over the tables assigned to the Dixie Presidents at lunch. Ryeland conscientiously gorged himself on roast pork and sweet potatoes, with three cups of coffee. It tasted very good. Why not? It didn't matter any more. Meprobamate is not a narcotic; it doesn't keep you from thinking. It only eases jitters — that sovereign

incentive to action! — and for Ryeland the worrying fear had already served its purpose. He had his plan. He would carry it out that night, if he could; the next night certainly. He recognized quite calmly that, now that Oporto had told the guards he was avoiding food, he would no longer serve any purpose by not eating; they would pick him up and inject him. All right. It didn't matter, nothing mattered, he was on his way out.

He could hardly wait for sundown and escape.

It was time, too. There were heavy callouts that day. Ryeland's bunkmate had gone at breakfast and had not returned by lunch — wouldn't ever return, now, said the wise old heads; if you didn't come back by the next shape-up, you weren't coming back at all. Five names were called at noon. At dinner, seven more — why, thought Ryeland through his comfortable haze of meprobamate, that left only three in the entire cottage who had not been called for some donation that day, and Ryeland was one of them. Clearly he was pushing his luck.

After the evening shape-up he looked one last time around Heaven and strolled away. Just in time.

For as he was almost out of earshot in the gathering dark, a white-clad guard came down the shell path. Ryeland paused, listening. "Ryeland," the guard was saying, and something with the word "clinic."

Rumble-rumble; the bass voice of one of the few survivors of the Dixie Presidents, answering.

"Oh." The guard again, not very interested. "Well, when he turns up, tell him to report. She can wait."

Ryeland hid himself in the night. What they wanted with him he could not know; but he was very sure that his time was even shorter than he had thought. But who was the "she" who could wait? Angela?

He could hardly think so, but — well, why not go to see her? If it turned out to be Angela, who had somehow inveigled a guard into being messenger-boy for her, there was no reason he should not find out why. If it turned out not to be her ... he was surely all the better off for being as far as possible from the cabin of the Dixie Presidents.

It wasn't Angela. She was completely ignorant of why the guard had been looking for him, and completely disinterested.

Uneasily, keeping an alert eye open for any possible guard who might come their way, he sat down beside her in the warm tropical evening. More to see what she would say than to relieve his feelings, he told her about Oporto's reporting him to the guards and his consequent new dose of tranquilizer. "Very right of him, Steve. You shouldn't go against the Plan!"

He shook his head ruefully. "I can't understand you," he admitted. "To work for the Plan—yes. That's duty. But to betray a friend —" He stopped, and looked quickly at her, but she only laughed.

"I know, Steven. But you're wrong. Do you remember what I was doing when we first met?"

"Running a computer."

"That's right! And we would set up problems — oh, enormous problems. I loved that job, Steven! And the computer would solve them, one-two, click-click, ting-a-ling! It could do it without fail; well, it was part of the Plan, you see. Only one unit in the master Plan of Man that the Machine itself runs. Do you know why it was never wrong?"

"You tell me," he growled. She was so calm!

"Because we tested it!" she cried. "There was a special test-circuit switch. After a big problem we'd send a charge — oh, five times normal voltage! — through every last tube and transistor and relay. If anything was going to fail, it would fail then — and we'd know — and we could replace it. And ... well, Steven," she said, quite serious, "that's what I am, you see. I'm a test charge."

She leaned forward against the high restraining chair-arms that kept her limbless body from toppling. "You can't be allowed to fail the Plan!" she cried. "You must be found if you are weak . . . and replaced. Oporto and I, we have one purpose under the Plan of Man: to find and report the bad tubes. Did I trick you? I don't know; is the excess voltage flushing out a computer a 'trick?' You were a bad tube. Admit it, Steven; you could fail. You *did* fail! And the Machine is better without you!"

Ryeland paced about. The girl watched him solemnly, her eyes large and compassionate. He said at last, unwillingly: "And you are willing to serve the Machine, even after it lops your arms and legs off?"

"I'm willing."

"Then you're crazier than Oporto!" he roared. "The Machine is a monster! The Plan of Man is a hoax!"

She refused to be shocked. "It keeps thirteen billion of us alive," she reminded him.

"It keeps thirteen billion of us enslaved!"

"Do you have another way!"

He scowled. "I don't know. Maybe — out in the Reefs of Space —"

"The Reefs of Space are no longer of any importance to you, my dear. Just like Ron Donderevo. Oh, he was a real man — and maybe there are Reefs, I don't know. But there's nothing there for us." She moved her head, and the obedient wheels brought her closer to him. "And is it so bad, Steven? Being slaves? I know you have ideals — I respect you for them, truly I do! But this is a matter of life and death for Mankind. And isn't it true that, for almost all of us, under the Plan of Man there is happiness?"

He laughed shortly. "It comes in the drinking water!"

"All of it?" She leaned back lazily, looking at him with candid huge eyes. "What about me, Steven. Don't you want me?"

It caught him off-guard. He flushed. "I — I don't know what—"

"Because I'm here, Steven," she went on softly. "If you wanted me, I'm here. And I'm helpless; I can't resist you."

He swallowed. "You — You could scream for help. The guards

would — *Damn you!*" He leaped away from her. "I'll never forgive you that, Angela! You've dragged me down to your level, haven't you? But you can't do the same trick again!"

She said, calm, real regret in her voice, "I don't know what you mean, dear." And after a moment Ryeland realized that there was truth in what she said. She meant it; she was his to take, if he chose, and she would not have blamed him. He said brutally:

"You're a high-voltage test circuit, Angela, yes, indeed! But you've already burned me once. I don't intend for it to happen again!"

There was no longer any doubt of what he had to do in his mind. He was inside a wall; well, a wall had two sides. He would reach that other side! Perhaps he would be alive; more likely he would be a cadaver, stripped of useful parts. But he would reach it.

Because ... because, he thought, on the other side of that wall were many things. There was freedom — maybe — in the Reefs of Space. There was, perhaps, the man who knew how to remove collars.

And there was Donna Creery.

Abruptly he turned to Angela again, surprised at his own thought of the Planner's daughter, unwilling to think farther in that most dangerous of directions. He said, "I — I didn't mean —"

"Don't apologize, Steve. You of all people —"

He became conscious that she had stopped in the middle of a thought. "What were you going to say?"

"Oh ... Nothing. Nothing much. Just that..."

"Angela!" he said angrily. "You've always kept secrets from me! Please don't keep on with it — not here! Now, what were you going to say? Something about me 'of all people'? Am I any different from other people?"

Her wide, lovely eyes studied him serenely.Then she said: "Don't you know that you are?"

Her cool regard made him uncomfortable. He had to gulp before he could ask what she meant.

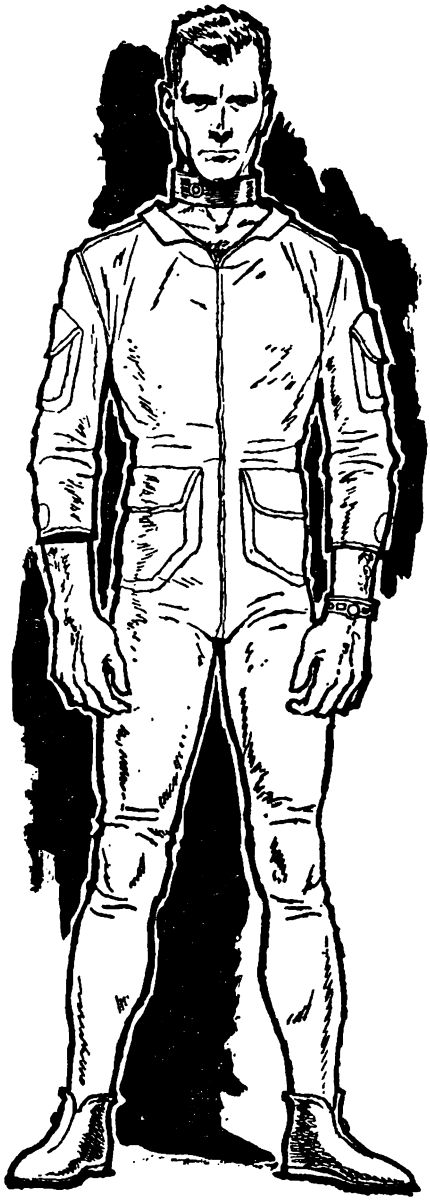
"Haven't you been aware of anything strange about yourself?"

He was about to shake his head, when something froze him. He recalled the riddle of the three days he had lost. Suddenly he remembered a time when he thought he had heard her voice, from the dark outside the circle of pitiless light that blazed down on the therapy couch, before she had sacrificed her limbs to the Plan.

"You must have noticed that you are different, Steve," her soft voice taunted him. "Have you ever wondered why?"

For a moment he wanted to strike her. The iron collar was suddenly tighter around his neck, so tight that he could scarcely breathe, so tight that he felt the veins throbbing at his throat. He sat numb and silent, staring at her.

"Did you think you were human?" Her voice was contemptuous, merciless. "I thought you might guess, when I was telling you how Don-



derevo got away. You are the junk man."

"Junk — what?"

The hair stood up at the nape of his neck. He shuddered in the sun. The collar was heavier than lead, colder than ice.

"I told you that a thing was patched together out of waste parts. A decoy for the guards to watch while Donderevo got away. Well, Steve, that's what you are."

He sat still, breathing carefully through the cruel constriction of the collar.

"If you're good-looking, Steve, that's because the surgeons were trying to put together a reasonable likeness of Ron Donderevo, who was a handsome man. If you dislike the Plan, it is because your brain and your glands were patched together from what was left of several of its most distinguished enemies. If you have an unusual mastery of helical field theory, it is because one lobe of your brain belonged to the man who invented it. If the rest of your memory is somewhat blurred or contradictory, it is because the rest of your brain was stuck together from odds and ends of tissue."

"No!" he whispered hoarsely. "That can't be true —"

But the collar choked off his voice. He felt weak and numb with a hideous feeling that it could be true. "If I was ever here before," he argued desperately, "I can't remember anything about it."

"That goes to prove it." Angela's slow smile was innocently sweet. "The men who assembled you were

research scientists, as well as enemies of the Plan. They had been using bits of waste brain tissue in efforts to improve upon nature. When they were putting your brain together, they seized the opportunity to create a mental mechanism dangerous to the plan."

Dazed, he could only shake his head.

"There's proof enough, if you don't believe me," she said. "Look at all your feats of sabotage. The subtrain tubes and fusion reactions and ion-drive accelerators that you have demolished with your *improved designs* —"

Agony wrenched him.

"I don't remember —"

"That's the final perfection of your mental mechanism," she said calmly. "The disloyal surgeons equipped your new brain with a self-erasing circuit, to protect you from any temptation to reveal your secrets under torture. Aren't you aware of the blank in your past?"

"I — I am." Shuddering, he nodded.

"That's all you are." A lazy malice glinted in her smile. "All the special attention that you have been receiving for the past three years is proof that you functioned remarkably well as a sabotage device, but your function has been performed. I suppose you are setting some sort of precedent, now that all your organs are about to be salvaged for the second time. But in spite of that, Steve, I can't help feeling that you are trying to carry your head a little too high. Actually, you're nothing more than a hundred and sixty pounds of bait that those traitors filched from the sharks."

XIII

Shark meat! If that was all he was, then this was the place for him!

Ryeland lurked in a clump of the bougainvilleas near the garbage pit, watching the guards on the roof, while the sun went down and the sky purpled and the stars began to find pockets in the cloud cover through which they could appear.

The searchlights — or whatever — were not turned on.

Numbed, Ryeland watched and tried not to think. That was one less worry. Still, there were guards on the roof; he would have to wait until it was darker. The guards were idly looking out over Heaven to the sea. It was a warm night, a fine tropic night.

But what was before him was an ugly spectacle.

It was odd, Ryeland thought dreamily, that the Plan of Man permitted itself this touch of natural human horror. The world was so cuddled in cotton batting, so insulated against shock, that it would seem this sight should have been hidden away. Before him lay some tons of meat and bone — amputated, exsanguinated, raped of corneal tissue and bone grafts, of healthy arterial sections and snips of nervous tissue.

What had been taken from the pale cold cadavers behind the fence was that mere nothing, life. What remained was good organic matter.

And that was another queer thing, thought Ryeland. It would have been a superb animal feed! Or, if on this one point the Plan of Man had reason to be tender, why, how many thousands of acres of mined-out farmland could be rejuvenated with the protein and phosphate in those corpses?

The Plan did not choose to use them in that way. Each night the accumulated parts were chuted to a barge — the barge towed out to sea — the contents given the deep six. Fish, crabs, drifting jellies and moored bivalves would ingest their flesh. Why? Men would eat the fish; why not shorten the chain?

Ryeland shifted uneasily, and turned his thought, away — for, if Angela told the truth, from this sort of rubble his own body had been built... Anyway, it was almost time.

There was a murmur of public-address speakers from the cottage areas. He couldn't hear the words, but it was unusual for them to be used at all so late at night. Then another cluster of speakers spoke up — nearer, this time. It sounded as though a name were being called.

Ryeland swore under his breath. The sentry nearest him stood rigid as the Machine itself, gazing out over Heaven. Couldn't he at least take a break, stretch, yawn, gaze at the stars — couldn't he do *anything* but remain alert and watchful at his post?

The loudspeakers again. It was the circuit around the lake, Ryeland guessed. And the tone was becoming irritable, as though the guard in his microphone room atop the Clinic was being annoyed by higher authority ... and was passing his annoyance on to the cadavers of Heaven.

Then closer still; and Ryeland heard the name this time. His own name. "Ryeland!" Only it came bouncing off half a dozen speakers at once, each delayed a tiny fraction of a second by distance and echo: "RYELAND*Ryeland*ryeland," ricocheting away.

He was not surprised; he had been more than half expecting it. He listened to the measured words, cadenced to let the echo of each fade before the next word was spoken: "You ... are ... ordered ... to ... report ... to .. the ... South ... Clinic ... at ... once!" And off toward the lake Ryeland could see lights moving.

Ryeland took a deep breath. He would have to chance it, even if the guard did not look away —

He caught himself, poised. The guard moved. He turned his head and nodded, to someone out of sight; and then, so quickly that Ryeland might scarcely have noticed he was gone if his eyes had not been glued to the man, the guard stepped inside.

Ryeland ran, climbed, swung himself over the fence, ripped off his clothes, balled and hid them under a body and flung himself, naked and acrawl with revulsion, onto the heap of pale, cold corpses.

There was classic terror. It was like the buried-alive man of humanity's oldest, most frightening story: the awakening in the narrow

box, the dark, the smell of damp earth, the hollow muffled sound of the hammered coffin lid with six feet of graveyard dirt above. It was like the war wounded given up for dead, awakening in one of Grant's wagons after Shiloh, or the mass graves of Hilter's Sixth Army outside Stalingrad — the dead all around, the man himself as good as dead.

Ryeland thanked God for meprobamate. He lay face down and limbs under him, as much as he could. No reason to make a guard wonder why a relatively intact corpse should be on the heap. He did not move. He smelled an acrid, sour reek that nearly made him vomit and he was, in a moment, bitter cold. He swore silently. It had not occurred to him that the metal walls of the trashbin would be refrigerated.

He waited. And waited.

He dared not look up, dared hardly breathe. It would be, he calculated, at least a matter of hours before the bin would tip and chute its contents into the barge. His flesh crawled and tried desperately to shiver, but he would not allow it.

A bright light flared.

Ryeland froze. He heard a murmur of voices. But that was all right; it probably was time for changing the shift of guards, and that was good, because it meant time was passing even faster than he had dared hope. The light would be only a routine inspection, of course... Another light flared, and another.

The area of corpses was flooded with light, he was drowning in light; over him he could hear the wash of copter vanes adding their light to the scene. He dared not move. He dared not even blink, though the lights were cruel; but it was in vain; everything was in vain. There was a sudden string of orders and a commotion at the steel ladder that admitted workmen to the sump. Four guards ran in. They did not hesitate; they picked their way rapidly across the stainless-steel floor, stepping on torsos, pushing limbs aside. Straight to Ryeland.

"Good try," one of them grinned. Then, without humor, "But don't do it again."

They hurried him to the ladder and up it. They had not allowed him to retrieve his clothes. Now that it was too late his body was racked with shivering. He stammered, "How — how did you know?"

The guard caught his elbow and lifted him to the roof of the North Clinic. He was not unkind. He gestured to the row of searchlight-like things that Ryeland had feared might be floodlights. "Infrared scanners, Ryeland. Sniffed out your body heat. Oh, you can fool them — but not while you're alive, not without clothes on to hide your heat. And clothes would have given you away anyhow," he added compassionately, "so don't feel bad. You just didn't have a chance." He opened a door and shoved Ryeland, reeling, into a hall of the Clinic. "Now get a move on. Somebody wants you. Somebody important."

TO BE CONCLUDED

THE COURSE OF LOGIC

BY LESTER DEL REY

ILLUSTRATED BY GIUHTA

They made one little mistake—very natural—and disastrous!

The male silth plodded forward wearily at sixty miles an hour, pausing only long enough to uproot and wolf down one of the rare scrub trees directly in its path. Its three hundred tons of massive body shook the ground as the great hind legs thumped along, and every cell of it ached with hunger. It was warm blooded, despite its vaguely reptilian appearance. Only meat could satisfy its need for energy. But the great herds lay a thousand miles to the north of this barren land.

Inside the silth, the two-pound network of converted nerve cells that was Arnek brooded darkly in self-pity and resentment against the inflexible female logic of his mate. Ptarra had won her point, as she always did; now she might at least have shown some consideration for him and his silth!

"Arnek!" The call came sharply on one of the guard frequencies of

the mental spectrum. "Arnek, stop lagging and get up here!"

He could feel his nerve body tense from horn tip to tail root, but he stifled his response and quickened his pace. Ahead, the trail left by Ptarra's legs led through a gully and up a rise to the lip of a small, stony basin. The four hundred tons of Ptarra's female silth squatted below the edge and the great head was half hidden as it peered downward around a boulder.

"Quiet!" Ptarra ordered sharply. Then, as Arnek switched from a thudding run to a smooth, creeping approach, the mental impulse took on a note of triumph. "Look down there and then tell me I don't know a ship trail from a meteor!"

The bowl was bright in the glare of the orange sunlight, but at first Arnek saw nothing. Then, as his gaze swept back toward the nearer section, he blinked his great eyes, only half believing what they registered.

It was a small thing, hardly taller than Arnek's silth — maybe not even as tall. But it was too regular and obviously artificial, a pointed cylinder, to be a meteorite. Between two of the base fins there seemed to be an opening, with a miniature ramp leading down to the ground. It looked like a delicately precise model of a spaceship from the dawn of time.

It was obviously too small to be more than a message carrier. Yet, as he looked more closely, he could see motion. Two tiny creatures, not more than six feet in height, were scurrying around near the base. Bright patches of fur or decoration covered them, and they seemed to move on two of their four limbs.

Arnek shivered down the length of his nerves with an ancient distaste for crawling things. "Let's go back," he suggested uneasily. "There's nothing here for us, and I'm hungry."

"Don't be silly," Ptarra answered, and the old female superiority was strong in the thought. "Of course it's too small for us; I knew that when I saw the landing trail yesterday evening. It must be an instrument probe, with test animals. If it has telemetering equipment, though —"

Arnek tested the three spectra uneasily. At this distance, even a tight beam should be detectable. But he could feel nothing. There was only the steady wash of inertia-gravitic wavules, the electromagnetic noise from the sun and the growing, contemptuous mental leakage from Ptarra. Then he squirmed in embarrassment as his eyes detected the cracked base of the little ship.

Obviously, it had landed hard — probably hard enough to ruin instruments and release the two creatures. He should have noticed that at once.

There was no time to admit his error, however. Ptarra's silth lunged upright and the great rear legs began pulping ground and rocks in a full charge. Arnek leaped to follow out of old hunting habit. On a downgrade, his lighter silth soon caught up with the other.

Below, the two humans swung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around at the earth-shaking thunder of the charge and started a frantic scrambling. They were making shrill sounds now, and the extreme low band of the mental spectrum held faint impulses.

Ptarra's thoughts lashed against his nerves. "Cut them off! Don't let them back to the probe. They may have destruct conditioning."

In the hunt, Arnek had long since become only an extension of his dominant mate. Now he folded his forelegs and dropped his head and neck into a javelin aimed between humans and ships. The smaller of the two was almost at the ramp.

At the last moment, moved by a sudden impulse, Arnek dropped his head lower and retracted his neck to soften the blow. He felt the human midge strike against his snout and go caromming off, to land fifty feet away.

Dim pain impulses stirred in the low mental background. Anger — or something like it — came from the other creature.

Arnek braked and pivoted sharply. The larger human had run forward toward the bloodied smaller figure. But as the silth's head faced the creature, one of the human's arms darted to something strapped about its middle. There was a surprising blast of sound. A stream of tiny, exploding pellets struck against Arnek's snout. He bellowed in annoyance and took a step forward, lifting a foreleg to swat at the midge.

It jerked back. Then it darted forward, bending to lift its companion in its forelimbs. Either the gravity here was less than on its home world, or the thing was stronger than it looked. The first leap sent the burdened human backwards more than twenty feet. Then it was bounding off in frantic efforts to reach the further side of the depression where a jumble of rocks might give it cover.

There was amusement in Ptarra's thoughts. "If your hunger is so great, why didn't you eat them? They aren't much, of course, but the blood smells sweet enough."

Arnek sighed along his nerves, unable to answer.

Let Ptarra put it down to another male whim if she liked, but he hadn't thought of eating them before. There had been something cute and pathetic about them. They reminded him of the little gulla he had owned in his youth, in a long-lost, ruined universe.

"It had a weapon," he commented, changing the subject.

Ptarra rumbled an assent. "I noticed. Interesting conditioning. The probe builders must have superb nerve development to do that to the lower orders. They'll make good silths... Now let's see what we can find in the probe."

She slipped a claw into the base opening and began working it upwards as delicately as the clumsy foreleg would permit.

Arnek moved forward to help, but she waved him back impatiently, and he waited meekly until she finished. She was right, of course. As a male, he had no training with mechanisms. He would only have

ruined whatever lay inside. It was a marvelously delicate set of machinery ... thought the theory behind the engineering seemed rather elementary.

Arnek studied what he could of it, growing more puzzled. "Maybe the creatures operated it," he suggested.

"What makes you think so?"

"I don't know. It just seems somehow —"

"Intuition!" Ptarra snorted. Then she seemed less certain. "Yet I can't blame you this time. It *does* almost look that way. But it's logically impossible. Besides, there are automatic controls for guiding the probe. The builders probably just amused themselves, the way we once put slurry-pods in the gulla pens. Ah, this looks sound enough!"

She pulled a tiny box out of the wreckage that had been spread out flat on the ground.

With infinite care, she managed to hook one claw over a miniature control. Almost immediately, radio waves began forming a recurrent pattern along their nerves, coming in long and short pulses.

Half an hour later, there was another faint quiver of radio waves from space, this time completely modulated. Even Arnek could realize that it was on the same frequency, but dopplered to indicate something approaching their world. He stopped browsing for the few stunted trees and came back to join his mate.

Night was just falling. Ptarra led them back toward the rock ledge from which they had first spied the probe. There was a large fissure in the rocks into which they could just squeeze, and which would hide them from the sight of any landing craft.

A moon came up, and they could see the depression clearly in its light. Now Arnek saw the larger human slipping across the ground toward the wreck of the probe. It darted about frantically, but with an appearance of purpose. A few moments later, it was retreating, carrying a load of packages with it.

"It seems almost intelligent," he said softly.

He strained to follow the faint wash of impressions on the lower band. There was something there that struck a familiar chord in his thoughts, but he could not decode it.

"Just instinct," Ptarra dismissed it with cool logic. "A female seeking food for its injured mate."

Arnek sighed uncomfortably. "It doesn't seem female," he objected.

"Another hunch? Don't be silly, Arnek. It has to be a female. The larger, stronger and more intelligent form is always female. How else could it care for the young? It needs ability for a whole family, while the male needs only enough for himself. The laws of evolution are logical or we wouldn't have evolved at all."

There was no answer to such logic, other than the vague discontent Arnek felt. And he knew that was only because of his envy of the greater ability of the other sex. He settled back, ruminating hungrily and listening to the signal from space.

The little box from the wreck

was silent now, but the other signals were stronger.

Ptarra nodded. "They're coming. After four hundred years, we have a chance. New silths to breed. A chance to reproduce ourselves and multiply. A new universe for our own." There was immense satisfaction with self in her thoughts. "Well, I earned it!"

Arnek could not deny it. It had been more than four hundred years in this galaxy. Eight thousand of them had set out, leaving behind a small, ancient universe being wrecked by the horror of an exploding supernova. They had been driven out from the planetary conquests of a billion years and had sought refuge across intergalactic space to this universe.

A hundred of the marvelously adapted silths of their universe had survived the eons of suspended animation to preserve their occupants. And then had come the hunt for new silth forms, since the trip had aged the others beyond the power of reproduction, in spite of all their precautions.

Finding a silth form was never easy. There had been only three animals that had served in their entire old galaxy. Only a creature with several pounds of nerve tissues could hold the nuclear proteins of the sentient annas. And that required huge creatures, since nerve tissue was always so thinly scattered in normal flesh.

They had toured a quadrant of the new galaxy, studying planet after planet, before they found this world. Here the great beasts were barely sufficiently endowed with nerve fiber. Eight annas had survived this far. Six failed to stand the shock of entry and regrowth in the new silth forms. Now there was only the one pair —Arnek and Ptarra.

Left to himself, Arnek would have perished long ago. Their hope of retraining the clumsy forelegs of the silth forms had proved futile, and the nerve capacity was too low for them to exercise their full faculties. The converted nuclei of the cells was never quite efficient, either. And there seemed no hope of ever reproducing their own. Certainly no newly budded anna could survive the metamorphosis into these awkward bodies; that had been almost impossible for mature powers. Nor could a young anna survive long without a silth.

Four hundred years! And now — now, he thought, he was tired. It no longer mattered. His home lay in ruins eons away. Let Ptarra worry about it. He twisted his neck back to put his snout under his tail and tried to sleep, while hunger rumbled noisily in his stomach.

The sun was glaring down again when he awoke to the nudging of Ptarra's snout, and there was a roaring in the air above. Something rushed downwards, bellowing out thrust against gravity. It was another ship, landing over the wreckage of the first.

But it was no monster such as might have carried new and better silth forms. It was hardly larger than the first, though it somehow

seemed to be better made. It landed smoothly and squatted on the ground, sending out signals.

"Another probe," Ptarra said. There was disappointment in her thoughts, quickly masked by cold logic. "Naturally, they'd wait to check with something like this. There will probably be several probes before they decide they have to investigate personally. All right! We'll give them something to worry about."

She was lunging to her feet, just as an opening appeared in the ship. This time something ran out, down the ramp — a tiny gadget of churning tracks and metal carapace, chuffing out shrill little motor sounds. It circled briefly and then headed across the bowl.

"Stop it," Ptarra ordered. "It may have a camera, so don't waste time. The less the builders learn about us, the better."

Arnek took off. His hunger had so far failed to weaken him, and he was covering the ground at two hundred miles an hour before the little vehicle had picked up a tenth of that speed.

At the last moment, it seemed to be aware of him. There was a wash of mental shock and confusion. Then his snout hit the car in a sideswipe that tossed it fifty feet to land on its back. He lumbered forward to squash it, then hesitated. An opening had appeared and two of the tiny humans were staggering out. One was supporting the other. At sight of him, both stopped in shock. For a second, they stood rooted to the ground. Then the larger one began a clumsy effort at running, half carrying the other. Blood left a trail behind them.

Arnek could have squashed them with a single trust of his leg. But he stood irresolutely, observing the garments and headgear they wore, remembering his youth and a gulla draped with a ribbon and bells. They were heading for the rocks nearest them, a long way from where the first two had found refuge. For a second, he felt impelled to turn them and drive them toward the others.

Then a wave of amusement from Ptarra checked him. "They'd never reach that far," she called. "They can't survive the crash of their vehicle. Let them go."

Arnek felt the faint, murky mental signals so low on the band, and he knew Ptarra was right. They were staggering now, and the smaller one seemed to be only partly conscious. He sighed and scooped up the ground car, carrying it back to Ptarra.

This time his mate was making no effort to rip the ship apart. She was staring through one of the tiny ports, trying to fit her great eye against it. And she seemed uncertain. Finally she took the ground car and began dismantling it, looking for automatic or remote controls.

There were none.

"Maybe the creatures operated it — and the ship," Arnek said. He expected the same reaction the remark had drawn before.

This time Ptarra showed no

amusement. Her great head shook in puzzlement. "About one time in ten thousand a crazy male hunch comes true," she muttered. "Intuition! It's against all logic. But there are only manual controls here. Where *are* those silly creatures?"

The two that had arrived last were pitifully exposed, just within an opening in the rocks. It was a shallow space, hopeless to defend. The smaller one lay supine, but the larger human faced the two silths, holding his pitiful weapon, and waited grimly until they were almost within reach. This time the explosive pellets were aimed for their eyes.

Ptarra dropped her eyelids, swearing as the missiles stung. She reached in with a short foreleg. There was a single shrill cry and the sound of the weapon striking against a rock; the low band was suddenly quiet. Arnek heard a soft gulp. When he looked, the larger human was gone.

A sudden shock ran through Ptarra's thoughts. Her great eyes blinked and a huge tongue ran over her lips. "Nerve fiber!" Her shout covered the entire spectrum. "Arnek, there are pounds of nerve fiber in the creature! High grade — better than that in these silth forms. As good as that in any silth. Here, give me the other."

She didn't wait for Arnek's help, however. She dragged the corpse out and began working as delicately as the silth body would permit. Her mental signals were a blur. Then she stopped, staring down at what she held. "There — a cavity in the head, filled with nerve fibers. There must be three pounds there alone. What freak of evolution would put them all together in such a vulnerable spot? And yet, there's a certain efficiency about it. It isn't logical — and yet it is."

Abruptly, the evidence was gone. "Come on," she ordered.

Arnek sighed, and his stomach rumbled a protest. But he ignored it. "What good is it? We surely can't make a silth out of a tiny thing like that?"

"Why not?" Contempt for male thought was mixed with smug satisfaction for her own. "We don't use the other cells anyhow. Oh, there will be difficulties. They may be short-lived. But with such high grade fiber, we can risk infiltrating a new one as often as we need. There should be enough of them. They probably have half a dozen to a litter twice a year, like most small forms. Possibly billions of them can live on a single planet. And since they're colonizing other worlds like this one..."

Even Arnek could see the logic behind Ptarra's assumption in that. Colonizing would explain the sending out of a male and female in each ship, with ships spread out days apart. It wasn't the most efficient method, but it usually insured against any major accident. His people had used the same method at times.

It all seemed quite logical, but Arnek felt a tension of intuition along his entire nerve network. No anna had ever used a silth capable of independent intelligence. There

must be something wrong with it. Once they infiltrated the new silth, of course, they could soon convert enough nerves to blank out all control from their carriers. But...

"Their weapons," he cried. "Ptarra, in those bodies, we'd be vulnerable to their weapons. And during the ten days we have to hibernate to grow into their nerves, they'd kill us."

Ptarra grunted. "Sometimes," she admitted, "you almost think like a female. They would kill us, of course, if we stupidly stayed where later arrivals could find us. Now come on. We've got to chase the creatures around today until they're tired enough to sleep soundly. And don't let them get near that ship, either!"

It was a bitter day for Arnek. His stomach protested, and by the end of the chase, his legs were beginning to weaken. But ahead of them, the two humans were staggering in the light of the setting sun. The smaller was leaning on the larger as they finally found and entered the little cave near the ship that Ptarra had chosen for them long before.

Night had fallen before Ptarra was satisfied. The two silths moved forward as softly as they could, but the loud breathing noises went on, and there was no stir of alarm anywhere on the mental band.

"Do you remember everything?" Ptarra asked. "You've got to regain consciousness after the first stage. You can do that, if you set your mind to it."

"I remember," Arnek agreed wearily. He'd had the whole routine drilled into him repeatedly untill he was sick of it. It was like the horror of having her force him to adapt to this present silth. While he had been ready to accept assimilation, she had fought with him and with her own transformation, refusing to admit even his intuition that their race was ended. Only her cold logic had saved them. He could not deny it now.

"Be sure you take the smaller male body," she warned again.

"Unless that's the female. You found evolution different in these creatures once," he reminded her.

For a moment, she was silent. Then there was a mental shrug, and almost amusement as she answered. "Matching sex isn't logically necessary. It might even be an interesting amusement. But I must have the larger body."

She began shifting at once. The silth gasped and tried to thresh about in death as Ptarra released control. Arnek sighed to himself and began to follow.

It was worse than he remembered. After the centuries, the cells hated to give up their fixed form. The agony of the silth fed back to him, until his withdrawal stopped its heart. But slowly the nuclear matter flowed from the cells and up the pathways to their egress, taking the minimum of nutrient fluid with them.

It took nearly an hour, and he could see the thin film of Ptarra already lying over the sleeping human.

He began hurrying now, remembering her warning that the humans would not stay here once they wakened to find the two abandoned silths dead. He forced himself over the hateful dryness of the floor, up to the open mouth. Beyond lay the lungs, the circulatory system, and then the strange nerve bundle in the skull.

Some of it was ugly, and some was hard. But the last stage was almost pleasant. He had forgotten how unsatisfactory the nerves of the last silth had been. These were like coming home to a friendly world, in a universe that had died too long ago and far away. For a time, he was almost glad that he had not died with it.

Then the first allergic reactions began, and he had to relapse into instinct, to let his being fight to save both himself and his host cells from the reaction.

He set the first stage up, however. This time he managed with no help from Ptarra. Then he relapsed into unconsciousness, making no effort to control his new silth yet. He'd have to revise when the silth awoke, he told himself.

But it was only a dream order, half completed...

It was a sudden painful pressure of acceleration that finally brought him out of his torpor. He felt half sick, and he could vaguely sense that the new silth was fevered and uncomfortable. But, amazingly, it was sitting up. And around it was a room bigger than the whole ship had seemed, and controls under its hands, and fantastic equipment.

"It's about time," Ptarra's thoughts reached him. They were weak now, since it was hard to transmit in a partial stage, but they were cold and sure. "I've been aware for hours, while the silths reached the ship and took off. We've been off planet for at least an hour. Long enough to study their body controls and to learn how the ship operates."

Arnek sighed to himself, while the pressure of tension refused to leave. "Are you sure?"

"Of course I'm sure! These are primitive machines, and I learned most of it from dismantling the first. They're primitive — but they're logical enough for understanding. I can even control the silth when she isn't aware."

The larger human suddenly moved the controls, then jerked its hand back, staring at it. Words came to the ears of the silth in which Arnek rode. "I'm sick, Luke. I've got the twitches."

The words brought stirrings strongly on the low band, almost but not quite understandably. They also brought a vocal reply from the other human. "Be glad you can twitch. Some bug we picked up, but it's metter than being eaten. We're in the clover, kid. Maybe we still cop more cop ships tailing us, but let 'em look. When they find the dinosaurs and what's left of our ship, they'll stop looking. The heat's going to be off! We can get back to Earth in a year or so and really live."

Ptarra's thoughts cut through

Arnek's efforts to understand. "Reproduction feelings," she reported in satisfaction. "They must have higher fertility than I hoped if they can think of it while sick." Then her thoughts sharpened. "Take over your silth!"

The human at the board slumped abruptly. Arnek lashed out from the converted cells, felt a brief protest, and then was alone in the brain of the silth.

He could not yet control it, but it had no independent will.

"There is food and water near if we have to rouse from hibernation while we grow into these silths," Ptarra reported. "Now — help me if you can."

Arnek let his weak thoughts blend into hers, trying to give strength as she had often done to him. She was straining her utmost will.

Slowly and in jerks, the arm moved across the control board, and clumsy fingers managed to move controls. And at last, from Ptarra's mind, Arnek began to see the plan.

There was fuel enough to bring them at maximum speed across an eddy of the galaxy toward the lone sun they had found long before. There a single planet swung in orbit — a planet with food but no dangerous animal life. And there they could wait and grow strong, and multiply as their silths multiplied. They could reach it almost as soon as they came out of hibernation finally, and it would be a safe haven in its isolation.

There would be no fuel for further travel. But that could wait, while their numbers grew, and they could restore their lost technology and weapons with the clever hands of the human silths. Then they could take over the galaxy — as they had taken the one so long away!

The hands fumbled under the limited control, but they moved across the board. And the automatic pilot was finally set and sealed.

"Logic!" Arnek thought softly, and there was wonder at a mind like Ptarra's that could achieve such understanding of even alien mechanisms. Yet under it there was still a cold knot of fear along his nerves.

Ptarra's thoughts had begun to fade from the strain and the long interruption to her hibernation. But now she caught momentary control again. There was appreciation in them for his praise. And then there was amusement. "Logic," she agreed. "But perhaps intuition isn't too bad for a male. You've been right twice."

"Twice?" Arnek asked. He'd been somehow right that the silths controlled their own ships, of course. But...

"Twice," Ptarra said. "I've just realized my silth is a male, as you suggested it might be. Amusing, reversing the sexes, isn't it?"

She tried to say something else, but the strain was too much, and full hibernation swept her mind away from that of Arnek.

Arnek sat frozen for a time in his silth, knowing that it was also male.

Then he turned it somehow to face the lost galaxy where his race had known its day and now entered its eternal night. END

THE CUSTOMS LOUNGE

BY E. A. PROULX

Anything can happen in the customs lounge—since they let those Earth people in!

There were usually a few Customs Inspectors in the lounge, waiting to begin their shifts, hanging around trading news and incidents and drinking the bad, lukewarm kasser that was a standing joke in the Immigration-Customs Service.

Old Grag was telling for perhaps the eightieth time of a success of his when he young in the Service.

" . . . They had this small box of sticky, squashy sweets with them. The young one was eating one. Many another Inspector would have passed them through, but I thought the young one chewed too much and too loud. So I said, 'Mind if I have one?"

" 'Wah!' says they together, 'it would set you on edge, Noble Wise Inspector. It is the taste of another world.' They was Venusers, and they started shifting and hopping around, and humming their national anthem, *you* know how they used to do back in the old days. I made quite a nice little find. Almost a half-scree of chamfer in each one of those sweets. I got a promotion out of that, and the Venusers got a six-year close out."

Inspector Flimp blew one of his noses loudly.

"Hee, that's nothing. *I* recall back when we first opened up for Immigration, and a whole shipload of earthers came in. They were crammed in like tigs in a nest, and as usual they didn't know one word of the language, they didn't have any idea of where to go or how to do anything, and they'd got separated from their controller. They just stood around, huddled together and jabbering at each other. Well, I checked out about twenty of them, and then there comes up this big ugly female. Well, I jacks the elevator up some more, and I looks down at her.

" 'Name!' I call. 'Gladdis Cracklegill,' or some other weird earth name she screams at me. 'Too much

name,' I say. 'You've got enough name there for five of you. Which will you choose, Glad, Is, Crack, El or Gil?'

"Well, it took me a while to make her understand me—my earth accent wasn't too good then, and she was slow-headed, having only one, like all earthers. But I finally made her understand what I wanted to know, and then, by Clag, what a ramping frowst she did make!

"It was while she was screeching at me that I noticed her teeth were pretty big. even for such a huge beast as she was. So I secretly turned on the Dento-Spyer, right into her jaws, and what a sight on the view screen! Each of those big teeth was false and filled to the top with Earth seeds she was trying to smuggle!"

"Earthers!" exploded young Nask. "They make me sick!"

"I'm with you, Nask," said Inspector Sprim. "And I don't understand why they *still* keep routing earthers through Immigration anyway. They claim they're a borderline case, but when you've seen as many as I have, you know, which side of the border they're on."

Nask went off to the kasser dispenser and his place was taken by Brif, the head Inspector, who had been listening.

"Un-edge yourself, Sprim," smiled Brif, contracting one of his heads. "I have good news, rare news and fine news. The Four Council decision just came down to us. Earthers are now to be routed through Livestock instead of Immigration beginning very soon."

A cheer went up from the little group of Customs and Immigration officials. The one Livestock Inspector in the lounge groaned in despair.

Old Inspector Flimp seemed bothered.

"They've made themselves a mistake," he sputtered. "Earthers can be clever and tricky even after they're altered. Why, I seen them pull every trick in the book coming through here. Did I ever tell you about the stunted one with an artificial head who tried to pass himself off as a rest-park planner? Well, it seems that . . . "

Two young, but large inspectors sneaked away from the group when they saw old Flimp was launched into one of his dull yarns again.

Outside the lounge, after a quick look up and down the hall, they ducked into the robot-cleaner storage closet.

"Boy," gasped the shorter inspector. "I *had* to get out of there. Besides the torture of listening to that two-headed monster babble on and on about how he outwitted earthers when he was still able to move around, this miserable thing has started to come loose again."

He gave an impatient wrench to his left head, and it wobbled enough to expose some of the delicate wires that the earth robotic engineer had labored over so many hours.

The other began tightening straps and buckles for him.

"There," he said finally. "You look like one of the boys again."

Laughing together, the earthers went back into the Customs Lounge.

END

THRELKELD'S DAUGHTER

BY JAMES BELL

She was only a space captain's daughter — and all she wanted was a human to call her own!

Night was a diamond studded dream from where they sat. The moon was a maiden on wing suggesting amorous flight. Inside the stuffiness of the celluloid-like vehicle there was absolutely no hint of discomfort or absurd misfittings —despite the fact that Threlkeld and his daughter were now shaped out of all proportions to the conveyor itself.

"You seem unusually drawn," Threlkeld suggested from his prone positition on the floor of the craft.

Gelerie took a deep, sensual sigh. "It is the pill, I am sure."

"Look at you," Threlkeld muttered, "and look at me—we're perhaps the most unique imitation of humans the galaxy has ever produced."

Again there was a maddening silence . . . maddening to Threlkeld. "My daughter," he said at length, disturbed, "I must remind you of the importance of this little mission. My entire career with the inter-star patrol depends on how well we function."

Gelerie was bent in a heap near the tapering nose of the pod-shaped vehicle as it hurtled past the lovely moon, headlong toward a giant green

and purple planet below them. Hurtled in a vessel with no manual controls, a vessel grown in a government garden on another world . . . catapulted on a very special assignment to a planet that neither grew missiles nor thought of launching them without myriads of mechanical wires, dials and blinker lights.

Now Threlkeld was filled with indignation. "Gelerie, I command you—"

"Yes, Father. You command me," she drawled.

"Unless you remain attentive, my daughter, we may fail. Failing, I must concede that I have finally grown too old for spatial duty, and be sent to the Home. Do you want that?"

Gelerie had acquired all the attributes of a beautiful, buxom Earth girl. She looked up in the soft light that glowed its phosphorous loveliness from the very walls of the seed pod they occupied. Threlkeld muttered, "Such beauty—it is beyond all that the textbooks described."

Now Gelerie butted in, "The trouble, my father, is simple. The transition pills—"

"What about them?"

"They do more than convert us from a six-footed tree-hanging creature of the Alpha Centauri group. They impose upon us the same emotional stress of the human. You know, father, I have been changed into leopards, rhinos and snoqualimie eels before; but always I retained my own natural traits—the love of trees, the desire to return to my naive form and habitat as quickly as possible. But this time, I feel demure and attractive and extremely vain and—"

"I warn you, my daughter. I am old. I have seen these Earth types at work. They are a useless breed. Their extra-curricular activities are beyond all reason. Very few of them stick to what is really important. Very few of them understand that achievement of the goal is the only thing there is. Now, I suggest you fight off these emotions. Try not to succumb to human frailities, for we have an important job to do—lest your poor father be put out to pasture."

The sound of empty space beside them was almost unnoticeable. The swish, so familiar for such speeds near their own planetary chain far out in the universe, was now missing.

As they approached the Earth, a thin crescent of daylight appeared to their right.

"Father," Gelerie said, "I cannot help myself. I am in love with this Earth form. I have this—this deep sense of beauty, of love, of desire. I cannot seem to quell it."

Threlkeld tried to help her with logic. "Homekind gave us the pills for a brief mission. I have lived long enough not to desire these human qualities. You are much younger and have much more to learn. Homekind devised these pills for but one purpose—you are to lure a young man of your choosing into our vehicle. He will then be transported home, and your father will have his old job back on the ferry to Betelgeuse. Do not fail me, Gelerie."

A bright, mercury-like flood of daylight appeared, and Threlkeld explained to her that it was light from the Earth's source of life, the solar body they had passed. He explained that Homekind was now selecting by remote control their landing site.

The pod now skittered through the skies, safely avoiding other space craft which Earth might have sent up.

Threlkeld's mind left his daughter and consumed the view below them. A grand chasm of blue-green, an ocean. Strips of sand here and there along a vast continental shelf. Thick vegetation on the continent. An excess of river inlets. All important bearings on their location should they need to call home for help. He observed the scene with satisfaction.

And then they were slowing to a snail's pace, and Homekind was selecting a clearing in the sand along the shore of a river. Then the seed pod, its shape so much like that of the zephyr of Earth, twisted whirlybird fashion to the ground. Threlkeld lifted the rear of the container, and stiffly the two Earth imitations stepped out.

"Now we roll the vehicle into the trees." They carefully gathered sticks and bramble from the water's edge and made a natural pile of debris in front of the pod, so that anyone glancing its way would never see the brownish green vehicle for other than was intended to be seen—a mound of dried clay.

"Now where are we, father?" Gelerie asked, as she stretched herself into shape.

"We are but ten miles from the city harbor. We will skirt the riverbank for a boat. Homekind left nothing untended — which is why you—"

"Why I must not fail," she replied drily. "I know. I must not fail. But I must be allowed to enjoy my Earth form for a while. It is beautiful." She looked him squarely in the eye. "It *is* beautiful, is it not, father? Am I not more beautiful than you have ever seen me?"

"Homekind makes recordings of our conversations, my daughter . . . as it is psychiatrically right that they should. And in their analyses, I do not want them to have to ever say that Threlkeld succumbed to the skin-deep world of the Earth people. I must warn you again, Gelerie," he went on, "that Earth people base nearly all of their existence, their plans, their hopes on how attractive they may be, how young or how old they may look, how withered their skin. For they live chiefly for vanity, very little else."

The way Gelerie sighed told him he had failed. "One thing more, my daughter," he said in another attempt. "Homekind made you that attractive merely for the purpose of luring this male Earth creature into our conveyor. Now can you do it? Will you keep your mind on your task?"

Gelerie said, "Where will you be, father?"

"I will make the selection for you. Then I will transfer my mind into yours, just to make certain you complete your task."

The girl was lost again in self-appraisal. She extended her supple hu-

man arms and legs and observed them almost lovingly. "I like the short garments they wear. Such beauty should never be hidden."

"Homekind arranged it that way with a definite purpose in mind. Remember that," he said, now trotting ahead to find some sign of a boat. He was about to give up, afraid to admit Homekind might have erred, when Gelerie shrieked, "Look —over that way. A leafboat."

A warm sense of thanks went out from Threlkeld silently. He led the way to the large blue-green leaf that lay flat upon the water, stiffened with wax, water-resistant, entirely buoyant. They pulled it close and stepped aboard.

There was no need for paddles, since a modified leafboat constructed by Homekind and transported by Homekind always naturally had built-in propulsion. Tiny molecules of water were converted along the underside of the leaf into a moderate amount of energy which shoved them forward under Homekind's magnetic command toward a collection of tall glass spires.

"Remember, Gelerie," Threlkeld said to the dreaming girl who let her hand dangle in the waters of Earth, "my future is at stake. You are a six-footed tree-hanging creature. You will return to your native form the moment our mission is completed. Now I will not warn you again. Another moody spell and we return to the vehicle with only one thing assured — Threlkeld the Great's impending retirement."

But if he expected an assurance out of Gelerie that she would not fail, he was wrong, for she did not respond.

They abandoned the leaf boat at the foot of a sign, which in their compact Earth-translation scheme provided by one milligram of the pill they had taken, said, Forty-second Street. They scaled the elevated structures with almost natural animal precision and carefully dodged the ground vehicles that sped toward them on ramps. Then they were on the premises of their destination. A large white building touching the sky, and beside it a curved, oblong structure which Threlkeld whispered contained Earth's government.

"He is to be a diplomat?" she asked.

"Sh," he said, as people hurried past them, turning to inspect Gelerie's brief toggery.

They ascended a ramp to the glassed foyer. Then they were inside, gaping at the height of the ceiling, at the overhanging balconies. A young woman with Oriental qualities approached them. "May I be of assistance?"

"Oh, Father," Gelerie said, fascinated at the human voice.

"We wish," Threlkeld began guardedly, "to speak with the youngest member of the world government —"

"That would be the Congo, sir."

"Not nation. Individual staff member. Person. Human. Youngest in years," Threlkeld explained.

"Twenty-one is generally as young as anyone is allowed — as clerks and aides, sir. That would be the minimum age. Diplomatic corpsmen are

usually considerably older."

"Very well. The nearest and youngest of the aides."

"I can think of Monsieur Joffrion of France or Sahib Masher of Arabia."

Threlkeld was now weeding out difficulties. Homekind had given them access to one language only. "Someone who speaks the language I am speaking."

The girl frowned. "Sir, you do not know what language you speak?"

A bolt of fear shot through Threlkeld's earth stomach. "Of course I know. The point is, do you know?"

"English," the frustrated guide said. "Very well, I will secure Mr. Twitty of the British delegation. Come this way, sir, madam."

Threlkeld forced a deep intake of oxygen. He smiled at Gelerie and they followed the girl to an elevator. When they alighted, they were escorted down a hall to the doorway marked, *Delegation of the United Kingdom.*

Then the guide turned to Threlkeld and said, "I have instructions to learn the nature of your mission before introducing you, sir."

Threlkeld had hoped it would not come to this. But better to tell the girl than foil the chance now. "I want the young man to fall in love with my daughter. Then I am going to kidnap him and whisk him off to a faraway planet." There, he had said it. Homekind had told him to say it if necessary. The truth would be the one thing the Earthlings would never believe, they had told him.

The Oriental girl laughed and said, "Sir, I admit defeat. Mr. Twitty will have to take it from here." She stuck her head inside the door and whistled softly.

"Pip, pip, Yu-lin," came the juvenile voice of the young man inside. "What's the bother, old girl?"

"A man and his daughter to see you."

"And the nature of their visit?"

"They want you to fall in love with the beautiful girl, and then her father will escort you on a nice honeymoon to some love spot in romantic night sky." As Yu-lin spoke, she turned her bright oriental eyes to Threlkeld and winked.

Threlkeld felt his blood rush hot. In a mental transit to his daughter, he said, "I think it high time I transferred my mind to you. You need all the moral stamina you can get, and I see the power these Earthlings have on the opposite sex. It is not good. Prepare fhe cavity of your brain," he instructed, and seeing that Gelerie was a million light years away, Threlkeld made the mind-switch alone and aimed his body at a door marked *Men's Room.* Soon it disappeared.

The young Earthman rushed forward, unconcerned with the internal workings of Threlkeld, fiddling with his frog glasses and blinking as if he did not see well. Gelerie saw that he was thin, tall, sandy-haired and extremely good looking. Her heart pounded and Threlkeld's mind said, "Watch out." The young man smiled and extended his hand to Gelerie. "You'll have to forgive the guide, madam. She sometimes gets carried away. I am Twitty of

the U.K. So glad to have you aboard."

A nudge somewhere near Gelerie's brain awakened her. "I am afraid I am here for a very strange reason — the very reason Yu-lin stated. I want you to fall in love with me."

Twitty replaced his glasses. "I think I'll go back and come out again. My dear, you are a lovely creature, but back home I am engaged to a girl who won three local beauty contests on the way to the title of Miss Britain."

"And did she win Miss Britain?"

Twitty's mouth dropped. "What are you trying to say?"

"I am trying to say, sir, leave your Miss Britain who did not quite make it and fly away with me to Alpha Centauri —"

"Oh, come now," Twitty said laughing. "In that brief toggery you expect me to believe you are some moon maiden from a midsummer night's dream and go wandering with you through loveland in the sky? Go back to your fairy tale, Miss —"

"Gelerie."

"Gelerie what?"

"Gelerie is all they gave me in the Alpha Centauri group. We have a home-grown vehicle waiting in the woods. And a leafboat at the foot of Forty-second Street to carry us under its own power to the site of the vehicle. We covered the vehicle with driftwood to protect it lest some Earthling should swipe it and Homekind be forced to grow us another."

Twitty called over his shoulder. "Brighton? Take over for a little while. I shall return by and by." But the allure of the woman creature in short pants was drawing him near. "May I see this thing in the woods?"

"Of course," she said, and she could feel the mental smile of Threlkeld inside her brain as it seemed to take a deep, relieved breath.

They descended the elevator and come out at the main exit. Twitty bolted forward and grabbed a guard by the arm. "Sir, I wish you to arrest this woman on suspicion as an alien from outer space or a candidate for Bellevue."

A burly guard with a kind face looked into Gelerie's eyes. Now her father's brain was at anxiety's peak, calling the plays. "Go ahead, double your fingers into a fist, shove it forward, now, under his jaw —"

"But —" Gelerie was stammering.

"No buts!" Threlkeld's internal instructions poured. "When Homekind made you beautiful, my dear, they also made you big. You are an Amazon."

"Amazon?"

"No time to explain," he said. "Let the bruiser have one!"

Gelerie shrugged and took a swing. The arms of the guard shot skyward, and the big, hulking body in uniform fell backwards and plopped against the floor. As he rose up, shouting, Gelerie grabbed the slim Mr. Twitty around the waist, lifted him bodily and ran like a sudden gale through the lobby, out the door, down the ramp and to the river. With an Olympic leap, she made it to the stable, sturdy leafboat.

On orders from Homekind the craft quietly slid toward the trysting place, Gelerie was aware of

a flood of congratulations from her father in her brain.

Twitty was red with humiliation. "You know, of course, they will be flying over us momentarily. You'll be courtmartialed, or whatever it is they do to the American kidnapers of international diplomatic corps persons."

"You don't like me," Gelerie pouted. "I came all the way from Alpha Centauri to take you home with me and you don't even as much as like me."

The young Englishman lifted Gelerie's chin and studied her tears. "By jove, they are not crocodilian. I believe you are serious. You are innocent and serious. . .strong, of course, but innocent."

"I love you. I want no one but you," she said.

"I can see there would be an advantage in a fellow my size having a wife your size," he said reflectively. "But Babs would never approve."

Gelerie shrugged her broad shoulders. She hugged herself lovingly. "Babs can always get another fellow. I'll never be able to get another guy."

"Why? Are you planning to resign from the human race?"

"That's exactly it," she agreed. "However, if I get you to come back with me, Homekind may consent to my staying in the human form and living with you the rest of my life."

Twitty laughed. "Boys, come and get me," he muttered at the sky. Threlkeld stayed on guard mentally, and Gelerie depressed into a morose, human activity known as sinking one's head into one's knees.

The U.K. man's laugh turned abruptly to awe when he saw the helicopter flutter over them and land on a spot of riverbank just ahead. Vaguely he could see military pilots, and two civilians hop out and run for the woods. He watched with disturbed concern as the leafboat made a sharp right turn of its own volition and headed for the bank.

Now Gelerie arose, picked him up by the waist and carried him bodily toward the gathering. The militia were uncovering the seed pod.

"Twitty," one of the men called. "What in heaven's name is she doing to you?"

"You'll never guess," he fumed. "She's taking me to Alpha Centauri."

"You don't mean it!" his crony replied. "Whatever will Babs think?"

The military men ran back to the group. "Cadogan, sir. I believe you'd better come look. That clay mound behind all the rubble. It is just like the old man said it would be."

Gelerie looked and saw her father at the vehicle. She raced forward with Twitty scratching and kicking.

Cadogan said, "We found the old man wandering aimlessly. We asked him to show us where he came from. He kept pointing until we landed here. He has an excellent memory, but something has control of him. Something very sinister and weird, Twitty."

Inside, Gelerie was getting a strong command from Threlkeld. "Get close, much closer. How can I effect a transit until you come within the required distance?"

She thought-replied, "Well, get out of the pod so I can see you."

"No! Get inside quickly. Home-

kind is ready whenever we are. Bring Twitty in with you and we'll be away!"

Now the military men and Cadogan were clearing away the debris, half stumbling, half confused. "Get the girl. Don't let her get in that thing. No matter how absurd their story, don't let her get aboard that —that seed pod!"

"Amazon," Threlkeld yelled. "Amazon, Amazon, Amazon! Gelerie —"

At that, Gelerie dropped Twitty and began swinging with both fists. She laid out two helicopter pilots and a civilian. She retrieved Twitty and her father said, "Now, get the devil in this pod so I can transfer back to the body! Then we can revert to type. I said get the devil in the pod so —"

"No!"

"Gelerie," his voice stormed, shattering her peace of mind.

"No. If we go back to Alpha," she said, "I'll be a six-legged amphibian and Twitty will be a handsome human. He won't even know me!"

Twitty looked at her. "Wh-who are addressing?"

From inside the voice thundered on. "Think of your father, who has worked all his life for you! Just one more assignment with interstar patrol. Even ferry duty will suffice. Please let me have my specimen and my body, Gelerie! Please go inside the seed pod. Homekind will kill me in hours if I fail."

Gelerie held Twitty at a distance. "I can't do it. I can't leave him."

"Then bring him with you. What I keep telling you we came for —"

"Not as human-animal versus animal-animal," she said. "I love him. I can't harm him."

"In the ship, Gelerie! For your old Daddy. Inside, girl. In —"

Gelerie was now close enough to permit her father's mind to transit. From inside he spoke aloud, "Well, thank Homekind for that! Now get in and we'll be off."

"What about one of the others?" she said, now pointing at the three men who lay unconscious at her feet.

"That would be fine," Threlkeld replied. "Just toss Twitty in the drink and bring Cadogan. He looks like good stock."

Twitty was suddenly stricken with fright. If he never believed before, he believed now. "No. Cadogan has a wife and children. Don't take him — take me, I'm unmarried."

"Well," Threlkeld said, "now it's all solved. Get on board, Gelerie."

"No, father. If I do that, I still become less than Twitty. Homekind does not respect love affairs between separate types."

"Nor does it allow its missionaries to remain in the arena after the battle is won. Gelerie, face it if you stay here you'll revert to type the instant I leave."

Gelerie turned Twitty loose. She bent low and looked through the opening of the vehicle at her father. "Do you think Homekind would do that other thing?" She said it so Twitty would not guess right off.

"Nonsense. It would defeat the whole purpose of the mission," Threlkeld said. "They want a human specimen. Taking him home and

turning him into one of us would not give them any new thing to study. You'll have to do better than that."

"I meant here. Make him one of our kind and let him stay here."

Threlkeld said, "Only if you can produce some human to take his place."

Gelerie thought a moment. "What is the time limit on this mission?"

"A year, Earth time. Two years at the outside."

"And the period of human gestation?"

"Nine months, ten days and — what gives?"

"I shall marry Twitty, give Homekind a human specimen — my own — in nine months and ten days. You tell Homekind of my plan. Let them hear the recording. Then return and be with me. I shall, one hour very soon, invite Twitty to sojourn with me on the completion of this mission, father. I guarantee you, Homekind be with me, he will not want to see me go the rest of the way alone."

Threlkeld said, "My daughter's mind is full of strange logic, but it makes good sense. But be extremely careful my dear. The human is a deceitful thing. He will kiss your lips while stabbing your back."

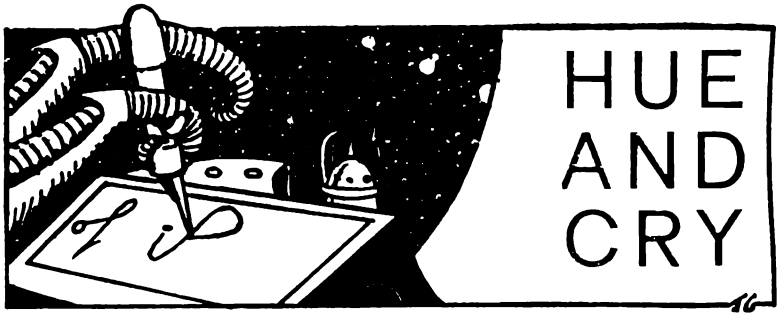
Gelerie turned to Twitty and said, "How would you like to have six legs and swing from the tree by your tail?"

She turned and spoke, "See, father? He faints so readily. He will be quite easily handled." But her human eyes had not adjusted perfectly to Earth's thick atmosphere. She suddenly did not see the vehicle containing her father. Then, far beyond the clouds of sunset, she detected a small dot sailing off into the deep blue, its side reflecting gold. "Farewell for now, my father," she whispered.

Turning to the helicopter, she carried three subdued men and placed them aboard. Then she lifted Twitty softly to her shoulders and muttered, "Homekind, fly me to their quarters. I am weary for the moment and do not feel like operating the controls."

The copter lifted silently, swinging out over the East River. Though cramped, Gelerie found a place beside her for Twitty.

When he had stopped shaking, she whistled softly as the Oriental girl had and kissed him as an Amazon might. END



The Place Where Readers And Editor Meet...

Dear Editor:

In the past few issues *If* has made itself, I feel, one of the main science-fiction magazines. Its quality has come up astonishingly.

In the July issue. Emsh, with his cover illustration and interior work, reinforced in my mind my high opinion of him. How about an all-Emsh issue?

Before your July issue, you may remember, I wrote you and said that I'd gladly do a flip for more Van Vogt like what's-his-name did for Heinlein. Then I went on to say, "But I guess that isn't too likely." Well, what can I say? Except "ugh" as I land on my back . . .

Hank Luttrell
Route 13-2936
Barrett Sta. Rd.
Kirkwood 22, Mo.

* * *

Dear Editor:

As an SF fan for the last 15 years, I feel entitled to sound off to the writers. So with your permission. . .

SF writers attention!

I hereby propose the following manifesto in regard to future sf stories:

In first-contact-with-alien stories, let's have one of the parties equipped with automatic translators, and let's get on with the story. If I have to suffer through another of those long, laborious processes of "Me Tarzan—Him No. 3 Planet" struggles, I just might give up sf and take up golf.

On the subject of girls: Now, they're all right, don't get me wrong. But let's vary it a bit. I mean all this "terrific figure, full breasts, scanty garments" stuff is getting, well, *dull,* believe it or not. Let's set up a code numbering system, like No. 1-blonde, 38-24-38. No. 2-brunette, 36-24-36, etc. Think of the space we'd save!

Spaceships: By now everyone's

heard of hyperdrive (that's where you call Einstein a liar by going faster than light), so let's just *use* it, all right?

Aliens: Those little green men, or LGM as we call them for short—they're well, don't you think it's time for something new? Maybe even humans.

George A. Mayerchak
DCRSO SAC Hqs
Offutt AFB, Neb.

* * *

Dear Editor:

Do you suppose I could have a bit of space in your letter column to mention to your readers that there is a contest now being run, for the third consecutive year, in fact, for amateur sf authors?

It is run by the NFFF, the largest fan group of them all. Awards, three of them, are in cash. It is open to everyone who has sold less than three stories professionally. Stories must be less than 5,000 words —fantasy, sf or weird.

There is something in this for everyone; even the youngest writer who has little more than enthusiasm will find out why they don't sell. We can pretty well guarantee at least a page of criticism—which, as anyone who submits at all regularly to prozines is well aware, is generally not available to the writer. The editors just don't have time to tell the would-be authors why they don't make it. For the complete rules, write me.

Clayton Hamilin
Southwest Harbor
Maine

• *If* neither sponsors nor participates in this contest—but we think it's a Good Thing. Especially for those new writers who pretty well know their stories aren't quite right to be published, and want to get a second person's view on why they aren't That we're just not able to do. . . .

We are able to do one thing toward encouraging new talent, though, and that is to print some of it. As regular readers know, each issue we bring you at least one story by a new writer. This issue there are two: *The Time of Cold*, by a young lady from South Dakota, and *The Customs Lounge*, by a folk-singing, star-gazing man from upstate New York. We like 'em—hope you will too!—*Editor.*

* * *

Dear Editor:

Your July issue was good, but there were a few things about it that had a distinct aroma of the "old" *If.*

Mighiest Qorn: OK, but for some reason it seemed like a rewritten *Retief of the Red-Tape Mountain* (May, '62). Why does Retief always beat up on those poor little aliens? Earth should be up to its neck in space wars by now, but we always seem to end up with the BEM's on our side. Don't get me wrong. I think Retief is a great guy, but sometimes he seems very like a comic-book hero.

Down to the Worlds of Men: Quite a story! I'd like to see more of this fellow's work.

The Faces Outside: This story tears up and burns the *"Worlds of Galaxy Rejects"* bit, especially when you add to it the great *Turning Point* and *Singleminded* of May.

In the Arena: Actually this story reminded me of the E. R. Burroughs

Mars series, with all its arena battles in the first couple of books. At least the hero and heroine didn't give each other psychoanalysis as they do all too often.

David Lebling
3 Rollins Court
Rockville, Maryland

* * *

Dear Editor:

Something bugged me about the May *If*. Pederson's cover from *Turning Point* was great, but — I thought Mierna had *blonde* hair and *blue* skin, not *black* hair and *brown* skin. Don't tell me I'm color-blind! Don't get me wrong, though —everything else about the issue was supreme!

Lizbeth Stern
21 East 87 St.
New York City 28

• Well, we can explain that. The chain of communications between the author and the artist rests on one weak link. We're it. We goofed in transmitting the descriptions.—*Editor.*

* * *

Dear Editor:

How lucky you are! So many amateur editors and critics to help you run your magazine (art experts, too!) Particularly one Douglas Taylor of Elephant's Breath, Kansas, who, in his distinguished critique, off-handedly recommends that you "eject Retief", thus causing me to write my first letter to any editor in all my years of science-ficion addiction.

We live in troublesome times indeed, Mr. Taylor of Elephant's Ear, Kansas, times in which mediocrity is the standard and the art of gentle satire is all but extinct. Hit 'em with an ax or they don't dig you. I must take exception where Retief is concerned—a rare combination of "action-adventure yarn" and intellectual type humor of a sort that appeals to me.

Back to you, dear editor. I'm sure that you are doing your experienced best to produce a fine magazine and I for one will continue to wade through good stories and bad, good illustrations and poor, leaving all the decisions up to you—saving only that you hang onto Retief for me!

Harvey Telowitz
3982 Long Beach Rd.
Island Park, N. Y.

* * *

Dear Editor: I have the first volume, the first issue of *If*. Do you know who needs it?

Lawrence Pearson
1332 Willoughby
Brooklyn 37, N. Y.

* * *

Dear Editor:

Hal Clement is really good. He is always good. He was especially good with *The Green World* in the May, 1963, issue of *If*.

I would like to send out a plea for *Norholden's Millions* and the early issues of *Captain Future*.

James W. Ayers
609 1st St.
Attalla, Ala.

* * *

• There we are, out of room again. Thanks to all of you—especially to those whose letters wouldn't fit in this time . . .

Next issue? Retief is back, in Keith Laumer's *The Governor of Glave*; John Brunner tells us about *A Better Mousetrap;* we conclude *The Reefs of Space* . . . and there'll be more! *Editor*

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Photo by Philippe Halsman

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