

WORLDS OF

JANUARY 1964 • 40c



SCIENCE FICTION

THREE WORLDS TO CONQUER

His enemies were his fellow men—his only ally was a creature whom it was sure death to touch!

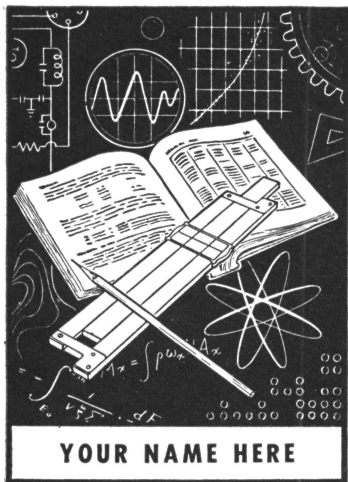
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WORLDS OF



SCIENCE FICTION

JANUARY, 1964

VOL. 13, NO. 6

ALL NEW
STORIES

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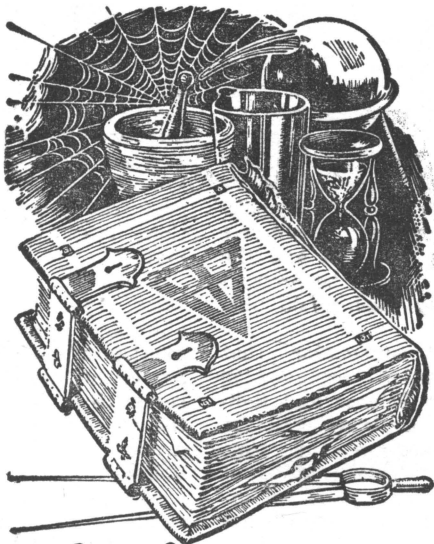
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THE DAY THEY THREW GOD AT ME

There I sat, as the ancient saying goes, with my teeth in my mouth and my bare face hanging out. Clamped to my head was a telephone operator's transceiver; before me was a large microphone; at my left was Hizzoner the Editor, F. Pohl, Esq., similarly caparisoned; and across from us sat a personable man hight Ed Joyce, who runs this predicament weekdays on CBS Radio. The transceivers shrilled in our

ears at intervals, and from Out There in Radioland people threw questions by telephone. It is a great sport for those among you who would like to know what a live decoy feels like when he recognizes, among the bulrushes, a shooter of sitting ducks. Actually, this fear wasn't realized that day, and we had some interesting questions and a pleasant time of it; but one question does, I think, deserve a little space here.

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entrusted
to a
few



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Fred had been describing the recent work on DNA, and the creation of life in the laboratory. "Don't you think," demanded the disembodied voice from Out There in Etc., "that to create life in the laboratory is to usurp God?"

Answer: No. Man's hands are God's work; the work of man's hands is God's work. (I spoke—and speak—for myself, of course.) So much for the question and the questioner, but I'm glad he brought it up and equally glad to do likewise here.

The recurring suggestion that there's some sort of Armageddon going on between Science and Religion is, I think, a straw man for bigots. That Science has at one time or another dealt certain kinds of Religion a heavy blow, I do not argue. I do believe, however, that what received the blow was this or that set of fixed convictions, and not Religion itself. And I think that the idea that Science and Religion must of necessity be opposed to one another is a throwback at least to the 19th Century—perhaps farther—and that to engage in this battle any more is equivalent to, and as quaint as, re-fighting the War of the Roses.

It seems to me that this Armageddon notion springs from a concept which is more than a little insulting to both camps. Reduced to its simplest terms, it reads: *Knowledge is Finite*. The rationale would seem to be this: that only God can know everything and do everything. That the more man knows, the closer he gets to knowing it all, the more his science does, the closer it gets to doing it all; and that the end product would be an omniscient

and omnipotent man who would usurp the place of an omniscient and omnipotent God.

Now, if science proves anything at all, it is that both knowledge and power potentials are infinite. The ultimate in either can never be reached. For those who care to believe it, God already has this knowledge and potency. How then could there possibly be a conflict in the matter?

Furthermore, science has demonstrated time and again, and will always demonstrate, that the production of solutions is the richest source of new problems. This too seems to be an infinite process. As the size of our body of knowledge grows, so does the size of the as-yet-unknown. And ever shall. Many churchmen can take this calmly in stride, regarding it (in which I concur) as a living manifestation of the greatness of this infinite Cause.

I know personally a good many scientists. Being people, they present a cross-section of convictions and attitudes quite as varied as those of any people. In the area of religion, I have met scientists far more devout than I could ever want to be; I've met unmoved, habitual, Sunday-best churchgoers, backslid Orthodoxers; agnostics, atheists and people who just don't care one way or another.

There is no secret sect of guys with test-tubes out to destroy the temples. There are more anti-religionists outside Science than in it . . . and if God thinks about this at all, He probably feels that He made a cosmos quite roomy enough to contain them all.

THIS

THREE WORLDS TO CONQUER

BY POUL ANDERSON

*He battled two foes – nightmare aliens,
on the soil of a world where no human
could ever stand – and his fellow men!*

ILLUSTRATED BY MCKENNA

FIRST OF TWO PARTS

The guide beam reached out in answer to his signal and locked onto him. *Home again*, he thought. His hands moved across the pilot board, adjusting vectors more delicately than a pianist controls notes, until the moonship rode a true curve.

Raising his eyes to the viewscreen, he saw Ganymede as half a globe ahead of him.

It was a cold sight, mountains like teeth, craters like fortress walls, their shadows long and lengthening across blue-gray plains. Though already nighted, just east of the John Glenn range, Berkeley Ice Field lay high enough to throw Jupiter light back at him, a sheening amber reach that lost itself around the curve of the world. Southwestward thence, slashing through the heights and a thousand miles over Mare Navium, the scar that was Dante Chasm ran toward the Red Mountains. Not far north of it, almost on the sunset line, Aurora's visual beacon was now visible, a green star that flickered on and off, on and off. But past the horizon, blackness was aswarm with other and older stars, unblinking diamond sharpnesses.

Not for the first time, he thought, *I'd like to know what's out yonder.*

But he wouldn't live that long. And it didn't matter. There was sufficient mystery in the Solar System for a lot of human lifetimes yet—yes, and trouble and danger and hope, all scrambled together in life's careless fashion. Hope reborn on Earth just as hell was letting out for noon on Jupiter—

The radio buzzed

"Aurora Space Traffic Control to Moonship 17. That's one-seven. Acknowledge," said a familiar voice.

Startled, Fraser jerked in his seat, and laughed a bit at himself for doing so. "Shucks, Bill, you needn't get stuffy with me," he said. "This is Mark in *Good Ole Charlie*. Remember?"

"Well—" Enderby sounded sheepish. "Ah, never mind. I was putting on company manners. But if any of 'em happen to be listening, let 'em think we're slobs. They'll probably be right."

"Company? How's that?"

"You haven't heard? We told every outpost."

"I wasn't at Io Base. Went directly to the mine, and flitted directly back here when my job was finished. So what's happened?"

"A battleship, that's what happened."

"Huh?"

"USS *Vega*. Made groundfall fifteen hours ago."

Briefly, Fraser's heart stumbled, and he had a sense of the hair rising on his skin. He shoved the tension down again as far as he could, and managed to ask, "What news?" in a level tone.

"Nothing much, from what I can gather. We've only seen a few of the personnel. According to what Ad-HQ announced to us, she was on patrol near Venus when the revolution broke, and was put to searching for an orbital base the Sam Halls were believed to have somewhere in that sector. Didn't find it. I don't



Imagine she looked too hard, if her commander had any sneaking sympathy for them. He seems to have had, maybe to have been in cahoots with them all along, because the *Vega* wasn't called straight home when the fighting ended. Instead, the new government ordered her here, to see if we needed anything and make sure of our allegiance."

Fraser still was trying for calm—those had been hard months while an intermittent radio beam sent tatters of information about the civil war ripping across American soil, a war that could at any minute have gone nuclear; and then the beam was cut off when Earth slipped behind the solar wind curtain, eight days after a still uncertain victory.

He made himself picture the battleship's track. She must have taken a cometary orbit to get here so fast: plunging as near the sun as coolers and radiation screens allowed, letting it swing her around, and then applying maximum blast. You gained considerable efficiency when you added gravitation potential energy to your jets. The saving in reaction mass would let you accelerate longer than usual, turn your eventual orbit into a still flatter and swifter hyperbola.

As always, he found engineer thoughts soothing. Forces and matrices were so much easier to deal with than people.

"Our allegiance is okay and then some," he said. "But I'd better write Santa Claus a long list of wants. My department's run low on Mark Four Everything, what with the last supply ship not coming." *Well worth it, though*, his mind added. *A tem-*

porary breakdown in logistics, and any amount of belt-tightening is small price for being free again.

Why . . . I could go back home now . . . as my own man!

His eyes returned to the bleakness in the viewscreen, and for a moment it was blotted out by the memory of blue water and white foamcaps, a wind that tasted of salt, under Earth's lordly sky. But then his glance wandered and fell on Jupiter, and suddenly he was unsure. He had lived a dozen years beneath that storm-blazoned shield, and if Gany-mede's rock and ice were hard to strike roots in, they gripped those roots all the more tightly.

"Well," he said in haste, "what's your call about, Bill?"

"Oh, that," Enderby said. "With the battlewagon taking up so much room, we have to put moonships in a bunch at the north end. There are already several parked. You'll have to descend on a very, very finicking line. And manually. Can do?"

"Look, I inspect and service this pilot board myself. I can put my boat down on the price of a Congressman."

"R-r-roger." Enderby issued instructions. Fraser listened with care, but had time to feel a little ashamed. The legislature and the courts ought to rate respect, now that the Army Liberation had booted out the dictatorship. Wasn't that so?

Or was it? After this long a time at the far end of a four hundred million mile communications line, a trickle of censored radio, censored letters, censored publications, how much truth could he know?

Noble slogans were cheap. The finest causes could go awry. Even the dictatorship had started as a movement to restore to a beaten United States her sovereignty and her pride. Then somehow one emergency after another cropped up, and those who grumbled began to have problems with the cops . . .

His thoughts were swallowed up in the busyness of planetfall. Being meant to land at unpredictable points, the intersatellite carriers depended on their pilots as often as on autopilots. Not every person could acquire the necessary skills.

When the last jet was cut off and the cabin had shivered to silence, Fraser unharnessed. He was a tall man, rather on the gaunt side. Forty years had put lines in his long jut-nosed face, around the gray eyes and wide mouth; the darkness of his hair had begun to frost over.

Putting the system on standby, he went aft to the spacesuit locker. This far from the regular port facilities, a tube couldn't snake out for his passage into Aurora. He got the garb on fast over his coverall and cycled through the airlock, as impatient to see Eve and the kids as he was to see the newcomers. And to call Theor, of course, to find out how matters stood on Jupiter. It had infuriated him, having to run over to Io for a week in the hour of his friend's distress. But the automated mining establishments, here and on several other moons, were still a-building, and the colony's chief cryogenicist was forever getting calls to come and troubleshoot.

He unfolded the accommodation ladder and went down it as if into a pit. The other craft stood close around, stubby big-bellied shapes that covered the ground with the inky shadows of airlessness. He almost collided with the spacesuited figure waiting by *Charlie's* landing jacks, before he saw.

"Oh, hello," he said. "Can't make out anything through your faceplate, but hello anyway."

A hand grasped his helmet and pulled it into contact. "That is you, Mark, isn't it?" came Lorraine Vlassek's voice.

"What the devil! Why talk by conduction? Your radio out of whack?"

"Privacy." The muffled sound had a frantic overtone. And his chief electronics technic wasn't given to dramatics. His throat tightened anew.

"Thank God you're back," she said unsteadily. "You're the only one I dare talk to."

"Whatever's wrong?"

"I don't know. Maybe nothing. But that battleship. Why did she come here?"

"Uh, well, Bill Enderby said—"

"Yes, yes, yes." Her words fell over each other in their haste. "Does that really make sense to you? Maybe it does. You've been so long away from Earth. But I left only two years ago. Already then it was like a boiling kettle, subversive propaganda, security officers murdered, riots, raids, everywhere over the world. Is that supposed to stop just because there's a new government in Washington? They could have sent us a cargo ship. We're only five thousand men, women and children. Un-

armed. Not even equipped to leave the Jovian System. What possible danger could we be? And meanwhile every bit of American power is needed at home, if things aren't to explode!"

Fraser drew a long breath. His relief at finding her worries were empty ones turned him limp.

"See here, Lory," he said, "you're letting your prejudices—sorry, your opinions—run away with you. I can sympathize. I never blamed you for being so unhappy when we heard about the revolt, and I sincerely hope people will soon stop cold-shouldering you on that account. It's not your fault that the schools drummed into your generation that the U.S.A. had to mount guard on the entire human race, or there'd be another thermonuclear war. But damnation, foreigners *aren't* evil! They only resented our bossdom. Who wouldn't? Didn't our country resent the Soviet bossdom so much as to finally destroy it? If the Sam Halls really can establish the kind of cooperative peace authority they promise, why, that solves the whole problem—and Americans won't have to enslave themselves any longer, either, just to sit on the lid. Stop shying at ghosts."

"Oh, Mark! You're a good engineer, but you simply don't know— Never mind. I'm scared. That story the ship's commander handed us is too thin. Seen from Jupiter, the solar wind interference doesn't cover so wide an arc that Earth is out of radio touch with us for more than a couple of weeks . . . re-

member? Surely the government would wait that long and query us directly, before sending a ship that might not have been needed at all.

"And . . . there's a guard posted around her. Every minute. And you'd expect the crew to get liberty, to come in and fraternize, but they haven't! Except for a few officers, they've stayed inboard."

"Hm." Jarred, Fraser thought of his family, and of what a bombardment could do to Aurora. He wet his lips. "But they must know we're on their side. Why the devil are more than half of us here in the first place? To do scientific research, sure, and the auxiliary work—but there're plenty of similar opportunities elsewhere, not quite so far out at the end of beyond. No, we were damn well fed up with secret police and official uplift and labor drafts and censors and bureaucrats. We wanted to put as much space between us and Earth as possible. And the old government knew it, and was glad to cooperate in getting rid of us so easily and usefully. Everybody knew it."

"Exactly. So why send a warship now?"

Fraser paused. In the silence of vacuum, his pulse and breath sounded feverish. "I don't know," he said at last, harshly, "and I don't know what to do about it, either. Any suggestions?"

"Yes. Make some quiet preparations for getting out of town."

He caught at her arm, gauntlet against brassard, and blurted: "What do you expect will happen?"

"I've no idea. Maybe nothing."

Maybe I'm being hysterical. But . . . oh, I did so want to talk with you."

She hasn't anybody else, he realized. Which was odd. No other girl had remained single for two years, in a settlement still overloaded with bachelors. He patted her awkwardly on the back. "Well, here I am, kid, and what I have to say is, don't be such a worrywart. Let's go on in, huh?"

Perhaps she nodded. She heard the hum in his earplugs as she switched on her suit radio.

His own mind fretted while he led the way out between the moonships. But when he emerged, he stopped and whistled.

The *Vega* was huge. She could never have touched on Earth, and now that Lorraine had raised the question of motive, he did think it odd that she had not taken an orbit even around Ganymede. A five hundred foot spheroid, her gray paint scored and blistered by radiation and micrometeorites, rifle turrets and missile tubes and boat locks humping dinosaurian athwart the sky, she seemed almost to fill the concrete apron of the regular spacefield.

That was an illusion, he knew, and so was the impression of overwhelming mass. She was a shell, thinner than any civilian vessel, relying on speed and firepower for protection against weapons that made any armor futile. But nonetheless he felt as if a mountain had descended, and the land looked suddenly strange to him.

Unconsciously seeking familiarity, he gazed around. Westward the *Sinus*

Americae stretched beyond sight, losing itself over the near horizon before it opened on *Mare Navium*. The sun hung low above Navajo Crater out there, winged with zodiacal light, the disc shrunken to a fifth of its homeside angular diameter but still too bright to look at. Eastward the lava plain lay equally bare and dark, save where the monorail to the ice mines slashed a metal streak; but the highest peaks of the John Glenns thrust into view. Northward the Gunnison made a jagged wall, ramparts touched with radiance. Over them, over everything arced the night of space. He couldn't see many constellations. Though Ganymede gets only some four per cent of the illumination that Earth does, the human eye is so adaptable that the country does not seem especially dim, and the pupil narrows so much by day that none but the brightest stars shine through. But Jupiter was plain, of course: vast and cloudy brilliant in half phase, a little south of the zenith.

"Cha-arge!" he said and struck off with the long flat strides of low-gee. He took a secret pride in being able to move so lightly at his age. Not that he enjoyed regular calisthenics. He swallowed a euphoric pill before each dismal session. But you had scant choice in the matter if you wanted to stay healthy in a mere eighteen per cent of Earth's gravity field.

Passing near the ship, he noticed the ring of armed and armored sentries. *Oh, hell*, he thought, *they only have an ultra-cautious skipper*. Trying to shake off his unease, he

glanced past them, down to the west end of the field. The *Olympia* was still there, her big clumsy-looking shape a comfort and a promise.

Unless —

His eyes strayed to the planet in the sky. "Any word from Jupiter while I was gone?" he asked.

"Yes," Lorraine said. "Pat Mahoney told me that your friend, that prince or whatever he is, called about fifty hours ago and wanted urgently to talk to you. Somebody on the lingo team told Pat. But none of them could make out the reason why."

She spoke absent-mindedly, her concern more with the guns that shadowed her. Fraser swore. "That must mean heap big trouble. I'd better contact him right away." His fists drew together. "Though what can I do?"

Beyond the field, they zigzagged through a portal in the safety wall and confronted Aurora.

A part from some outlying domes for special purposes, the town was four long slabsided sections, eight stories high, forming a quadrangle in whose courtyard the main radio mast lifted its beacon-eyed skeleton. The building material was native stone faced with white seal-plast. There was no reason to burrow underground here, as on Luna. Solar weather was too remote to be a hazard, and if you took your Antion on schedule you needn't worry about biological damage from cosmic rays. Meteorites posed a theoretical danger, though no big ones had struck this neighborhood in the thirty years

since men started colonizing. If any did, interior compartmentation would minimize air loss. And it was worth the slight risk to save on power. Heat was lost to vacuum at a considerably lower rate than it would have been conducted away by Ganymedean rock, at two hundred or more degrees below the Fahrenheit zero.

Someday we'll warm that rock with nuclear energy, and crush it into soil, and blanket it with atmosphere, and turn this whole world green.

An ironic part of Fraser reflected that it wouldn't be done for particularly idealistic reasons. There was so much to learn in the Jovian System that a permanent research base was a scientific necessity; which meant there had to be an extensive life-support plant; which in turn meant a sizeable population of technicians; who, like many of the scientists, wouldn't settle here without their families; and so the colony mushroomed. You had to hydrocultivate most of your own food, rig and refine your own metal, for supply ships couldn't come very often. And every further gain in economic independence meant a saving in haulage costs. The goal was to make Ganymede into New Earth.

Still, motives weren't important. Nothing is as dead as the last generation's practical politics. The thing itself was what mattered and would endure, blue sky, blinking lakes, forests that rustled and rippled in the wind, under Jupiter. Sometimes Fraser woke from a dream of his childhood's ocean, and his pillow was wet.

He jerked out of his reverie. "Stop mooning, you."

"What?" Lorraine said.

He realized he had spoken aloud, and flushed. "Nothing. Though, come to think of it, a bad pun . . . Damnation! If Theor's people are overrun, it'll set our work back twenty-years."

She regarded him a while, until they stopped before an airlock. "Don't kid me," she said then, quietly. "I've watched you pace the floor as the bad news came in. Those Jovians mean more to you than a scientific project."

Surprised, a trifle embarrassed, he returned her look. She was a big blonde girl, too strong-featured to be pretty but with one of those figures that can knock out both a man's eyes if the owner sticks to her diet. He had found her competent and likeable. He could even stomach her politics, since she had by instinct the nearly forgotten art of not equating dissent with treason. She also had a sense of humor, and didn't mind working peculiar hours, and—until the revolution came to split loyalties apart—had been more heartily in the town's social activities than his own bookish self. But that was about the extent of his knowledge concerning her, before today.

"I guess so," he mumbled, and turned the handwheel to undog the outer door. "Now don't stew about that ship. Everything's going to be okay. Uh, would you stow my gear for me, please, and buzz my wife that I'll be hung up at JoCom for a while? I've got to call Theor. God only knows what's wrong."

II

He settled himself before a microphone tuned to the band reserved for Jovian communications.

"Theor, this is Mark," he said—neither in English or in Nyarran, for neither race could form all the sounds of the other, but in that language of croaks, grunts, clicks and whistles which had been hammered out during two decades. Like every human attempt at a Jovian word his voicing of the name was a crude approximation. "Can you hear me?"

His sentences departed as a series of electronic waves. Some distance from Aurora, a radio transmitter picked them up and sent them out on a beam automatically aimed at whichever of the three relay satellites in equilateral orbit around Jupiter was handiest. On arrival, recoded into pulses, the words became instructions to a highly specialized accelerator. Bombarded nuclei fluoresced with gamma rays, which struck certain crystals, isotopically pure, bathed in liquid helium, each atom oriented by the grip of electric and magnetic fields. Their own nuclei took up the energy, surged for wild picoseconds, and regained peace at the cost of emitting a neutrino burst.

Invisible, impalpable, chargeless and virtually massless, that cone expanded toward Jupiter at just less than the speed of light. By the time it got there, it was wider than the equator. A million miles beyond, it had scattered to inherent undetectability. But it survived long enough.

The tightest, hardest-driven maser

beam could hardly have gotten past the storms of charge and synchrotron radiation where atomic debris surged in the king planet's enormous magnetic field; then punched through an atmosphere churned by thunderstorms often larger than the Earth, an air packed down by two and a half terrestrial gravities until the pressure at the bottom exceeded the pressure in the Mindanao Deep. It could never have pierced a many-layered globe whose ice and metal and solid hydrogen amounted to two million billion billion tons. But so ghostly was that neutrino wind, so vast were the empty spaces it found not only between the atoms but within each single atom, that it swept through almost as if the obstacles did not exist.

Almost: not quite. Somewhere on the Jovian surface, a minute percentage of the particles entered another crystal.

The latter was not identical with the transmitter crystals in the satellite; but its nuclei underwent a swift reversal of those processes which had given birth to the beam. They were extremely special isotopes, continually excited by a radionuclide to so high a pitch of instability that a mere few neutrinos would make them jump back to a lower energy state, giving up quanta as they did. Nature provided such neutrinos, of course, but not so abundantly—because resonance was also required—that the background noise was intolerably high. The quanta came out in bursts corresponding to the pulse code of the beam. A solid-state device, drawing its own power from

the built-in radioactivity, amplified the signal, mapped it onto an alternating potential, and made a little piezoelectric sheet vibrate. The receiver, a thick four-inch disk spoke with the voice of Mark Fraser.

Some of the finest minds the human race ever brought forth had spent a generation making it possible.

"Theor! Are you there, boy?"

He should be, damn it. He carries the gadget around with him constantly these days.

Unless he's dead. Fraser took a worn briar pipe from a pocket and began to fill it from his pouch. Never mind if he used up his tobacco ration before the next shipment came. His hands shook.

In a darkness that human eyes would have found absolute, another hand moved. A button was pressed. A voice said gladly, "Is that you!"

Crystals vibrated, electrons leaped, and some of the energy from the disintegrating isotope became a radio signal of extremely great wavelength.

In this unearthly environment—matter forced into strange allotropes by pressure, chill and its own composition—the wave was conducted over the ground. It was feeble indeed, but an artificial thing, with hardly any natural competition. Its effective range was therefore on the order of a thousand miles.

Well before it had gone that far, it activated another neutrino generator. Again, this was a device which was not, could not possibly be like its counterpart in orbit. Besides the fundamental differences required by

Jovian conditions, it was a broadcaster, not a beamcaster; for though the moons eternally turn the same hemisphere to their primary, Jupiter rotates in five minutes less than ten hours. Thus the pulses which arrived at the relay satellite were far weaker than those which had left it. But the humans had detectors more sensitive and amplifiers more powerful than anything they had been able to land on the surface. The radio beam was modulated and flashed to Aurora.

"Is that you!"

Fraser's pipe dropped from his fingers. It fell so slowly that he scooped it up before it hit the floor. "Yes," he stammered idiotically. "I, I, I hope I didn't disturb you."

In the seven seconds that must pass between Q and A, he mastered his nerves. *What are you getting so worked up about, you gnatwit? Okay, so Theor's a nice chap in his unhuman fashion; and if his enemies swamp him it'll put a crimp in our projects—but still, how can anything on that planet make any serious difference to me or mine? Jupiter's more alien than Hell itself.*

"No," Theor said. "I should have dimmed my consciousness long ago. Night is now where I am. But with so much future to plague me, I cannot. Well that you called no later, mind-brother. The race and Reevedom stand in high need of your help."

"Couldn't you get help from, uh, my colleagues?"

Fraser felt more than a little touched. You couldn't work together for almost a decade, as Theor and

he had done, with an objective which amounted simply to understanding each other, and not build up a sense of comradeship. He had admitted to himself quite some time past that this creature of cold and gloom and poison chemistry was closer to him than most humans.

"I strove to convey the wish, and surely they desired to comprehend. But always our discourse flowed about and turned in on itself."

Fraser grunted with astonishment. "Do they have so poor a savvy at this end? I hadn't realized."

Wait a bit, though. He'd never kept close track of how the Jupiter-study teams were doing. Ten years back, while helping improve the transceiver system, he'd gotten so interested that he began to spend his spare time talking the crude pidgin, which was the best they had then, at any Jovian willing to reply. Before long, he was holding regular bull sessions with Theor, who'd gotten just as bugs on the subject. The chief of the language research group in Aurora was happy to let Fraser do so. Every man-hour was valuable, especially when the engineer and the prince made more progress in developing a mutual code than anyone else had done. That, no doubt, was because of sheer persistence rather than innate talent. Over the years, they subconsciously picked up clues to the nuances of each other's personalities. Their recorded conversations swelled the data files.

"Nor I. My demi-father Elkor, as well as numerous philosophers, have had much exchange with your staff in the past. Yet neither they nor I

could thrust comprehension across, in this matter of our present necessity."

"Um-m, I think I see why. It hadn't occurred to me before, but every other man who knows common-language is a scientific specialist, asking questions about those few particular aspects of your world that interest him most. So their effective vocabularies are still pretty narrow. Language involves more than words. There has to be some rapport as well—a feeling for how the other guy thinks. And Jovian and human minds do differ. You and I, we just rambled in our conversations. As a result, we've developed a much greater fluency than anyone else on either world."

Old Ike Silverstein would never have gotten so over-specialized. JoCom was the child of his dream, his begging and bullying megabucks by the thousands from a reluctant government, his nursing the teams through heartbreaking years of R & D in areas of physics that didn't exist before him, until the first instruments were successfully softlanded on Jupiter. They were crude small things, their maser telemetry so distorted by interference that little could be read. Silverstein flogged his crew into designing better ones. And when those sent back data to prove there was intelligent life on the planet, he worked himself to literal death in birthing the communication project.

"Your thoughts are well built, Mark, and I believe they support a truth. But our inwardnesses may not fare abroad this night. Time is thin before the Ulunt-Khazul arrive."

"What's happened? The last I heard, you'd sent an army against the invaders."

Joe Dahlbeck, who replaced Silverstein, would have understood Theor too — and probably outlined a winning strategy for him as well.

He was necessarily a universalist. Engineers could only design scanners, receivers, transmitters that would continue to function after the murderous Jovian atmosphere had corroded their vehicles away; and money could only provide so many machines that eventually one must land near a Jovian settlement. After that, it was up to genius—the kind of genius that can start with arithmetic sums in beeps and end with a verbal language.

True, the Nyarrans included some sharp intellects, who'd worked hard also, once they got the idea. But Dahlbeck had been the semanticist who finally saw enough of the basic structure of the Nyarran glossa that he could know how to go about developing an Esperanto for the two races . . . Seven years ago, his gannycat veered out of control and went down a cliff on Mount Schirra. Now a routineer was in charge of the linguistics team.

Though it would probably have deteriorated anyway, after the *Olympia* project started. So much glamor attracted all the most original-minded young men. Fraser even caught himself in occasional daydreams about riding that ship.

"Yes," Theor said. "We thought this was only another barbarian incursion, and dispatched the border guard to rout them. Instead, they cut

our people to fragments on the shore. Survivors relate that their host is immense, and not even of our race. Two different breeds of thinking animal have met."

Fraser whistled. Then: "Well, I suppose that figures. On a world as big as yours, with travel as hard, you might well get more than one intelligent species."

And how could men dare land the *Olympia* at Nyarr, if that city, the sole part of Jupiter about which they had anything like exact knowledge, was ruined and overrun?

Oh, they could go ahead and take a chance; or they could pick another area arbitrarily; but the enterprise was hazardous at best. To multiply risks was sheer foolishness. So the ship stood completed and idle.

"No matter that," Theor said. "Apparently they crossed the western ocean by way of the Floating Islands. Our own traders keep an outpost there, or did. If the Ulunt-Khazul captured that, they could have learned our language and much about our country from the people there. No doubt they have also secretly scouted our shores. Now after the battle we sent envoys to ask for discussions, more in the hope of probing out information about them than because we fear to fight. However, I confess to fearing the outcome if we do fight. They agreed, and their representatives will arrive in the city two days hence."

"That's only about twenty hours. No wonder you were getting frantic. But what can I do to help?"

Silence hummed while the neutrinos leaped back and forth. Fras-

er's gaze flickered around the cluttered room. It felt suddenly stifling.

"You know with what awe your machine that spoke was received by us," Theor said. "In fact, to some degree it changed the nature of the Reeveship, back toward the ancient function of conductor in magical rites; for of course my kin-tree was the most active in dealing with the thing and groping toward a language. You will recall that we took the image-maker you sent us a third of a year ago—" that would be four Earth-years, Fraser reminded himself—"to a special shelter near the House of Council. This shelter has become known as Iden Yoth, the House of the Oracle, and many believe that prophecies are uttered there. Yet we are not a fanciful people in Nyarr city or across the plains of Medalon. Barbarians should be more prone than us to visionary interpretations."

"Ah . . . yes! I see. You want me to—"

The intercom blared: "Your attention, please. This is an announcement from Administrative Headquarters, Bob Richards speaking. Admiral Swayne, commanding the battleship out there, just called to ask if we could send a large liberty party inside. Naturally that's fine by us. So if you want to entertain any of those boys, now's the time to make ready. Over."

A shaky grin lifted one corner of Fraser's mouth. *So much for Lory's fears.*

"What was that?" asked Theor anxiously.

"Nothing important," Fraser said. "Let's get back to your affairs. I agree, the sight of me might well scare the hypothetical pants off any Jovian who wasn't prepared for the shock. I suppose you want me to give the barbarians a suitably gruesome warning of what'll happen if they don't leave your territory."

There was a clatter from the adjacent laboratory. No doubt the fellows were shutting up shop for the rest of this watch period, so they could go out and greet the spacemen. Fraser paid no heed.

"You engulf my thoughts," said Theor. "I have an intuition that this may swing the balance. Ulunt-Khazul must know that there are lands to the north, less rich than Medalon but more easily taken. If they are brought to fear supernatural vengeance, as well as seeing how great a host we can muster against them, they should rationally decide against invading us."

"Um-m, I'm not sure how their minds work. Even you don't always make sense to me, and here we've got another culture. Another species, in fact. Still, I'll do my best. Only how? Your enemies don't understand the mutual language, and I can't speak Nyarran."

No man could. Perhaps nobody would ever be able to. The problem went much deeper than differences in vocal organs. Dahlbeck had established that Nyarran was not one but three interrelated systems, each with a different set of underlying premises: as if a human should mingle English, Chinese and Hopi. And all those hidden assumptions about the

nature of the universe were abstracted from a racial experience totally foreign to man's.

"I know. But I can recite the speech for you, here and now, and you can record it, and send it back with your image upon the day."

"Excellent! I'll have to know what it means, so I can make appropriate gestures as it raves on. Do you have a script prepared?" Fraser lit his pipe and blew cheerful clouds. Things seemed to be looking up everywhere, on Jupiter as well as Earth and Gany-mede.

"I have a tentative structure. But I would like to discuss the whole with you. I am sure you can make many suggestions of value. Besides, your cast of thought and phrase will lend a strange flavor that should add to the impressiveness."

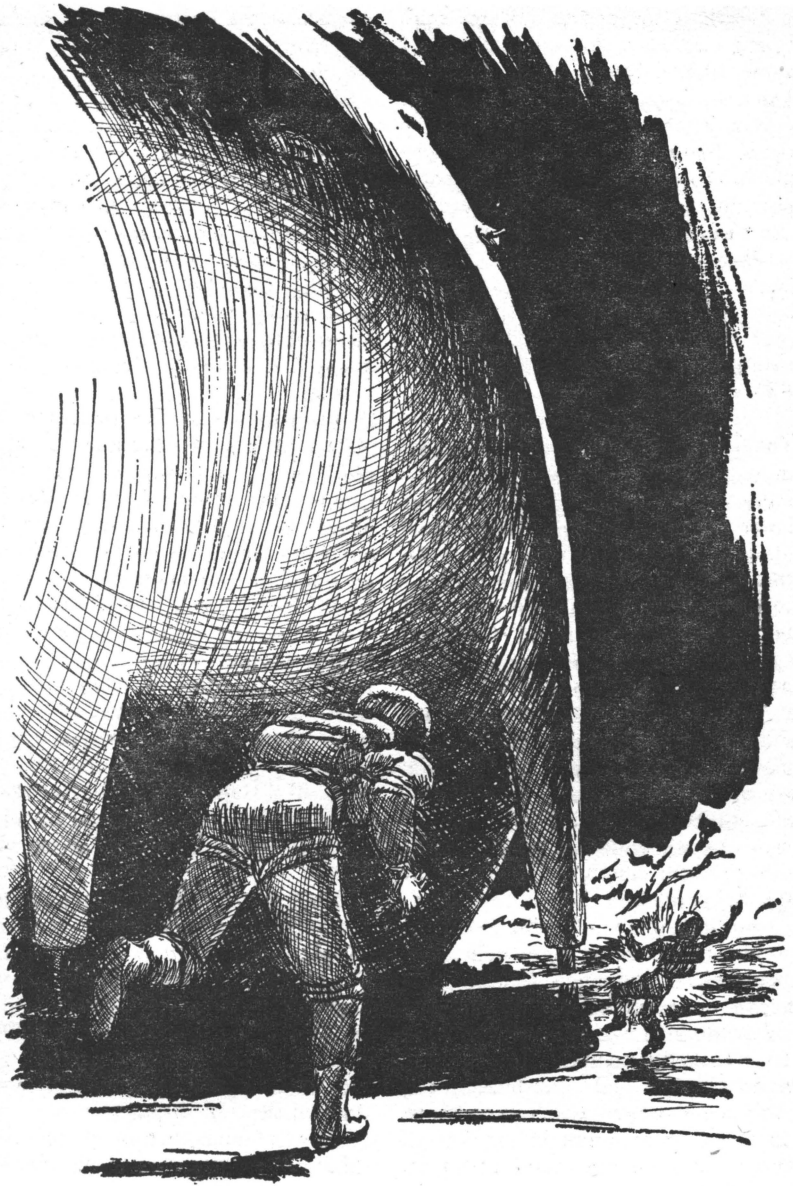
"Great! I can show films too, if you think that's a good idea. Let's get to work."

They finished more than an hour later. Fraser was surprised to notice the time. *Hope Eve hasn't gotten too irritated with me.* "Very well," he said. "I'll stand by here, at your conference time. When you want me to start transmitting, call. That should sound like an invocation or something to your guests." He paused, awkward again. "I do hope this works, Theor."

"Your mind-nearness brightens existence. Farewell, friend."

There was a click. Fraser sat for a minute feeling oddly alone. Then he shook himself, rose, and walked toward the hall door.

It was flung open in his face. Pat Mahoney exploded through. His fea-



tures were stretched into a Gorgon mask.

"Mark! Get out of here! They're arresting everybody who can operate anything!"

"What?" Fraser gaped at him.

"Those bastards from the ship! Their goddam liberty party pulled guns and they're taking over. For the old government!"

III

Without instruments, no man could have seen morning on Jupiter.

At the bottom of that monstrous atmospheric ocean—mostly hydrogen, much helium, a few percentage points of methane, ammonia vapor and other gases—the only visible illumination on land was from the frequent great lightning flashes. Then cloud banks might stand forth in miles-high red and tawny precipices, until blackness clamped down again. But Theor's two eyes, golden in hue and thrice the diameter of a man's, saw by infrared as well as the longest red wave lengths. To him, a brightness climbed swiftly out of the night mists that still rolled across Medalon, tinting them in a thousand rich shades, spreading across the vast, roiling arch of the sky. He felt wind in his face, sharp and cold; the chemosensor antennae flanking his mouth quivered as they drank organic odors blown off the plains.

He wished he could merge himself again with the year, sink back in the work and the rites which were his to lead, as heir apparent to the Reeveship. His mind continued to worry

those problems he had been dealing with until this last possible minute. The druga species were undergoing their regular metamorphosis from vegetable to animal, and the ranchers who kept such herds had a thousand attendances to dance on them. This meant that other tasks must be neglected. Which meant that wind, rain, hail, lightning, quake, flood, geyser, firespout, stonecrush could wreak havoc unless certain precautions were taken. Those it was Theor's job to direct.

That was the basic function of the Reeve and his kin-tree. Only incidentally and occasionally were they priests, magicians, judges, military leaders. Always and forever they were the master engineers. Without their skills, in an environment so riven by elemental forces, Nyarr would soon return to barbarism.

As could happen anyhow, Theor reflected grimly. We can stand off the raiders from Rollarik with little effort, for we are more than they, and more cunning and better armed; and then they have to cross the Wilderwall in the first instance. But these newcomers—! Who brought so huge a force the whole way across the ocean!

That shook him at least as much as their fighting prowess. Nyarran ships coasted south to trade with the Foresters; they harvested the sea near Orgover; a few expeditions had gone as far west as the Bright Islands. But how was it possible to cross the thousands of miles of storm-swept liquid ammonia that reached beyond? Theor knew the distance was that much to the next piece of land

big enough to hatch a host like Ulunt-Khazul. The Earthlings on Ganymede had learned it from their probes and passed the information on.

His eyes went heavenward. He had never seen the moons, or even the sun. Strange if Nyarr should be saved by help from a place invisible and unreachable. Though to be sure, Mark had told him that those moons raised air tides and thus controlled the Four Lesser Cycles . . .

"Ulloala!" The voice came from below, traveling fast and far in the dense medium. "Theor, I see you. Descend for discourse!"

"Ush?" Startled, he drew on the reins of his forgar. The mantis-like beast slowed its flying—or swimming—and slanted downward. The rider stood on its broad back, feet braced in four stirrups.

He was still some ways from the city, able to see both the wide bright curve of the River Brantor and the red-tinged smoke from Ath. Those villagers must be hard at work now, forging weapons by smelting water over their volcanic outlets—the only kind of fire known on Jupiter. He peered ahead. A slender form in a blanket dyed pirell and onsy stood waving a plume-tipped staff. Theor recognized his demi-father Norlak. What was he doing out here?

The Reeveling landed and jumped off. His forgar settled to cropping the spongy-leafed bushes roundabout. The soil in which they grew was ice powder, intermingled with organic matter and minerals that were chiefly

sodium and ammonium compounds. Theor felt it crunch under his feet as he advanced.

"May the Powers be serene within you," he greeted formally, then went over to the patois of practical affairs. "We've small time. The enemy delegation must be in town."

"They are," Norlak said. "In fact they arrived late yesterday. But I thought I'd best talk matters over with you beforehand, so I came out to intercept you."

"Why aren't you at the meeting? It may already have commenced."

"They said that by their law only males could attend councils. If we insisted on having any others present, they'd break off negotiations at once. Elkor and I decided to swallow the insult."

Theor nictitated in surprise. The three sexes were substantially equal in Nyarr, though the placid temperament of the females, and their normal preoccupation with the young, kept them from desiring much voice in affairs. The wild folk of Rollarik had a somewhat different arrangement, and the Foresters still another; but this was extreme.

"Indeed," Norlak went on, "the Ulunt-Khazul chief remarked that their females are kept as property, and most of their dememales are killed at birth—only a few spared for reproduction. Their host is entirely male. After they've conquered us, he said, they'll bring their other sexes from the Floating Islands, where they're waiting."

Theor grimaced. "Now I know they're another species, not just a different race of ours." He tugged

thoughtfully at his antennae. "This might work to our advantage, though. You demimales may be more excitable than males, but you're also quicker-witted."

"True," Norlak said with a touch of smugness. "Was it not my idea that we get by your sky-dwelling friend to frighten them? I wish I could be present, to observe the enemy reactions and guide their emotions. Males don't have any real sensitivity to such things. Most of your wits are in your hands."

In past arguments, Theor had maintained that this was libelous exaggeration. After all, he was the one who had established communication with Mark. Norlak always retorted that that was more through male doggedness than male intellect. But only a light-minded demimale would indulge in banter at a time like this. Theor shook his head, which meant what a shrug does to a human, and asked, "What did you want to tell me?"

"My recommendations for your behavior, since I must be absent myself. Also, what I've been able to learn about the Ulunt-Khazul. You should not meet them for the first time without some background information. Our mistake was in assuming them to be a mere barbarian horde. It cost us the initial engagement. They're something much more formidable."

Theor composed himself to listen.

A man seeing those two Jovians would doubtless have thought, *Centaurs*. But that was too crude. Theor's hairless red body, stub-tailed and tiger-striped, did stand upon four stout legs; but each foot had three

prehensile toes. His long arms, four-fingered hands, and blocky torso might be considered anthropoid, if one overlooked innumerable details. But his round head lacked external ears and bore a roosterlike comb, fifty inches above the ground. The mouth sat close below the great eyes, and was only for eating and drinking. Speech came by vibrating muscle tissue in a pouch under the jaws.

He had no nose or lungs in any terrestrial sense. Half of a dozen slits on either side of this thorax, with lips to close them at need, let hydrogen diffuse inward, where his metabolism employed it to obtain energy by reducing organic compounds whose ultimate source was vegetation. The methane and ammonia given off by this process came out through abdominal vents. At Javian air pressure, the system was efficient enough to support a large, active animal.

Except for a tool belt and the communicator disc hung from his neck, he was nude. being homeothermic, and living on a planet whose slight axial tilt makes for less temperature variation than on Earth, Jovians rarely had any practical need to dress.

However, Norlak's sex went in for gaudy clothes. The demimale was short and slim. He lacked a comb, his antennae were longer and more acute—an interminable list of differences might have been compiled. Male and demimale must both impregnate a female within a few hours of each other, for conception to result. With

genetic diversity thus increased, evolution had proceeded about as fast as it does on Earth, despite the lower mutation rate in this cold and weakly irradiated environment. A mother gave live birth and fed her infant by regurgitation. In Nyarr, a three-way marriage was considered permanent and exclusive. Other societies had various other ideas.

Including the Ulunt-Khazul arrangement. Theor was shocked by that concept. And such creatures meant to swarm across Medalon? He was less combative by nature than a man, but the thought made him clench a hand on his hammer.

"I've been piecing together what scouts and survivors of the battle can tell, besides my own observations of the embassy," Norlak said. "The Ulunt-Khazul homeland seems to be low and swampy, scattering off into the ocean as island clusters. You'll see for yourself how the people are built to be swimmers. Evidently they became master shipwrights. We know they can cast ice. They found their way clear across the ocean, which means they're better navigators than us. In fact, they invented the compass by themselves, while we had to get the idea from Ganymede." There was some lodestone, like other metal, on the Jovian surface, of meteoritic origin and more rare than diamond on Earth.

Norlak voiced the equivalent of a sigh. "We must face the fact," he said. "They aren't barbarians. Their civilization is radically different from ours, but almost as complex and sophisticated."

"Hurgh," said Theor. "Then they

may be hard to scare with the Oracle."

"At least, you'll be wiser to threaten supernormal rather than supernatural vengeance."

"Which will make certain passages in the warning difficult to rationalize. Yes. I wish you could be there, demi-father."

"Well, being only males, they may not be impossibly hard to bluff. But I think you should stay closer to the facts, treat the sky-folk as carnate beings rather than Powers . . . though of course you'll omit the fact that they can't come here themselves."

"Mark said—" Theor broke off. That was no use at present. "What made the enemy leave home?"

"A weather belt shifted to their country. Storms caused famines."

"Yes, Mark explained that to me once. Where two bands of the upper air meet, rotating at different speeds, they breed a region which—"

"Spare me. I'm hardly the Reeve type. To continue, the Ulunt-Khazul have scouted us out in some detail. People caught glimpses of their spies—now I know why so many rumors were flying a cycle or two ago, about the Hidden Folk faring abroad. But in a land as big and thinly settled as ours, the glimpses were few. They must also have interrogated elsewhere. Altogether, they have a good idea of what we and our country are like. Their bluntly announced intention is to dispossess us. Now at the meeting today, you should—"

Norlak went into a long speech. Theor listened with an impatience that grew. The ideas were

good, no doubt, but time was shrinking.

In the end he said only: "Yes, yes, I'll do what I can. The need is for action, though more than planning. So I'll be on my way. Peace abide with you."

He swung himself onto the forgar and lifted skyward before Norlak had a chance to respond.

Several minutes later, he descended at Nyarr. From above, the city looked more like a scattered stand of copses than anything else. Houses were pits, with thin interior walls that wouldn't crush the dwellers in an earthquake. Their roofs were living plants, so densely interwoven as to be weatherproof while yielding enough that the winds could not tear them off. A similarly thick hedge of thornbush grew tall around the town. Ships lay empty at the riverside docks, and the paths between houses had an ominous lack of their usual bustle. Most folks were indoors, waiting.

He landed in the square between the House of Council and the House of the Oracle, and hastened toward the former. Three troopers guarded the entrance. They wore armor of scaly kannik hide and carried spears whose heads were alloyed ice—a dense, hard mineral at this pressure and a temperature of minus 100 degrees. "Halt," barked one. Then: "Ah, you, Reeveling. Go on in. We wondered what had become of you."

"How goes the meeting?" Theor asked in formal-phase words.

"Ill. They have only scorned Elkor's threats, and jeered at his proposal that they settle in Rollarik."

"Here's my son now," came Elkor's voice from within.

"Hungn!" said a deeper, harsher, thickly accented tone. "So even common spearwielders may listen to us talk."

Theor went down the ramp and through an antechamber to the main room. It was lit in the common way, by phosphorescent blossoms growing among the leaves overhead. But it was bigger than most, a circle bounded by tiers on which stood the male elders of the country: ranchers, artisans, merchants, as well as philosophers. The sense of tension was an almost physical thing.

Elkor the Reeve stood alone on the floor with the half-dozen Ulunt-Khazul. He was still erect and powerful in middle age; but they dwarfed him.

Theor's gaze went to them and rebounded. He had heard them described, but the actual sight was jarring.

A human would have seen little difference: about as much as a Jovian would have seen between a man and a gorilla. The Ulunt-Khazul stood a foot taller than the Nyarans. Small tusks grew down over their chins. Their feet were broad and webbed, they had long thick tails, their skins were shining gray. But every angle and every proportion was alien, some subtly, some grossly. And the smell from them was acrid—*animal*, Theor thought in disgust. Then he wondered how he smelled to them.

They wore hooded mantles, and two of their group sported bracelets that must have been looted off Ny-

arran dead. Worse, they had brought their weapons along, into a peace-holy place. Theor's hearts contracted with anger.

"We had nigh despaired of you, my son," Elkor said. "I was about to show them the Oracle myself." His own radio disc protruded from a pouch in his tool belt. "But now—Chalkhiz, warmaster of Ulunt-Khazul, know that this is Theor, the most intimate of us with those Powers that dwell beyond the sky."

Norlak had mentioned that the enemy chief had come in person. It argued both fearlessness in him and a horde so well organized that his death would not be a serious blow. Theor met the chill eyes and said:

"Knowing so much else about us, you must have at least some inkling of our alliance with them. I don't pretend that we enjoy this because of any special merits of our own. But I do say that we are useful to them, and therefore favored by them, and that they won't stand idle and let us be destroyed."

Chalkhiz widened his mouth in a carnivore's grin. "Then why have they let us invade you?"

"We did not ask for their help erenow."

"We've heard many old females' tales in our wanderings—about spirits, and hobgoblins, and Hidden Folk, and these prophet voices of yours. The Ulunt-Khazul believe what they see. And little else."

"Then came and see," Theor retorted.

Following Norlak's advice, he

turned on his heels and walked unceremoniously from the room. A buzz of surprise went along the tiers, and even the foreigners must have been taken aback. But they followed him after a brief hesitation, up the ramp and across the square and down into the House of the Oracle.

Two of them stopped short and barked something in their own language. A neutrino transmitter is an impressive sight even if one belongs to a society that builds such things. And then the long dim chamber was crammed with relics, fragments of disintegrated carrier vehicles, telemetric instruments they had brought down, pictures of space and Earth and humanity formed in perdurable crystals. The gray warriors gripped their weapons and moved closer together.

Chalkhiz rapped a command. They put on an air of defiance. He himself paced restlessly about, picked up an object, set it down, crumbled a bit of metal between his fingers and held it to his antennae, stared for many minutes at the control panels. His face was unreadable.

"Well?" said Theor.

"I see some curiosities that might overawe a savage," Chalkhiz grunted.

"You will see more. One of the sky-dwellers has agreed to appear and warn you." Theor reeled off the account of them which he had prepared, as revised by Norlak. Chalkhiz's visage remained impassive.

Having finished, Theor went to the visual transceiver. It was not a conventional Earthside 3V, of course. It was a solid-state device, as nearly

everything sent down to Jupiter must be, and it had rather poor definition. Today that might enhance the effect . . . He activated it with fingers that were not quite steady.

"I assure you most solemnly that to challenge the sky-dwellers is to invite destruction," Theor said. "I shall ask this one to show you living pictures of what he can wreak. Attend in silence while I invoke him."

Chalkhiz poised rigid. But did his fellows shudder, ever so slightly? Hope jumped in Theor.

He pressed the button on his disc. "Mark," he chanted in the mutual language, "this is the moment. They are here and horrible. Are you ready?"

The screen stood blank.

"Mark, are you ready for me?"

The ground rumbled and shivered. A souging went through the roof leaves.

"Mark, they are waiting. This is Theor! Is anyone there? Hurry, I beg you!

"—Mark—anyone—"

"—Mark—"

Presently Chalkhiz began to utter those bass purrs that were Jovian laughter. When he left with his warriors, Theor was still shouting into emptiness: "Where are you, out there? Why do you not answer? *What has happened?*"

IV

This: "You're crazy," said Fraser's reflexes.

"No." Mahoney leaned on a workbench and struggled for air. A red

lock was plastered to his forehead with sweat. "I saw . . . I was in South Hall B, headed for the main entry lock . . . to watch 'em come in . . . oh, they did! A squad up the ramp, pistols in their hands, Clem and Tom and Manuel and two or three others with arms raised, walking between 'em. They saw me as they came onto the landing. Manuel . . . yelled at me, 'Get out,' he yelled, 'they're taking over for the old gov'ment'—and one of 'em clipped him on the side of the head. And . . . the leader . . . aimed at me and said, 'Halt! In the name of . . . the law.' I was near the corner, so I says, 'Whose law?' while backing away a little . . . and he says, 'The gover'ment o' the United States' . . . and I backs up some more and says, 'We got no trouble with it,' and he says, 'I mean the lawful gover'ment, not the rebels—' And then he sees what I'm doing and yells, 'Halt or I shoot!' But I'm so close to the corner then, I swung myself around. Heard the bullet smash into the wall as I started running. Sounded like a fist. I ducked into the nearest crosstube and— We gotta jet, Mark!"

Fraser sagged back down into a chair.

It wasn't real, he thought dimly through the hammering. Couldn't be. Such things happened only on the 3V. No such crude melodrama, in his quiet Mfe.

Although there was the time in Calcutta. During his military service. His unit had been flown to help put down the anti-American riots. Yes, that had been crude enough to make

him vomit, when flamethrowers were turned on the mob.

Or Professor Hawthorne, back when he, Mark Fraser, was in college. The professor was too old and famous, apparently, for the secret police to cart off. At least, the game wasn't worth the candle, since he confined himself to teaching his own version of history—but he did assign passages from Jefferson and Hamilton and Lincoln in preference to Garward. And what was more annoying, he made his students tell him what those writings implied in practice. Oh, yes, the young toughs who burned books and worked him over were entirely unofficial, and the police promised to investigate; but Professor Hawthorne died of internal ruptures anyway. That was fairly melodramatic, wasn't it?

Usually correction was gentler, of course. They took young Olson out of the chem lab one day, charged with distributing subversive pamphlets. He came back some weeks later, and his views were quite different. But he wasn't much good as a chemist any more.

And even that was exceptional. Mostly you heard and saw nothing, except praises of our far-sighter leader President Garward and his firm but benevolent administration. It got sticky after a while.

Fraser shook himself. Suddenly he wasn't tired. His body seemed to thrum. What had Lory said? "Make some quiet preparations for getting out of town."

Too late now. But — "Yes," he said. His thought leaped ahead of the words. "They must need this place

for some purpose. If the rebellion had been suppressed, they wouldn't. So . . . Clem, Tom, Manuel, all technicians, potential troublemakers, could send a radio beam to Earth a few days from now, or sabotage operations. Uh-huh. A squad should be here any minute. Let's go."

He surged from the chair, two jumps to the exit. Strainingly cautious, he opened the door for a peek. The corridor lay empty and still. "Come on," he said. "If we hurry, we can grab a cat and escape."

He started off to the right. "Not that way," Mahoney objected.

"I've got a family," Fraser said.

"Well . . . yeah, you do. Okay."

They got into a freight elevator. It hummed downward with Chinese torture slowness. Fraser became aware of his heart slamming blood through ears and throat, the reek of his own sweat and its wetness under his arms. It was incongruous how steadily his finger had pressed the button for ground level.

The hall there was full of people. They wandered about in little huddled-together groups, not fast, bewilderment in their eyes and in the stiff pale faces. A mutter went among them. "Hey, Mark," a man called, "what's going on? You know? Somebody said—"

Fraser ignored him. He wanted to run, you could move like a scorched comet in low-gee, but the crowd was too thick. He must elbow his way through the molasses of nightmare. Time approached forever before he reached his apartment.

The door was locked. He beat on

the panels. "Jesus," Mahoney said, "if they aren't here—"

"Then you go on alone," Fraser said. The saliva was thick in his mouth. "I can't leave them here, can I?"

The door opened. Fifteen-year-old Colin put down the chair he had raised over his head. "Dad!" he blurted.

"Mother and Ann here?" Fraser went through with Mahoney and shut the door behind him. Colin made a jerky nod. "Suit up, everybody. Quick!"

Eve came from the inner rooms. She was a small woman, dark as her husband, the eyes enormous in her delicate features. Ann, born ten Earth-years ago on Ganymede, followed close behind, cheeks streaked with tears. "I saw some Navy men go by carrying guns," Eve husked. "They—I thought it was best we wait here for you. I couldn't raise you on the phone. It's dead." Her hands closed on his. They might have been carved in ice. "What can we do?"

"Leave town," he answered.

"We, we, might get killed!" Ann wailed.

Fraser cuffed her. He was instantly sorry, but his voice said for him: "Shut up and get your suit on!"

Numbed, they turned to the lockers. Fraser checked the spares and pointed at one. "That should fit you," he told Mahoney. "Not like your personal one, of course, but I'm afraid you'll have to make do."

Eve hesitated before the outsider. "No time for modesty," Fraser said. "Take off that dress and put on your

coverall." Mahoney turned his back as Eve yanked the garment over her head. Fraser had an instant—not of desire, there was no chance for that, but a memory of desire and of shared years. She'd given up more than he to come here. Politics meant little to her; but there had been no complaints. "Good girl," he said with overwhelming tenderness.

He donned his own suit. The fabric was stiff around him, the outside gear—aircycle tank, water bottle, belt of foodbars, sanitary box, powerpack, repair kit—an unexpected weight. He left the helmet open and the gauntlets off. Being already in his Long John, and more practiced than the rest, he finished the clumsy process first and had a few seconds to look around. He might never see this place again.

It was cramped and austere, like every dwelling in Aurora, but Eve and the kids and he had made it theirs. Booktapes crowded the shelves. A half-finished spacemodel of Colin's overflowed a table. A chess set stood by a tobacco jar.

He'd always liked chess and poker too much for his own good, he thought in the back of his brain; they could become a way of life if you didn't watch them. His gaze went to a colorstat over the couch: a view of the Gulf Stream. The water was nearly violet, and the gulls made a white storm in the sky. But on some nights, the Sea would phosphoresce, he remembered; you dipped your hand into the waves that lapped against your boat and lifted it with fire streaming off . . .

That was his boyhood, on a sea station, a floating village where they herded whales and harvested algae and had horizons unknown to the poor crowded billions ashore. And because the working staff included people from several countries, and the station had no secret police and was too close-knit a community for anyone to fear being informed on, it had been an ill preparation for his later life.

When at last he came to Gany-mede, he felt like a man emerging from a submarine whose air renewal was out of order, going topside into the wind.

"All set, I guess," Mahoney said.

"Where are we headed, Dad?" Colin's voice cracked ludicrously. But Fraser liked his expression. The frontier beyond Earth bred some damned fine kids, if they survived.

"To one of the outlier stations," Fraser said. "That battleship is seizing us on behalf of the Garwardists. But her crew can't occupy more than Aurora, I'm sure. Once beyond the Glens, we'll see if anything can be done about them."

Ann squeezed her eyes shut, drew an uneven breath and said, "L-lead on, Macduff."

"Lay on," Fraser corrected automatically. "Now stick close behind me. Pat, you bring up the rear. Watch for bluecoats, but if you see any, don't run. They might shoot if you did."

He stepped back into the hall and started for the nearest garage, forcing himself to walk at an even tempo. The passageway had emptied. Doors lined it blank and strange. Boots

hit the hard floor with a noise that rebounded from grotesquely pasted wall. *What's gone on while I was inside?* he wondered.

He turned a corner. A spaceman stood halfway down the other corridor.

He was a thick man, the azure uniform and white belt snug around him. There was a firegun in his arms. He swung it up. "Halt!" His voice smashed at their eardrums. "Where do you think you're going?"

Fraser stumbled backward. "Home," Eve said.

"Huh?"

"We just got in from the Mare. One of your people told us to go straight home and stay there, so that's what we're doing."

"Okay. Move!"

Eve tugged at Fraser's sleeve. He followed her blindly, the opposite way from the guard's post. When they had made the next turn, Mahoney whistled. "Good work, lass! How'd you figure out what to tell him?"

"If nobody was in the halls any more, they must have been ordered inside," Eve said. She bit her lip to hold it firm.

"Daddy," Ann attempted, "maybe we better—"

"Nuts to that," Colin said.

Mahoney opened the door on a downward ramp. Aurora had a basement level, for storage of whatever didn't mind being cold. Dank air flowed around them. As Fraser closed the door again, he saw his breath smoke white under the fluor-panels.

"Suppose they've put a watch on

the garage already," Mahoney muttered. "Then what do we do?"

Fraser ducked into a toolroom. He came out with a hammer and a couple of pipe wrenches. "You, me and Colin," he said.

"Against a gun?" Eve protested.

"If necessary, against a gun." He didn't quite know why. He certainly wasn't any hero. He'd never even considered joining the underground. To be sure, it was much smaller and weaker in his youth. Still, that was perhaps the reason why he had to fight now.

"Ann," he said, "you're obviously harmless. Can you go ahead of us. If there's a guard, talk to him. Draw his attention. Can't be more than one, I'm certain." He took her by the shoulders and looked down into the eyes that were so much Eve's. "It's a tough thing to ask of you, Nelly-boo," he said harshly, through unshed tears. "But you're a brave girl."

The short thin form crept close to hug him. Despite the spacesuits, he could feel how she shivered. "Okay, Daddy," she got out.

Eve gripped Fraser's hand as their daughter went before them. They walked in great silence, nearing the cross-corridor to the garage.

Ann stopped at the turn. The shout from beyond seemed to push her back physically. "You, there! What's the matter with you?"

"I can't find my daddy," Ann wailed, and ran toward the voice, out of Fraser's sight. "Please help me find my daddy!"

Fraser gestured at Mahoney and Colin. They edged to the corner.

Ann's hysterics mingled with the guard's orders, which began to take on a desperate note.

"Now," Fraser whispered. "Jump out and pitch!"

He made a bound of his own, to the opposite wall, whirled on his heel and let the hammer fly. The wrenches came an instant later. They often played baseball on the field outside Aurora.

The bluecoat went down, hit in face and stomach. He struggled to his knees, cursing in an astonished voice. His gun came up. But then the others were upon him. What followed was short and ugly.

When he lay still—breathing yet, but Mahoney had smashed his head several times against the floor and the breathing was ragged—Ann fell into Fraser's arms.

He confronted her as well as he could. But half his mind was on the spaceman. A young fellow, as nearly as you could make out through the blood and the broken features. Decent by nature, no doubt; he hadn't fired on the little girl—Colin snatched the laser gun and Mahoney the sidearm. "We'll want these," the boy said theatrically. His eyes glittered. Fraser tried not to remember the boys, scarcely older, who had destroyed Professor Hawthorne.

"Quick," Eve begged. "We may have been heard."

"Right." Fraser gave her Ann to carry. They went through the door into the broad echoing garage.

The gannycats stood in rows. Each was a big squarish machine, with a clear dome on top, alternately

retractable wheels and treads below. The power accumulators were always kept charged, the supply lockers filled. Fraser opened the nearest and herded his party in.

He took the controls himself. The cat glided up the ramp and into the airlock. While he waited for chamber exhaustion, Fraser began to shake. *We can't really have made it!*

"Here." Eve offered him a pill from the vehicle's medicine chest.

He swallowed with difficulty. But the psychodrugs went to work fast. By the time the outer lock door opened, he felt like a storybook warrior. His senses were acutely aware of his entire universe—Mahoney and Colin crouched on their seats, Ann cuddled in Eve's arms and Eve crooning to her, the cold air that puffed through his nostrils, the purr and forward thrust of the rumbling machine.

The stars, as he rolled forth.

Night had fallen, and space glittered with suns, uncountable in their multitudes, the Milky Way a chill cataract, Europa horned above the black spires of the Glenn peaks. The city shone bone-white. The battleship loomed over the safety wall like a monstrous fallen moon. And overhead Jupiter had entered third quarter.

The planet glowed. Fifteen times the diameter of Luna seen from Earth and incomparably brighter, it dominated the sky, deep amber banded with copper and cobalt and malachite, the titanic roil of the South Tropical Disturbance invading a night side that had a dim glow of its own. And it filled the plain with

light. Dark lava on Ganymede shimmered; a glacier edge peering over the eastern range seemed to dance beneath the stars. *Why do I miss the ocean so much, when I have this?*

Fraser swung the cat toward the Glens.

Beyond Shepard Pass were a number of minor settlements, one family or a few, digging metals from the Uplands or ice from Berkeley Field. "It's okay," he said. "Everything's under control now. We'll have you safe in just a few hours."

"Nah," Mahoney said. "Nobody'll be safe till those sods yonder have been taken care of. But we're better off out of town, sure."

No formal road had been built. Fluorescent lines drawn across the rock marked a negotiable route. Two miles would put Aurora under the horizon of a tall man. Even before then, Apache Crater would hide a cat from view. It bulked sheer ahead, ruined battlements shining under Jupiter but the foot in total shadow.

The receiver, automatically tuned to the general band, cleared its throat: "You! In that car bound east! Halt in the name of the law!"

Fraser twisted his neck around and peered backward. *Credit the pill for any coolness I can show at this juncture.* Slowly he identified the shape, a vehicle similar to his, a mile behind.

He switched on his own transmitter. "What's the trouble?"

"You know damn well what! That sentry you attacked was found. We've got a squad of armed men in this car. Halt!"

Pat Mahoney's skin glistened wet

In the Jupiter light that poured through the dome. But he made a rude noise. "Your cat's no faster than ours, and we're used to driving on this terrain," he said. "Run along home, sonny."

"Can you travel faster than a bullet, traitor?"

V

The ships of Nyarr came down the Brantor and out into Timlan Bay, where they swung north. Standing on the after deck, Theor looked across long gray waves to the shore.

There the land army moved, a red mass of ranchfolk with spearheads nodding and glittering above, banners snapping in the low wind. Forgar riders cruised overhead, zigzag beneath tawny clouds. The baggage train followed, a mile of loaded kanniks — vaguely like six-legged squamous tapirs — and some that pulled carriers. These were not wagons; roads were poor and wheels little used on the queasy Jovian surface. They were boxes slung beneath houk logs, whose interior expansion on heating turned them buoyant in the air. The sound of footfalls came to Theor as one remote drumroll, over the wave-noise and the splash and creak of the ship's paddles. Beyond the army, the land sloped bush-covered until the plains of Medalon lost themselves in mist and distance.

"Well," he said needlessly, "we're on our way."

He was desperate to forget the wife and demi-husband he had bidden good-by at sunrise. She had not

spoken her thoughts, much, but she caressed him very often, as if to seal his memory fast in every sense. And she was carrying their first child.

"We should be able to whip them," he said. "Norlak, you must have finished reviewing the different estimates of their strength. How greatly do you think we outnumber them?"

"Sixteen per sixty-four, at least," his demi-father answered. "Still, they are fighters by trade and our folk are not."

Elkor's eyes ran over the ten octad or so ships of his fleet. He waved at a forgar rider, who swooped low. "Go tell the captain of *The Beak* to close formation."

The black lozenge flitted off. "Why so fussy?" Norlak asked. "We won't reach Orgover for days."

"When we do," the Reeve said, "we will be glad to have had some practice in maintaining a line."

Down in the well that ran fore and aft, the watch was being changed. Crewfolk got wearily off the treadmill and climbed gangways to the deck, where they stood slumped.

Briefly the ship wallowed before the seas; then the replacements began walking. The belt turned beneath them. The paddlewheels flanking the broad hull bit deep, the steersman trimmed his rudder, and the vessel plowed on.

Given the long-barreled Jovian build, as well as the relatively small freeboard available in liquid ammonia, it was a more efficient system for a large galley than oars would have been: especially since

the wheels served as outriggers, no mean advantage on a planet where waves travel some sixty per cent faster than they do on Earth. The Nyar-rans were acquainted with sail, but did not use it much, winds being ordinarily slow in so dense and feebly insulated an atmosphere.

"We've been peaceful too long," Elkor said. "A few hundred border patrollers sufficed to hold back the barbarians. It would be better for us now if the Wilderwall did not exist, so that everyone in Medalon knew how to fight."

"That's a bleak logic." Norlak grimaced.

Theor felt less taken aback. The Reeveship meant growing up in one kind of war that never stopped.

Though there was a difference, he confessed to himself. The violence of a flood bursting a levee, a field suddenly turned into a volcanic pit, a landslip laying a village in wreck, was not the same thing as another mind actively seeking one's death. He tried to strengthen his resolution with memories of hunting expeditions. There had been dangerous game to face with no more than a spear or ax for weapon . . . But nothing came back to him except the chase, the exuberant thrust of muscles under his skin, cloven air roaring around his head, bushes that gave way with a crack as he galloped over a plain. He hoped he would not be afraid when battle broke.

His forebodings could not very well be put in human terms. A man carries half the sex of his race, Theor only a third.

He was an individual, with his own personality, and he was self-aware, but both to a lesser degree than the typical Homo Sapiens. What troubled him was not so much fear of being hurt as a sense of wrongness. That which had happened and that which was going to happen should not, and shook him on a purely biological level.

The treadmill gang struck up a chant, it lifted into the air together with the sharp smell of their labor and the throb in the deck—

Right, one! Left, one!

Right, one! Left, one!

*Never you mind where we're going
or why.*

*Feels like we're pushing her into
the sky.*

*But don't you go hoping the ocean
runs dry,*

BE-cause

THAT ain't

Right! One! Left, one!

*Swing 'er around and no matter
the toil.—*

"Suppose we are beaten," Nordlak murmured.

"I do not care to suppose that," Elkor said.

*Feels like the ocean has started
to boil.*

*Coxswain, the wheels and yourself
need some oil.*

AIN'T that

JUST so

Right? One! Left, one!—

Norlak said, "There are other lands. We could go—"

"As a broken remnant? How many sixty-fours of years did it take our ancestors to subdue this one country? We would become nothing but another barbarian tribe. No, not even that, for we have lost too many arts of the barbarian." Elkor's crested head lifted. "Better dead!"

Theor moved away from them. No doubt his male demi-father was right, but he didn't care to be reminded of such a choice. As he walked down the gangplank to the main deck and on forward through the off-duty crewfolk, he took a stringed instrument from a pouch in his belt and plucked it. The tune ran back and forth under the verses from the well, a melody dedicated to birthtime, as close to a sentimental ballad as anything Nyarr had.

No one was on the foredeck but a lookout. Theor ignored him, drifted over to the figurehead and leaned against its intricate shape. The harp-let quivered in his fingers.

"Theor!"

He dropped the instrument. It smashed on the deck.

"Theor, this is Mark."

He snatched at the locket. "Yes, oh, yes." His pulses thuttered while he waited for response.

"Are you all right?"

"Thus far." His sense of balance returned, and he spoke more calmly than he would have expected. "Yourself?"

Some seconds later: "Likewise." Fraser chuckled rather grimly.

"What has happened to you, mind-brother? You did not answer at Iden Yoth."

"I'm sorry as hell about that. But at the time, I was too busy staying alive. What happened when I didn't reply?"

"The Ulunt-Khazul scorned my pretensions and departed. Now we have no choice but to fare against them, hoping to shatter them at their beachhead before they move inland. I myself am aboard a ship."

"Eh? You're attacking by sea as well as land?"

"Yes. Our feeling is that they will not dare let their fleet be taken from them, but will divide their forces, some to fight our vessels and some ashore. Since we have numerical superiority on the ground, this may offset their advantage of greater size and skill."

"Is there any chance—look, I could stay where I am, with access to a radio. The main transmitter in Aurora automatically relays messages on the Jovian band, and I don't think the enemy will shut it off. Why should they? It won't occur to them, I hope. So, if you could get the invaders to talk some more in the near future, back at Nyarr—"

"I fear not. At least, not until we have inflicted a defeat on them." Anxiously: "But what is your story?"

"Not a pleasant one. You remember my telling you that the government on Earth was overthrown?"

"Indeed. I have often tried to make sense of the concept. How could a leadership maintain itself in the first instance when not to the benefit of the people?"

"A lot of them thought this one was. But some of us felt freedom

was more important than security.”

“I also do not quite grasp the intent of those words. However, continue, I ask of you.”

“Well, a ship landed at Aurora. We believed she was friendly, but then her crew swarmed in and captured the town, on behalf of the old overlords. I don’t yet know what the situation is, whether the war has flared up again on Earth or what. But I decided I’d best get out with my family. We, and a friend of mine, got a vehicle and fled toward the mountains.”

“Ah, so,” Theor said when Fraser paused. Briefly he wondered if he might be making a trip like that himself. He dismissed the thought. “But you have many times said that your race cannot live on Ganymede without artificial aids.”

“Yes. We were headed for the small settlements on the far side of the range. Well, the enemy saw us escaping, and another vehicle set off after us, with several armed men in it. When we refused to stop, they began shooting at us. We closed our spacesuits and kept going, even after our cabin was riddled and airless. Hoo, what a ride! We dodged through every cleft and every patch of shadow and around every ridge and crater we could find. If we hadn’t been used to traveling on Ganymede, as they weren’t, we’d never have survived. But we did get up onto Shepard Pass, where we could broadcast a distress call. About that time, our cat was wrecked by a couple of lucky shots. We abandoned it and took off on foot. Found

us a cave. We had a couple of guns—stood siege for several hours. Help didn’t arrive any too soon.”

“Did you not say once that you settlers lack weapons?”

“Uh-huh. But a laser torch can double as a gun at close range, and a blasting stick can be thrown quite a distance here. The Hoshis saved us, one man and his sons. They took care of our opponents, and brought us to their house. We’re there now. I’m using his radio, a beamcaster aimed at the nearest relay tower—but you don’t care about that. I had to get in touch with you, Theor, as soon as ever possible, and find out—” Fraser’s voice stumbled and trailed off.

“Your silence has lasted for days. Was your flight that long?”

“N-no. I was probably in the cave just about when I was supposed to play oracle. But frankly, I keeled over after the rescue. And then, well, we had to call the other outliers first, warn them, plan for a counter-blow.”

“Do you think that possible?”

“I don’t know. It had better be possible, that’s all.”

Theor looked ahead, into an ilimitable northward darkness. The prow bit into a wave and spray sheeted cold across him. He braced himself against the pitching and said slowly: “So our battles come at the same time, yours and mine, and each helpless to aid the other. What Powers have we crossed?”

Right, one! Left, one!

This is a hell of a wet place to be,

Walking to nowhere, alone on the sea.

Lightning just scribbled a letter to me.

*SO, dear,
WHY not*

Write? One! Left, one!

VI

The room was large, walls of undressed stone, furniture hewn from the same rock and decked with cushions. A round port, salvaged from a wrecked spaceship, opened on the north.

The Uplands stretched rough and dark out there, pitted with shadow where small meteorites had gouged craters out of granite, until chopped off by the sheer cliff of Berkeley Ice Field. It rose a hundred feet, that cliff, shimmering greenish yellow under the radiance of waning Jupiter. Samuel Hoshi's ice mine was visible at the base as a skeletal crane and a shed that protected machinery against cosmic bombardment. The installations looked pitifully small beneath so many frosty stars.

He got up from his chair, a stocky man with muscular flat features and a gray crewcut, and went to the 3V. "Time to hear what Admiral Swayne has to say," he declared into silence.

"Huh!" snorted Tom the oldest of his five sons. "I wouldn't trust him even to keep to the announced time of his announcement."

"Oh, that is the one thing you can trust," Pat Mahoney said. "I know his breed."

One of Hoshi's youngest grandchildren began to cry. Her moth-

er got very busy soothing her. The women and children sat on the benches at the farther wall, as if to hide from the screen. The men gathered close to it. Colin Fraser was with them, but kept near his father.

Mahoney laughed. "Simply by being here, he's made conformists of us," he said. "On every moon where anybody is, every place is tuning in at the identical moment." No one stirred. "Okay," he shrugged, "so I never will make a good comedian. Of course, a comedienne, now—"

But that fell flat too.

Mark Fraser turned his pipe over and over in his fingers. His mouth cried out for a smoke, but he couldn't keep on bumming from the Hoshis.

The older man snapped a switch. The screen lit up. Fraser's pipe fell into his lap. Lorraine Vlassek was looking out at him.

"—important declaration," the husky contralto voice said. "I was asked to go on first, representing the civilian population, which means each one of us in the Jovian System. You aren't going to like what you will hear. But on behalf of your own families and neighbors, I beg you to listen calmly. In times like these, we can't do anything but follow our legitimate leaders."

"Good God!" Mahoney exploded. "I knew Lory was a sucker for the Garward line, but I never thought she'd collaborate!"

Fraser shook his head. He felt a little sick. "Nor I."

"She may have decided there was no choice," Eve said gently. "That ship could destroy Aurora with a barrage, couldn't it?"

"Quiet, please," Hoshi said.

"—commander of the USS *Vega*, Admiral Lionel Swayne."

Lorraine's face slipped out of the screen. The camera panned in on a man seated behind a desk. He wore dress uniform. His shoulders glittered with insignia and his breast with decorations, but a Spartan impression remained. Perhaps that came from the stiffness with which he carried his slender frame, the gaunt grizzled head, or the eyes, blue and as unwavering as the stars of space.

"My fellow Americans." He spoke surprisingly softly. "I have come to you in an hour of tragedy, the darkest hour of our country's life. Once again she is torn by the strife of brother against brother. Once again, nothing can save her but the courage and dedication of a Lincoln, the iron will of a Grant."

"When's he gonna get around to home and mother?" Colin muttered. *Good lad!* Fraser thought, in spite of the words that struck at him:

"But this is a time of yet greater danger. For this is the time of the unleashed atom. The United States was the ultimate victor in the period of nuclear wars, but you know what it cost and you know how near she came to annihilation. Had the Soviet empire not fragmented, while our own people stayed loyal to their cause, nothing would be left of her but a blackened waste through which barbaric aliens would still be pouring in search of land and loot. Having, however, by God's grace gained world hegemony, the government of the United States had no alternative

but to impose peace upon a chaotic planet. No other sovereignty could be allowed to exist, for any might loose the nuclear demon upon us without warning. And so the United States fulfilled her destiny. She became the protector of the human race.

"You grew up in that stern but just peace. Your children were born under it. You have seen the radioactive ruins? Do you want the wars back?"

"Of course you don't. The will of the American people has expressed itself time and again, whole-heartedly for peace, security and wise leadership. Was not the Twenty-Second Amendment repealed? Was not President Garward repeatedly re-elected by majorities of more than ninety per cent, did Congress not un-animously vote him the title Protector, and vote him, too, the official thanks of the nation for his far-seeing statesmanship? You know the answer.

"But now you know also that a band of traitors existed in our midst. Nurtured in the bosom of America, this poisonous clique nonetheless turned upon her. Over the years, in space, and with the clandestine help of foreign governments, the Sam Halls built up their strength. And at last they hit. Their ships landed on the soil of the motherland. Their shells tore her, their boots trampled her, their wheels ground her. Surly at being deprived of the decisive weapons, ungrateful for the peace that they too had enjoyed, the foreign countries refused aid to the lawful government of the United States. Seduced by propaganda not a few

of our own citizens turned Benedict Arnold after the landings and joined the pirate flag of Sam Hall. Far too many of the rest were passive, trying only to keep out of harm's way, as if their precious lives mattered more than their country's. The rebels had certain new weapons which gave them a stronger advantage in conventional operation. And our leadership was too merciful to employ nuclear force against them."

That's not exactly the way I heard it, just before Earth went behind the sun, Fraser thought. According to the new government, the nukes were withheld because the revolutionaries had some, too. Garward wouldn't have gained anything if he tore the country to pieces. Only, at the end, when defeat was plain to see, he did order the missiles flown—and one of his own officers shot him.

A muscle knotted in Swayne's cheek. "You have heard the result," he said. "The traitors triumphed. They sit in Washington at this moment. Their agents are hounding down the brave men of the Security Police, on whose work the entire world protectorate depended. Their legislature is tearing down a structure of law and regulation which is vital to internal discipline. Their generals are recalling our garrisons abroad. Their diplomats are negotiating treaties for a new peacekeeping system on what they call a basis of international equality. I call it by its right name: international inequality! Dishonor. Betrayal. The kiss of Judas. The wars taught us how far we can trust anyone beyond our own

borders. Now the revolt has taught us that we dare not trust even our own people.

"This—must—be — stopped! For the sake of the entire human race, the Sam Halls must be overthrown, a legitimate successor to the great President Garward must be installed, and the American peace must be re-imposed upon the world."

He paused. His gaze continued to smolder out of the screen. "Does he really believe that?" Fraser asked aloud.

Hoshi nodded. "Uh-huh. That's the most horrible part."

Swayne rested his elbows on the desk. His metallic tone changed, became dry and almost conversational:

"You naturally wonder how my ship comes into this. I'm going to be perfectly frank with you. If I weren't, the truth would soon come out anyway. But that isn't my reason. I want your help, willingly and loyally given, and I can't expect that of you until you know precisely what the situation is.

"The *Vega* was on patrol when the insurrection began. We were ordered to search for an enemy orbital station. It would have helped a lot if we'd found the thing. We didn't. We could not have done much at Earth anyway. You're aware that a battleship is too big and fragile to land on a planet with an atmosphere. Nor could we have fired nuclear missiles from orbit. In the first place, as I've explained to you, the legal government didn't want to destroy a lot of innocent Americans along with the guilty ones. And in the second place, space warcraft

don't carry atomic weapons in peacetime. Our chemical shells and rockets are ample to deal with other spacecraft. We had no chance to rearm, for the enemy captured the Lunar arsenal on the first day and could interdict any attempt to ferry weapons up from Earth.

"Well, the surrendered came. All Naval units were ordered back for demobilization. I conferred with my staff. Our crew had been carefully chosen for loyalty. They would carry on the fight if they got leadership. And I am deeply proud to say that not one of my officers proposed yielding. But what could we do?"

Abruptly the ascetic face tightened, the voice rang:

"This is my decision! Ganymede has a good-sized industrial plant. You mine your own fissionables, produce your own fusionables and generate your own atomic energy. We have occupied Aurora and declared martial law throughout the Jovian System in the name of the rightful government of the United States. As you know, Earth will soon be accessible again by radio. The bandits in Washington will hear an account from our colonist friends of how everything is peaceful here, and how you are in no urgent need of supplies. The Sam Halls will have quite enough to do, on Earth and the inner worlds, without dispatching a costly expedition to Jupiter when none is required. If by any chance a vessel should approach, she will be detected at long range by the *Vega's* orbiting boats. A missile will destroy her. On Earth they will assume the loss was accidental.

"All in all, we loyalists should be able to keep the Jovian System isolated for about three months. That is our estimate of the time it will take to produce the nuclear weapons we need. Then we shall destroy your main transmitter. Regretfully. But you will understand the necessity. Under top acceleration, we shall return to Earth.

"With her new armament the *Vega* can, in a few surprise blows, knock out the bases from which hostile craft might be sent, and defend herself against what few units may be in space at the time. I shall then deliver an ultimatum, that the outlaw regime lay down its arms or face atomic bombardment.

"If we must . . . with sorrow in our hearts, but with steadfast will to do our duty, we shall bombard. But I do not believe the need will arise. The people themselves will rise and force out the traitors. Loyal elements now silent will make themselves known, will take control and re-establish order. We shall have done what honor demands of us. And so shall you, who made those weapons for us. No community in the Solar System will be so glorious as yours.

"But make no mistake. This is war. Treachery will not be tolerated. Already some have fled this city. Several men of the *Vega*—men in the uniform of their country—have been killed. The perpetrators will be arrested and shot. Every expression of unfaith will be suppressed with the utmost severity. You, the people of the Jovian System, are now soldiers in the army of the right. The

obligations of the soldier have been laid upon you. I must remind any traitors that even without nuclear weapons, the *Vega* has the power to annihilate every settlement on every moon. Do not think for an instant that men who are prepared to strike a cleansing blow at their own home soil will hesitate to use such power here.

"God willing, there will be no occasion to do so. God willing, the people of this colony will work side by side with the gallant men of the *Vega*, for victory—an American victory!"

The camera lingered on Swayne a minute and shifted away to a projection. The Stars and Stripes fluttered in a wind that had blown half a billion miles away, and the anthem crashed forth.

No one stirred in Hoshi's house.

Lorraine Vlasek came into view. "You have heard Admiral Swayne's proclamation," she said. An unnatural steadiness armored her tone and the strong fair face. "Speaking for the interim colonial government, I would like to discuss what this means—"

Hoshi jumped up and snapped the image to extinction. "I'll leave the recorder going," he said, "but right now I can't take any more."

"The man's insane," Eve whispered from the shadows where she sat. "One ship against the whole Earth—he can't!"

"Insane, perhaps," Fraser heard himself reply. "But they might carry it off at that. The situation will be chaotic for months to come, back

home, until the new government has gotten firmly established. If its centers are smashed— Or the people may well revolt, in sheer panic. Do you remember what nuclear warheads can do? A thousand megatons exploded at satellite height will set half a million square miles afire simultaneously."

"Even if he tries and fails, there might not be much left of the country." Hoshi nodded. "And let's admit that there are some foreigners who'd pay off old grudges on what did survive."

"But then he'd have fought for nothing!" Mahoney protested.

"His sort would rather bring the whole works down than surrender to what they hate," Hoshi said.

"A praiseworthy attitude—when our side has it," Fraser remarked with acrid sarcasm.

Hoshi regarded him out of narrowed slant eyes. "What do you mean by that, Mark?"

"Nothing. Forget it." Fraser stared out the port, at the ice and stars. "We've got to fight him, of course," he sighed.

"Yeah. I'm sure this speech of his will fetch in the outlier men that were doubtful when we talked to them earlier," Hoshi said.

He began to pace, up and down before the darkened screen, ticking his points off on work-roughened fingers. "We can count on several hundred, at least. Their cats travel fast. We'll agree on several rendezvous points, and our sub-groups will move from them, converging in the eastern Sinus. With any luck, we can be at Aurora by eclipse time."

"What will you fight with?" Mahoney challenged.

"We did pretty well in Shepard Pass, didn't we?" Tom Hoshi replied.

"Uh-huh," his father said. "Industrial equipment isn't too bad for close-in combat. We wouldn't have a chance against regular military forces. But the *Vega* people are Navy. They're short on small arms, and we outnumber them grossly. The ship can fire at us, but I don't think many guns can be brought to bear; and anyhow, those warheads are meant to explode inside other ships. Bursting in vacuum, they don't have much radius of destruction. We only need to get some sappers up to her. A few hundred pounds of tordenite, set off under the landing jacks, will put her quite out of action. Then we've got the whole bloody gang."

"If they haven't lifted ship as soon as they saw us coming," Fraser objected.

"They won't have a chance to. We can get over the horizon and up to the spacefield in half the time needed to raise a vessel that size, unless she's on full alert. Which she won't be, because that'd tie up too many of her crew for Swayne to get his production project started. Naturally, we've got to keep him from knowing about us beforehand. That shouldn't be too hard. He can't tap tight beams that aren't aimed at Aurora, and he hasn't the personnel to investigate the back country. Given a couple of weeks to get organized, he can send occasional patrols around to keep tabs on us. But we won't give him those weeks. If anyone radiophones

while we're enroute, those who stay behind can fob off questions."

"Or tattle on us," Colin said.

"Don't fear that," Fraser assured him. "The outliers are the really rambunctious individualists. Otherwise they'd have stayed in Aurora. But belay that 'us,' boy. You're staying here."

"The hell I am!"

"The hell I am, *sir*." Fraser rose too, and went to his wife. She buried her face against him. "Somebody's got to look after your mother and Ann, Colin. You're elected."

And frankly, I envy you.

VII

Tom Hoshi looked at the inertial locator dial on the control board, nodded, and stopped the cat. Its motor whirred to silence. "We're here."

Fraser checked the clock. "None too soon, either," he said. He wasn't sure if he spoke thickly or not. His head felt light, and his heart seemed about to burst through his ribs. But he calculated with habitual ease. "Approximately three quarters of an hour for us, to Aurora. Allow another fifteen minutes for snafu and extras—yeah, we'll get there shortly after eclipse. Right about when we're supposed to."

The five brothers crowded in with him seemed as unshakeable as the father whose plan they were enacting. Fraser wondered if they were also scared down underneath. They snapped shut their faceplates and shrugged the loads of explosive over their shoulders, awkward bundles

above the recycler tanks. Fraser waited till the last minute, when Tom was at the door, to close his own helmet. He didn't relish being locked in with himself.

Not waiting for the economy pump to finish its work, Tom opened the door as soon as pressure had dropped enough to allow it. Air puffed out in a frost-white cloud, that expanded momentarily against rock and stars and then was gone. Fraser climbed through into blindness.

A wall rose before him, dizzily upward to a jagged rim. Half the sky was visible, because Dante Chasm is so wide that either edge lies below the horizon of the other. Jupiter could be seen, a thin gold crescent and the rest of the oblate disc a coalsack faintly rimmed with light. The sun was very near it. But crags and steepes threw their shadows from the east, over that place where the dozen cats had halted, so that night prevailed there and in the abyss below. Fraser could see nothing except bobbing blobs of undiffused light from flashtubes, where men moved about and called to each other. Even given radar and a map of the way, he didn't quite understand how Tom had guided the caravan so far, without toppling over some brink to shatter in the deeps.

As if reading his mind, the driver snorted: "Huh! Combat'll be a relief after that ride. I thought I was used to poking around in craters and rifts . . . till today."

But it was one way of approaching undetected. Sam Hoshi counted on ground curvature to hide his army. The enemy might have patrols out,

though. And men on foot, widely dispersed, would be a less profitable target than vehicles. They might even reach the *Vega* unseen, given a fight to distract the crew's attention.

Very nice and clear, Fraser thought in the hammering. Sam makes a good general. What I don't quite get is why I, at my age, volunteered to go with this party. I do know space-ships better than average, I can tell where to put a demolition charge to do the most good, but I'm not the only one who can. Was it for Colin's sake? I suppose I'm fighting for him and Ann more than anything else, more than for the United States or freedom or Eve, even. But I wish I had a pill!

Stim, euphoric, all drugs, were in short supply while Aurora remained in enemy hands. They must be saved for the wounded.

"Everybody set?" Tom's voice came to him as if from very far away. "Up we go. Keep in Indian file, keep your light on the feet of the guy ahead." He turned from the cat and began to climb.

Fraser scrambled immediately after. The stone was hard beneath his gauntlets, boots, and knee-pieces. Uneroded, the slope had few loose rocks, and the weak gravity helped too, making the ascent less difficult than it looked. But he fumbled in murk. His breath rasped through his mouth; heat and sweat turned his suit into a steam bath. Now and then a radio curse leaped vividly at him. By the time he had emerged on top, his legs shook. He sat down and panted.

One by one, the bulky shapes appeared beside him. Thin harsh sunlight etched the faces in the helmets against a glittering sky, then drew darkneses under brow and nose and cheekbones until they seemed no more than sketches of men crowded around. Tom counted off stolidly, "—fifty-eight, fifty-nine, sixty, sixty-one. That's the lot of us. March!"

He started north across the blue-black lava plain. Nothing broke its bareness except the stipple of meteorite pocks, the ringwall of Dakato Crater, the distant sawtooth of the Glens and the men's own flying shadows. Fraser fell into the mile-eating rhythm, push with a foot, relax while you curved over the surface, strike with the other foot, feeling the global mass push back at you, continue on momentum until that leg was in position to shove . . .

Pat Mahoney drew alongside him, face a-grin. "Some fun, hey, boss?"

Fraser must clear his throat before he could say, "Remind me to fire you for that, after the war's over."

"Huh?" Mahoney's eyes probed at him through the tricky light. "Sorry. I didn't mean to be sophomoric. But still, this *is* fun. Beats the hell out of baseball."

Fraser returned the look. "Are you serious?"

"I always did like a scrap."

Fraser had no reply. He'd outgrown such tastes thirty years ago. It came as a shock to him to realize, not from books but in the living and present flesh, that there were decent, kindly, civilized men who had not. *If "outgrowing" is the right word. Maybe I'm the mistake of*

nature. Readiness to fight is a survival trait, I suppose. He worried the problem for some time. It was better than brooding on what was to come.

The sun slipped behind Jupiter. Night fell like a bomb. As eyes readapted, the plain changed from inkiness to a ghostly gray, and stars trod splendidly forth. The planet was a blank well among them, outlined in red where atmosphere refracted sunlight. The eclipse would last a little over three hours. Fraser wondered how Theor was doing. Had the dark gathered him up too? But memory refused to tell how Nyarr lay with relation to the sun at this time. Let's see, about twenty degrees north latitude—who cared, when they were almost at Aurora?

"There! The main radio mast!"

Fraser didn't recognize the voice that yelped in his earplugs. He squinted ahead and identified the shape, gaunt across the Milky Way. There was no sign or whisper of movement. He wondered sickly if Hoshi's other detachments had arrived yet.

"Okay," said Tom, "now we scatter. Keep about a hundred feet apart, maintain radio silence as long as possible, let me stay ahead—and run like the devil!"

They burst into speed. Foot-thrust sucked at Fraser's strength and wind, impact jarred his teeth, his harsh breathing filled his ears.

The destination didn't seem to come any nearer. He ran and ran across emptiness, as a man runs in nightmare . . . and then in an in-

stant Aurora lifted white before him, less than a mile away, with the topmost curve of the battleship's hull glimmering above, on the far side; and he saw the battle to the east.

The land seemed to crawl with gannycats, tiny beetle shapes that veered and darted, barely visible in the night. Shells burst among them, soundlessly blooming in fire. Smoke and rock chips flew high each time in a cloud but settled quickly, so that while everything was in motion nothing really seemed to change. Now that he was over the horizon, his receiver screamed with voices.

"— here, this way, Tim!"

"Arnesen's squadron, deploy!"

"Steinmeier, get your men out on foot!"

"— goddamnit, goddamnit, goddamnit —"

— until the racket ceased to have meaning, became one with his pulse and pant and slamming footfalls. He switched his own transmitter back on. Under these conditions, it couldn't give him away to a detector. There was no longer time to be afraid. He had only a second in which to try to cherish the memory of Eve, and fail to conjure up her face; then he was too busy.

Tom Hoshi's band swung west, to approach the spaceport from an uncontested direction. As they neared Aurora, Fraser glimpsed men in the open, not far from the east side of town. They dashed about in ways that appeared merely Brownian. He wasn't even sure whose side they were on. Both, perhaps. Swayne would likely have assigned such of his men as he could spare from op-

erating the ship's guns and keeping the city dwellers corked up, to double as infantry with what small arms were available.

The buildings were now alongside, now behind. They hid the battle and cut off much of the radio noise. Fraser saw Tom turn at right angles and plunge toward the spacefield.

Something grabbed and threw him. He landed with a shock that smashed blackness through his head.

A moment he lay in whirling and ringing. The world came back to him, he sat up and knew with vague amazement that he was alive. His skull throbbed and there was a hot salt trickle across his lips. But he lived.

Automatically he checked for an air leak. No sign of any. A craterlet had opened in the lava some yards away. Must have been a near miss by a shell, he thought in an impersonal fashion. The expanding gases had bowled him over, but done no serious harm. If the warhead had been designed to scatter shrapnel in a horizontal plane — but it was intended for use against ships and space stations. He got to his feet and bounded zigzag after the others. Pain touched his side. He ignored it.

Rock gave way to concrete. The *Olympia* loomed near, an ugly, heavy outline in the half-light. *They saw us coming*, Fraser told himself, *but now we're inside the artillery's area of coverage*. The men had converged near the Jupiter vessel. Tom's voice slashed through: "Go get 'er!"

They charged in a body at the battleship. She loomed before them big as the universe, the landing jacks

like cathedral buttresses. But once the tordenite had been planted, yes, there and there and there, and touched off, the giant must fall. Her own mass must crush the thin hull; and then a few more explosive sticks in the jets —

Fire pencilled from the shadows underneath. A colonist threw up his arms and flopped on his back. Another man died as he ran and crashed into the supports. The beams shot forth, again and yet again, until the dead lay in windrows with fog streaming from their pierced suits.

The charge broke and reeled away.

Fraser found himself in retreat with Mahoney. They stopped at the *Olympia*. Fraser could only struggle for air, but Mahoney stood forth under the stars, waved and roared and drew men to him until a couple of score had rallied. Tom Hoshi was not among them. He must have fallen at the first barrage.

"Laser guns," Mahoney snarled. "They got a platoon under there, must've figured what we were up to. Come on, we can still swamp the bastards!"

Someone stated an obscenity. "You've got to get within a yard of a man before a torch'll burn him down. One of those guns'll pick you off before you're halfway."

"We outnumber them," Mahoney said.

"Not that much. Wait till the other guys have fought through to the field. Then we'll outnumber them enough, maybe."

"By heaven, I'll go by myself — now if you're too gutless!"

Fraser clamped a hand on Mahoney's arm. "No, you don't," he said. His breath had come back to him. And he noted that his mind was working again, with engineer precision and a cold commitment. "We can't spare anybody for heroics. The only thing that matters is to get that damned ship before she can blast off. Swayne saw at once what our intention is. Well, that's obvious, but we didn't expect *he'd* expect an attack from this quarter. Maybe he didn't, exactly, but he did have the foresight to provide against one. So we can't do anything but wait till Sam Hoshi breaks through. Those few men below the ship have the firepower to stop us, but not to stop a hundred or more."

"If Hoshi breaks through, you mean," Mahoney said.

"Wait here and I'll go have a look," Fraser offered.

He left the others and trotted north, past the parked moonships until he overlooked the battlefield. Slowly he interpreted the shadows and glints that flitted about out there. The cats and the men afoot had no clear formation that he could see. Shellbursts inhibited that. Wreckage and corpses lay scattered to show that the artillery fire had taken effect. But casualties seemed fairly light, as hoped, and the colonists were advancing by fits and starts toward the spacefield. One powerful assault —

A starburst rocket went up. Sam Hoshi's signal!

Cats and men ceased dodging. As one, the Ganymedeans poured forward.

Another shell flashed in the gloom. A vehicle rose in two pieces, strewing human shapes. But then Hoshi's van was inside the minimum range of the turrets — and the missile tubes weren't oriented right for —

Fraser pelted back. The darkling mass of his own group stirred beside the *Olympia*, broke into individuals and clustered around. "They're on their way," he cried. "A couple minutes more, and we can start."

Aurora's buildings had cut off most of the radio racket. Now abruptly it became a hurricane. The ground trembled underfoot. Fire sheeted at the opposite end of the field. The main colonial force had won through.

"Go!" Mahoney yelled, and sprinted ahead.

Fraser followed, as near as he dared. Hit from two sides at once, the few men guarding the *Vega* could not but be overwhelmed. His hands fumbled at the packstraps.

The laser beams raked out. Air puffed from Mahoney's suit. He went to his knees. Another man leaped over him with a battle shout and was killed in midspring, fell with a terrible slowness and bounced when he struck.

Over and over the noiseless lighting spat. Instinct flung Fraser onto his belly. He raised his head and saw what looked like a wall of wrecked cats at the other end of the field. Guns were going off, energy casters and machine guns, improvised mines, to smash the colonial wave and hurl it back.

Oh, God, oh, God! Swayne had not put more than the barest minimum of crew in ship and city, and none in the field. He had concentrated his force in emplacements dug out of the concrete, nobody had seen them in the wan starlight.

And Hoshi had charged into a man-mower.

Fraser tore the pack off his shoulders, crouched where he was and ripped it open. The tordenite sticks spilled forth. He cursed out rage and grief in a stream while he twisted the three-minute detonator caps. But somehow through the clamor and the flashes he kept watch on the time, until the zero count was reached and he began lobbing them. One, two, three . . . they burst among the jacks, little glares of light and smoke. Maybe they injured a man or two. But hitting randomly, piecemeal, in vacuum, they did not, they could not harm the warcraft.

Something moved near Fraser. He looked dazedly around and made out a shadow which bled freezing vapor. A fresh curtain of fire shone past the *Vega* and touched Pat Mahoney's face. With a torch in his arms, he crawled on his knees toward the ship.

The fire died down again. The ground no longer shook. Motion had ceased at the far side of the spacefield all over the spacefield. The dead lay thick and the living were in flight.

Fraser wormed to intercept Mahoney. "Pat!" he called through what radio noise remained. "Pat, come here, lemme get you safe."

Mahoney kept on crawling. Fraser

threw his arms around him. The man's recycler tank dug painfully into his own bruised side. Mahoney struggled and damned him in a lunatic voice. "Pat, don't throw yourself away, let's get out of here, get some help for you . . ."

"ATTENTION, INSURRECTIONISTS!"

The stars trembled with that sound. Mahoney stiffened, then sagged back into Fraser's embrace. Fraser lurched to his feet and began carrying the hurt man away. He was in easy shot of the *Vega's* guardians, but he didn't care any more.

"ATTENTION, YOU GANYMEDEANS! THIS IS ADMIRAL SWAYNE."

Must be using the main transmitter, broadcasting at full amplitude. So what? I've got to get Pat to a medic.

"YOU HAVE BEEN THROWN BACK IN TOTAL DEFEAT. ANY FURTHER ATTEMPTS WILL BE MET BY THE SAME FIRE-POWER. YOU MAY PERHAPS HAVE SOME IDEA OF FORCING YOUR WAY INTO AURORA. DO NOT TRY. YOU WOULD ONLY SUCCEED IN WRECKING THE CITY. AND YOU WOULD KILL ITS CIVILIAN POPULATION. ALL OUTDOOR EQUIPMENT HAS BEEN SEQUESTERED. IF THE CITY IS BREACHED, EVERY MAN, WOMAN AND CHILD IN THE DAMAGED SECTION WILL DIE."

Silence clapped down. It reached past the field and the plain, Ganymede and Jupiter, out of the whirl-



pool in Andromeda and beyond. Nothing lived but Fraser's rasping lungs and the blood that bubbled in Mahoney's gullet.

Then the Jehovah voice came back. "ASSEMBLE BETWEEN THE CITY AND APACHE CRATER. IF YOU DO SO, YOU WILL NOT BE FIRED ON. WE ARE HOLDING OUR ARTILLERY FIRE UNTIL WE SEE WHETHER YOU OBEY THIS ORDER."

There was no strength left in Fraser. He stumbled on somehow, past the moonships and around the junkyard where Hoshi's men had encountered Swayne's defense. The seepage from Mahoney's suit was less, pressure had dropped, *stop, slap a patch on, you idiot.*

"I AM PREPARED TO HOLD DISCUSSIONS WITH YOUR LEADERS, PROVIDED YOU WAIT AT THE DESIGNATED PLACE. MEANWHILE YOU MUST ADMIT THAT YOU ARE BEATEN. THE VEGA CAN BE READY TO LIFT WITH AN EMERGENCY CREW IN LESS THAN AN HOUR. YOU CANNOT GET ONTO THE SPACEFIELD IN A YEAR. ACCEPT YOUR DEFEAT, GANYMEDEANS!"

Fraser laid Mahoney down, and hunted in his repair kit.

Another pause came, a stillness so absolute that he heard the hiss of cosmic radio interference in his earplugs. He bent close, trying to see if Mahoney moved. Eyes stared back at him, full of reflected starlight. A froth of blood had formed on the mouth and around the nostrils. Nothing disturbed it.

Fraser held his breath and listened for the other man's. All he heard was the seething between the galaxies.

VIII

West over sea, on the foggy edge of sight, lifted the shimmering cliffs of the Orgover Islands. Theor could just discern the surf that battered their feet, the waves and maelstroms that dashed between them. More clearly there came to him the sound, like an endless thunderstorm, brimming the redtinged bowl of the sky.

The ship had not been built which could live in those tide-rips and cross-currents. But the islands sheltered the stretch between themselves and the mainland, so that Nyarr's fleet walked over placid gray ammonia and the black sands of Gillen Beach were lapped by mere ripples. Beyond, pastureland slanted eastward and southward until it lost itself in distance. The Steeps of Jonnary walled off the north.

Theor gazed at the looted ruin of a fisher town, the fifteen or more octads of lean dark ships lying at anchor, the army of giants ashore who swarmed into formation as his own folk approached. Signal drums were sounding on both sides, through the ocean tumult, rapid thutter from Nyarran ranks and a slower bass boom that called to the Ulunt-Khazul. Spearheads flashed high among banners, above the hordes.

Elkor scowled. "They aren't manning their ships," he said. "They're keeping almost entirely on land."

Norlak's slim hands twisted together. "Can our levies face so many? We counted on dividing the opposition."

"Once we attack their fleet —" Theor's voice faded. Obviously the Ulunt-Khazul knew better than to go aboard then.

Elkor made a headshake shrug. "Having come to live in Medalon, they may as well sacrifice the ships," he interpreted.

"No, that makes no sense," Norlak said. "Even if they are resolved on victory or death, well, they have to bring the rest of their people sometime."

"They must count on building more vessels after the conquest, or using ours," Elkor decided. He paced restlessly, around and around the foredeck. "This is a blow to our plans," he muttered. "We've committed so many folk to the fleet that the enemy land force — allowing for them being superior warriors individually — may very well defeat our troops. Perhaps we should land here and now . . . No. It would take too long. They'd be upon us before we straightened the confusion."

He stood a while pondering. A breeze fluttered his cloak of authority. Decision came; he lifted his massive head and announced: "We'll carry on as planned. Get in among their ships, cut down what few enemy people are aboard, and then make our landing. That way, they'll be taken in the rear while still engaging our ground forces. Unfokaer, have a forgarman so inform Guard Chief Walfilo. Tell him to hold firm at every cost.

The officer saluted and called to the signaller. "We'd best get ready," Norlak said.

"Aye." They began to equip themselves. The ship, the whole fleet crawled with folk doing likewise.

Theor squirmed into the kannik-skin mailcoat that protected his body; the similar jacket for his torso; the solid plates that hung loosely above the vulnerable openings for gills and vents; the peaked helmet; the round shield for his left arm; the belt of knives. His right hand hefted an ax.

The gear was unexpectedly heavy, and it was annoying to feel his crest cramped. He tried to convince himself that combat against invaders was no worse than against an enraged snouthorn. But he couldn't believe it. The wrongness of the day, the *disorientation*, bit into him. He looked at his male demi-father's face and read only sternness. Norlak's jitters were almost a comfort, making him feel less alone.

Drums crashed. The Ulunt-Khazul infantry formed up and started toward the Nyarrans. Their spears rippled like a forest in the wind.

Theor plucked his attention away, back seaward. The enemy fleet was still a couple of miles off, but he could observe details. They were lapstrake craft, shorter and with less beam than his galleys, entirely decked over. The absence of figureheads gave them a dauntingly businesslike look. But what was that framework jutting from each prow? And without sidewheels or masts or

even oar ports, how did they move?

A few figures bustled about on them, in helmets and horn-plate cuirasses that flung back the light as if metallic. Several boats were moving out into deeper water. Unlike Nyarran auxiliary craft, round coracles sculled by a single person, these were narrow, with outriggers and lateen sails. "Where are they going?" Theor wondered aloud. "What are they about?"

"Nothing good for us," Norlak said.

"Their vessels are not equipped to ram, as we already knew," Elkor said. He had counted originally on sinking them thus before their crews could grapple fast and board his own ships. "But they may well be faster than us. Could they intend simply to flee for safety?"

"If so," Theor forced himself to remark, "we can make our landing still sooner."

"I don't like this," Norlak mumbled. His antennae twitched. "The air stinks with ill-omen."

The Nyarran ships plodded on. There was no more chanting from the wells: only shuffle and creak, the coxwain's count, the thresh of the wheels overside. Males lined the deck above, shifting their weapons from hand to hand, staring ahead.

Theor glanced at the shore. The two armies had changed from a walk to a jog trot; their banners bobbed against low clouds in the east.

"Ulloala! What's that?" exclaimed Elkor.

Theor whirled about and followed the pointing spear. The enemy sail-

boats had halted at the edge of a large sea pasture. Their pilots cupped hands about throat pouches and shouted. The call wailed to Theor through the Orgover thunders and the drum play ashore.

The weed surface broke open. Waves boiled outward. Shape after huge black shape rose until the whole strait seemed covered with them.

Norlak reared and gibbered. "What are they?"

The muscles bunched around Elkor's jaws. "Ocean beasts. I've never seen or heard of their kind, but—domesticated. So that's what pulls their ships!"

The archbacked forms vibrated tails and flippers and darted toward the Ulunt-Khazul vessels. Sailors poised on the framework at every bow, harnesses in hand. Someone yelled, aft of Theor; a groan rose from Nyarr's fleet.

Elkor stood fast and estimated. "About half as long as a galley, those creatures," he said. "And almost as massive, I'm sure. I don't know what they can do to us, but plainly the enemy is counting on them. That's why he could afford to concentrate his strength on land." He brought the butt of his spear down on the planks. "We must assume he knows his own capabilities. I dare no longer meet him at sea—but we can beach before he's ready to fight. That harnessing must be a slow operation."

"Beach? Here?" Theor protested. "Demi-father, I've fished along Gillen. The dropoff isn't steep

enough at this point. We'll smash our sidewheels in the shallows."

"Wheels can be repaired," Elkor snapped. "Death can't." He scanned the ground. "If we make for yonder spit, Walilo's band should have passed it by the time we arrive. We'll group while he holds off the enemy, and join him from behind. It's not as good as striking the Ulunt-Khazul rear, but it will have to do. Send the message, Umfokaer."

"Aye, aye." The officer gestured to the signaller below, who unfurled the flag he carried. The nearest for-gar came down. Umfokaer shouted to the rider, who rose and repeated the words to his hovering fellows. They scattered the command over the fleet.

Theor gripped the stempost and stared out at the enemy.

The sea beasts neared the Ulunt-Khazul ships. A nude sailor went over each side, struck with a splash and swam forward. An animal stopped for him. He climbed up onto the shoulders, behind the long neck, straddled with four legs, and waved. His mates flung the ends of harness at him. He caught them and went to work.

Nyarr's ships had scarcely changed course when the Ulunt-Khazul fleet was in motion. They came in a blunt wedge, ammonia foaming white where tails churned and again where the sharp bows cut through. The riders were all but hidden in spray. But the heads of their mounts reared above, gaunt and gape-jawed.

Elkor joined Theor, laid a hand on his son's shoulder and said most gently: "So I was wrong about that

too. They'll catch us a mile from safety. Well . . . if we don't outlive this day . . . you were a welcome guest."

Theor bent his head. They do not weep on Jupiter.

Norlak shook his dirk aloft. Once the irrevocable had happened, a demimale's terrors usually left him. "Let them come and be eaten!" he yelled. Some of the crew shouted him an answer. Most were silent, clutching their weapons, waiting.

"Organize a defense at this end," Elkor said. "I'd best be aft with the steersmale. Fight well—no, I know you will." He turned and went quickly down the gangway.

The armies ashore laid spears in rest and broke into a gallop.

As Theor helped Norlak deploy three octads of pike wielders on the foredeck, his hunter's hearts rallied within him.

Animals could be faced! Terrifying though they looked, those beasts weren't going to ram—not unless they wanted to break their necks. They would probably lay alongside and try to snatch crewfolk off the deck. A wall of shields and a hedge of spears would meet them. He called his orders out. With a growl and a rattle, the Nyarrans locked ranks.

Closer, now . . . Theor raised his ax. If any fangs got near him, he thought he could chop the jawbone loose. He glared into the eyes of the closest oncoming beast and braced his feet on the deck. Behind him, spearbutts grounded with a solid *thunk*.

The monster veered to port. Spray whirled as its flippers backed ammonia. The rider tugged at the horns of the collar. The beast rolled around. Its tail smashed out.

The ship staggered. Wood cracked across, splinters hailed, the line at the rail was broken and two Nyarrans shrieked in agony. Another blow, and another — they weren't carnivores! They weren't going to bite, they crushed!

Forgars swooped low. The riders stabbed with futile lances. The sea beast shook its head and went underneath. Its controller stayed on its back.

The creature rose again by the paddlewheel and broke that to pieces with sheer mass. The crippled ship wallowed in the waves. Once more the beast sounded. It couldn't go deep without dragging down the vessel it pulled. But it got under the Nyarran keel.

The well erupted treadmill walkers. A gush of ammonia followed them. The ship lurched and began to sink.

"Board the enemy!" Elkor shouted. above the rush and trample. There was no way to do so. The beast had withdrawn. Across yards, Theor saw how it grinned, how the invaders howled and brandished their weapons. He looked over his fleet and saw it breaking up, ships foundering, ships fleeing, the sea power of Nyarr become flotsam.

He scrambled frantically out of his armor. The deck tilted, crewfolk slid toward the incoming sea, their cries overrode the surf and the clangor on shore. Theor wrapped a leg around the stempost and clung

fast. He had a glimpse of Norlak tumbling off, dragged under by his own heavy gear. Then he had stripped, save for the knife belt that he put on again. He dove.

The impact, under Jovian gravity, was savage. Whirl and turmoil followed, until he re-emerged and struck out for land.

Other heads bobbed about. He recognized Elkor in the swarm and moved that way. The ship turned as she settled, the stern lifted. With one liquid roar, she plunged to the bottom.

"Here!" Elkor called. "To me, Nyarr!"

As if in answer, a sea beast arrived. Flukes and flippers pounded about among the swimmers. The foam that flew up was blood color. The Nyarrans died with their Reeve, and the Ulunt-Khazul laughed aloud.

Theor raised his torso high, gills wide open to get as much air as he could. The monster searched around for more prey. He went below.

Dim tawny light enclosed him, and a bitter smell-taste of dissolved hydrocarbons. Currents fluttered around his skin. He swam until his head rocked from lack of air. Finally he had to surface.

The butchery was continuing. He seemed to be well away, himself. There was no time for horror. His legs pumped, driving him toward the beach.

"Hungn rogh mamlun!"

Theor looked behind. An Ulunt-Khazul warrior swam after him. The webbed feet and the long tail pushed the gray body at thrice his own

speed. A knife glistened in one hand. The face was akindle with anticipation.

Theor drew a dagger of his own. *So he wants a little personal amusement? I'll give him some.* More coolly than a human could have done, he calculated his actions. He was no match for his enemy as a swimmer, but —

The Ulunt-Khazuli dove. *Going to rip me from beneath, I see.* Theor put his head down while treading ammonia. The shadowy shape sped upward at him. He folded his legs under his stomach and sank. The knife flashed past. His free hand snatched, clamped onto the weapon wrist.

His opponent blocked his own stab and got a grip on that arm. They tumbled over and over, down through the sea together. Theor wrapped his front legs around the great body. The claws on his hind feet went against the abdomen. He roweled.

Down and down! Was the ocean filling with blood, or was that his own faintness? His hearts were about to burst. He felt his captured hand forced back, his own clasp loosening. He thought of Norlak and Elkor and raked with all his power. Something ripped.

Suddenly his dagger hand was free. With a head loaded with thunder, he continued to hang on and disembowel. Nothing but a loss of consciousness stopped him. He never knew afterward how he regained the surface.

Slowly his brain got function back. There was no sense of victory in



him, only a resolve to reach the shallows before his last strength went.

The distance was still considerable. He shook the wetness from his eyes and peered ahead.

The beach was a huge boiling of combat. He heard screams, axes hammering on shields, feet trampling the fallen and slipping in blood. But half the banners of Nyarr were down. Those of Ulunt-Khazul pressed ever deeper into the fray. "I'm coming!" he called, and damned his thews for their exhaustion.

He had not arrived when the striped flag of Walfilo pulled free. The Nyarrans streamed after it, still keeping a semblance of order, their rearward smiting and stabbing. Forgers were thick in the riven air overhead. The riders hurled darts and stones, gray giants went to earth, the Ulunt-Khazul attack was blunted.

Drums boomed. A corps of invaders broke from the main battle and made for the Nyarran baggage train. Few were there to resist them. They swarmed through and possessed it.

Walfilo's remnant hastened northward, toward the Steeps of Jonnary. They had no other way to go. Everywhere else the Ulunt-Khazul ramped, bounding after stragglers and hewing them down. *We saved something*, Theor thought, *but for what?*

His feet touched bottom. He stood and shuddered.

Eventually a measure of will rose in him. The enemy weren't pressing the pursuit. It wasn't worth their while. Still numerous, and with a cadre of professionals, Walfilo's followers

could exact a heavy toll if forced to make a last-ditch stand. Better for Chalkhiz to let them flee, beaten and supplyless; let the wilderness complete their destruction.

I've got to join them.

Theor waded to the beach and started off. He must thread a path among hideously battered dead and wounded. The sound of pain wove in and out of the surf-noise. "Drink," pleaded a demimale he remembered. "Theor, is that you? Give me to drink!" A spear had transfixed the body.

Theor could not help himself. He bent to take the uplifted hands between his own. "I have nothing," he said. "Farewell."

"Don't go! Don't leave me—!"

The son of the Reeve started off to do whatever he could to help. A shadow fell across him. Two Ulunt-Khazul had their pikes aimed at his thorax.

One of them made a gesture: Come.

IX

Even before its short term was over, the day drew to a close. For a strong wind sprang up from the south, driving a roof of black sulfurous-edged clouds over the sky. Lightning glared ever oftener among them, thunder rolled through the droning air, the distant surf and the waves now loud in the strait. They were bioluminescent, those waves. They reached a tattered sheet of icy white glow out beyond the hunch-backed islands and spouted sparks where they struck the beach.

The Ulunt-Khazul drew their ships and boats ashore, huddled in groups and muttered to each other.

Such few Nyarrans as had been captured stood silent in their misery. Theor was roused from a doze when a pair of warriors came and spoke to the guards. Their language cut roughly through the weather. A halberd pointed to him; the new arrivals prodded him into motion.

He walked slowly, stumbling on hobbled feet, up the strand toward the booths that had been erected for the chieftains. His wrists were tied together, but in front of him, so that he could still reach it, the communicator hung around his neck. Doubtless a superstitious unease had saved it from being taken off him. Once again he pressed the button. "Mark," he whispered. "Anyone! I am in need." There was still no answer.

A spear point urged him through the entrance to the largest booth. Chalkhiz stood within, arms folded. A lightflower cast feeble rays from above, leaving his coarse face mostly in darkness; but the eyes glittered like the weapons stacked against one trembling wall.

"Good evening," he said with a grin.

Theor had no response.

"Would you like refreshment?" Chalkhiz waved at a bowl of amonia and a platter of fish on a bench. Theor recognized a taunt, but his upbringing was too practical for pride to stand in the way. He accepted ravenously.

"It is good that you survived, and that a male who had been with my

delegation noticed you among the prisoners," Chalkhiz said. "Perhaps we can make a bargain."

"What have I to bargain with?" Theor asked wearily.

"Not much," Chalkhiz agreed. "Still, Nyarr town has strong defenses."

"It will cost you dearly to take," Theor said. "When word comes with those who escaped southward, every male and demimale who was not here today—and they are many, because of the ranching season—will go there with wife and young. They will make a stand."

"No doubt. Otherwise we could destroy them one at a time. But an agreement might yet be reached."

Theor's control broke in two. "With animals like ourselves?"

Chalkhiz snatched for an ax, withdrew his hand, and said in anger: "We take what is ours by right! Had your lands been flooded, storm-beaten, ruined, the fish deserting, your people starving, you would try to win a country elsewhere. Would you not?"

I suppose so, it sighed in Theor. But I'll not admit that to him.

A gust struck the booth so that the planks groaned. Rain could be heard marching closer.

"Well." Chalkhiz leaned forward. "I did not bring you here to trade insults, but to talk. I gather that your he-parents have both died." The memory came back to strangle Theor. "If I understand your laws aright, this makes you the new Reeve. Your folk ought to obey if you call on them to surrender."

"No. We are a free people. They

need not heed me, and I hope they wouldn't. Not that I would ever speak such words."

"Listen to me. If they fight, we will destroy them utterly. But if they give up, we will let them go beyond the mountains. That's not a good country, I know, but they would at least be alive."

"How could we trust you not to fall on us once we had opened the passages through the city hedge?" Theor countered.

Chalkhiz laughed. "You would have to take my promise. However, we are fewer than you, and less skilled in land maintenance. When we inherit the country, we also inherit the hungry barbarians of the north. Are we likely to spend troops on a large, armed mass of Nyarrans without provocation?" And grimly he said: "I can promise that if you do not yield, there will be nothing but death or enslavement for your people."

Theor summoned what strength remained to him. "The core of our army got away. You will be the ones destroyed!"

Chalkhiz made a spitting noise.

Thunder banged overhead. After a while, the Ulunt-Khazuli said: "I shall have you kept apart from the others. I advise you to think hard and to change your mind. Otherwise we will eat you before the city hedge." He shouted out the doorway and a guard came in.

The warrior's hand closed on Theor's arm and guided him away. They walked along the strand, to a small

booth at the edge of the camp. The guard pushed his prisoner through and took up a position outside the open entrance. Lightning covered the sky, etching him black against the hasty clouds and blazing off the head of a pike.

Thunder followed, and the first rain roared on the shelter. Theor locked his knees to rest in night and racket. For a moment he was maliciously pleased—let that fellow stand out in the wet!

But despair rolled over him. What could he do? What could anyone do? The invaders were victorious. Norlak the clever and Elkor the unbendable lay under the sea, and the Ulunt-Khazul had butchered Nyarr's strongest for meat. They could ring the city and starve its defenders while their legions plundered the countryside. Might it not be best to yield . . . forsake the land, forsake identity, slink off toward barbarism in the wilderness? A shabby freedom; but worse would be to become cattle for the conquerors. He thought of the child Leenant carried, his and hers and gentle Pors', cringing before an owner.

"Theor!"

He started. The blood ran through him louder than the gale outside.

"Theor, this is Mark. Do you receive me?"

Another flash in the sky showed the sentry, huge and menacing outside. Theor would have laughed, if he could. The Oracle—the friend from the stars—now—here—too late!

TO BE CONCLUDED

MACK

BY R. J. BUTLER

ILLUSTRATED BY MORROW

**Against the invaders from
space man had a secret ally
— from the ocean's depths!**

Mack maintained later he had merely assessed the situation and acted accordingly—something any dolphin could have done.

The Admiral was just plain impressed—and proved it—and, for his part, Gabriel Anaka was overwhelmingly satisfied in having proved one point.

The only ones who had no comment at all were the Tegels and the manta ray.

First, there had been the spotting of the Tegel ship, a feat made easier (if not pleasanter) by its monstrous size.

While the earth fleet circled it warily, the best minds available were

put to work in an effort to establish communications and find out what the intentions were.

The Tegels obliged, in their own time, and when the response to the beamed math-logic was received, the message didn't take long to decipher.

It said in effect: "Your oceans interesting. Investigating." The signature symbols were roughly equivalent to "Tegels."

While military minds pondered what was meant by "investigating," the Tegels provided the answer. They plopped down into the Gulf of Mexico a few miles off the Alabama coast.

"Starship Falls Off Alabama,"

one responsible southern daily informed its readers. The Admiral, with considerably less humor, dispatched a submarine to the scene.

This move resulted in a long silence followed by a curt communication requesting "the absence of disturbances in our vicinity."

There was no overt threat, but, as the Admiral pointed out, there was something ominous about the way "our" was used.

Afro-Asian Commander Hoghenza recommended treaty talks.

Soviet Commander Tushkin urged immediate attack.

Indian Commander Bihar advocated neutrality for the Gulf of Mexico.

The Admiral went in circles with them.

Finally he got them to agree—to investigate.

And the best way to investigate, the Admiral concluded, was with Mack and Anaka. It was a conclusion arrived at with more than a few reservations.

Mack was one of the ablest dolphins serving with Earth Fleet, but, to the Admiral's way of thinking, the eight-foot cetacean was a little too "unmilitary" in his attitude.

Too independent, bluntly.

He thought the same of Anaka, but there was no way of getting around it. A man-dolphin team was the best way to keep tabs on the Tegels, and Mack and the tall Polynesian had demonstrated their ability to get along.

Demonstrated it *too* well in some cases, the Admiral thought.

Item: On Venus, Anaka and Mack

arrested on charge of trying to procure a gilled Venusian for immoral purposes. Case dismissed—but widely reported—after Mack argued it would have been impossible for either of them to be immoral with a lizard even if they had been sober.

Item: Off Ganymede, Anaka and Mack demoted for polluting hydroponics tank in experiment to ferment algae alcohol.

And so on.

The Admiral sighed and summoned the two to Fleet Headquarters.

Anaka stood stiffly at attention, eyes fixed on a crack in the wall.

"Furthermore," the Admiral continued sternly, "I want to impress on you the fact that the Tegels may be technologically equal—or even superior—to us."

"Yes, Admiral."

The Admiral picked up a model space cruiser and eyed it thoughtfully.

"As for you, Mack," he said, turning toward the circular tank, "I don't think I need stress the importance of discipline in this matter."

"Admiral . . . right. Not . . . needing . . . stress . . . point." The words came booming out of the amplifying unit surgically implanted by Mack's "mouth"—the blowhole on top of his head.

The Admiral's face turned red. He considered a lecture on what could happen—what *might* happen—if the Tegels turned out to be both militarily able and hostile at the same time.

But he changed his mind and stalked out of the room.



The last thing he saw before he slammed the door was Anaka looking at Mack in admiration as the dolphin did a neat figure-eight on his back.

“Possibly . . . dull . . . as . . . mul-let . . . head,” Mack commented later as he towed Anaka around the Tegel ship in a wide circle for the fiftieth time.

“Yeah,” Anaka agreed disgustedly, hitting the stud to the small outside mask speaker with his chin.

He loosened his grip on the plastic reins trailing from the halter around the dolphin’s body.

“Guess I’d better file a report.” It was understood Mack wouldn’t have to do it unless an emergency came up. It took him too long to form the difficult human words by vibrating the blowhole which served as his nostril.

Anaka kicked his feet and headed for the surface, where the buoy with the tele-beam bobbed monotonously.

The Admiral had demanded complete, concise reports. Anaka complied.

“No activity around the ship,” he advised. “And no sign of a Tegel yet.”

He signed off and went under again. When he reached the big dolphin, he hit him on the head playfully with a meaty fist.

“Chow?”

“Thinking . . . good . . . splendid . . . damfine . . . ideas.”

Anaka pulled a tube of “frogman’s crud” from his belt and sucked on the tasteless combination of mushy fruit and protein.

“You . . . enjoy?”

“Sure.”

“Then . . . hoping . . . swallow . . . whole . . . thing,” Mack rumbled, thwacking Anaka on the back cheerfully with his tail. Anaka choked, messing up the inside of his mask.

“Overgrown sardine!” he shouted.

Mack whistled a dolphin laugh and swam for shallower waters, where he overtook a school of speckled trout. He managed to gulp down three small ones before the rest of the school escaped.

Anaka flipped off the glaring Hensen light and finished his meal in darkness, mulling over things to do to Mack.

“So,” First Garn bubbled happily, “this is found in plentitudes?”

With two tentacles he brought to his mouth the delightful new food creature they had discovered. He took a small bite, munching in pleasure.

“There is much of it,” Second Garn affirmed, watching the small spade fish disappear.

“Such an offering,” First Garn gurgled piously, “calls for gratitude.” His small red eyes glowed meaningfully.

“Indeed,” Second Garn said, bringing out the metal-leaf Dutiful.

He handed it to First Garn, as was proper, and First Garn began the intonation:

“Prime Garn, power; Prime Garn, obedience; Prime Garn, laws . . .”

The Tegel crew extended its myriad listening tentacles in obedient reverence.

When it was over, the Tegel ship opened its suction locks to bring in more food samples to see if this new planet was worth while. It wasn't really necessary, however.

First Garn had already decided.

The manta ray was big. It also was irritable.

The irritation started with the churning motor of the fourteen-foot boat.

And it reached its peak when the three men aboard started casting alongside the bat-like ray for the lemon fish that swam under it, feeding on offal.

The ray went down in a power-dive. When it came up, the boat made another run on it for more casting.

With an angry flip, the three thousand pound ray hurled itself over the boat. One man screamed and went over the side.

The other two ducked and closed their eyes.

Mack heard the distant crack as the ray hit the water, and, seconds later, pinpointed it with his natural sonar.

"Unholy . . . king . . . mackerel!"

"Huh? What in hell?" Anaka had been catching a nap, strapped to Mack's back with the reins.

"Ray."

"So what? There's lots of rays around here." The Polynesian unstrapped himself.

"Lots . . . maybe," Mack thundered, pointing his beak toward the Tegel ship, "but . . . not . . . going . . . that . . . direction!"

"Uh, oh!" Anaka had caught the

ray in the Hensen light. "That's the biggest one I ever saw."

"Maybe . . . trouble."

Anaka thought a moment. "If it kicks up any fuss around their ship, no telling how they'll react."

"Good . . . idea . . . getting . . . you . . . better . . . position . . . if . . . need . . . call . . . help." Mack swished his tail for emphasis.

"Okay. I'm going up a hundred feet."

"Going . . . further!" The Tegel ship was in fairly shallow water—about three hundred feet—but Mack knew any violence in the water could rip Anaka's skin-thin pressure suit.

Anaka knew it, too, but he didn't like the idea of leaving Mack alone.

"Listen, dammit, you aren't giving me orders!"

"Not . . . arguing . . . now!" Mack got under Anaka and pushed him up.

By the time Anaka could make out the buoy by natural light, he was grinning behind his mask. Mack always looked after him.

"Be careful, Daddy!"

"Suggest . . . you . . . idiot!" Mack prodded Anaka in the rear with his beak and swam back down alone.

First Garn wiggled his tentacles exuberantly. Second Garn turned brown in vicarious pleasure.

"There is," First Garn said, "absolutely no reason why we should not clear the way for colonization. No reason whatsoever."

He took another bite out of the small white trout.

"In fact," he continued, "Tokh himself could not dissuade me from

taking over these splendid feeding grounds now."

He tossed the remnants of the fish to Second Garn, who turned orange in appreciation.

First Garn turned to take another sample from the specimen container.

"Alarm, First Garn!" the watch crew signaled in unison before he could grab another small fish.

"Alarm? Specify the nature."

"It is a monster, First Garn," the watch crew replied. "It is coming toward our vessel!"

First Garn swam to the observation scope and activated a scan beam. It took only a second to lock in on the approaching ray.

"By Tokh, it *is* a monster!"

Second Garn sneaked a glimpse and turned purple in apprehension.

"Prepare to blast!" First Garn ordered.

All three hundred of the blast crew readied the weapon.

"Destroy!"

The ray shuddered as the electron pellet struck, sending pain surging down every nerve path. Tail lashing in agony, it moved closer to the Tegel ship.

First Garn turned blue. "Use primary weapon!"

A thousand tentacles worked the fire-control panel. A slim projectile streaked toward the ray.

Mack rolled over when the shock wave hit him. After he regained his even keel, he quickly probed the water with his sonar. He spotted only pieces of the big ray.

Mack turned away from the Tegel ship and sped up to Anaka.

The Polynesian had been far enough from the explosion to avoid injury, but was waving his arms frantically as Mack approached.

"Hell, I didn't catch any of it. What happened?"

"Tegels . . . destroy . . . ray."

"They spot you?"

"Don't . . . think. Being . . . still . . . and . . . not . . . too . . . near."

"What kind of weapons?"

"Unknowing . . . first . . . tried . . . but . . . didn't . . . seem . . . advanced."

"And?"

"Second . . . probably . . . high . . . explosives."

"High explosives?" There was a trace of incredulity in Anaka's voice. "With a ship like that, you'd think they'd have some fission stuff."

"Possible . . . probable . . . but . . . only . . . damfool . . . use . . . fission . . . in . . . water . . . close . . . range."

"That figures. We better get to base personally with this." He grabbed the halter and let the reins out.

Mack was thinking all the way back.

"**N**ot only is it stupid," the Admiral barked, "it's also suicidal—for us."

Anaka, not wholly convinced the Admiral was wrong, kept his silence.

Mack didn't. It seemed perfectly logical to him.

"Urge . . . reconsider . . . Admiral. Hard . . . for . . . me . . . express . . . your . . . language . . . but . . . positive . . . will . . . work."

"You have no guarantee, **dammit**. And we can't take chances!"

"Suggest . . . Admiral . . . knows . . . less . . . these . . . matters . . . than . . . dolphin."

The storm signals were evident on the Admiral's face.

"Don't be insubordinate, Mack," the Admiral growled.

"Will . . . leave . . . then."

Mack had him dead to rights. Although the dolphins were nominally under Fleet advisories, the Treaty of 1998 gave them absolute freedom from human interference. Their service was voluntary.

The Admiral glared down at Mack in the tank. "Get the hell out, in that case. No one's stopping you."

Mack didn't reply. He glanced at Anaka once, then swam through the tank tunnel into the open sea.

The Admiral turned to Anaka. "You think he was right?"

"Well, I just don't know, sir."

"As long as you have any doubt about it," the Admiral snapped, "you're confined to quarters."

First Garn considered the ray's destruction proof that any dangerous life forms could be handled.

"And isn't it true," he asked Second Garn, "that we have seen no other threatening forms?"

"Yes, First Garn."

"And that we have seen no intelligent opposition to our rightful presence here?"

"Yes, First Garn."

"Then we may assume that the intelligent life forms are inferior and fear us. Prepare the summons."

Broken down to its simplest semantic elements, the summons said: "Food good. Come."

Mack took the lead and, in age-old respect for the joy of life and its expression in graceful swimming, slapped the water hard with his tail every minute.

The others waited patiently, and finally Mack spoke in the rapid whistling, clicking, grunting dolphin language.

"I think we are obligated to act for them."

"That might be," the dolphin behind him said, "but can you offer a truly valid reason?"

"They are our friends."

"You have told us of this Admiral."

"But he is at a disadvantage. He does not understand the ways of the waters."

"And you think these Tegels can be regarded in that light?"

"There is every reason to believe so."

"We will get no thanks for it, in all probability."

"We have had our thanks." The meaning was clear, and several of the dolphins further back whistled their agreement.

"Think," Mack said, "of all they gave us. A symbolic language. The ability to develop our own culture. Even a chance to explore space with them."

The dolphin behind Mack could not argue.

Before Homo sapiens discovered that dolphins had brains as fully developed as man's, the dolphins were an intelligent, but cultureless, species. They played, fed and bred with only a primitive language of a few basic meanings. Man had made something

more of them, and Mack wanted a chance to prove it.

"Will you follow me?" he asked.

"Yes," the dolphin behind him said.

Mack listened.

"Yes," the others whistled.

Mack led the way.

Anaka had disobeyed orders. Being confined to quarters had been bad enough, but the Admiral's indignation had increased instead of mellowing.

He had told Anaka he wouldn't be working with dolphins any more—Mack or any others.

Anaka thought about it for a while in his room.

"The hell with it," he said. He put on his pressure suit and walked to the beach.

The water felt good as it covered him. Almost like his natural element.

Mack picked the Polynesian up on his sonar about a mile from the Tegel ship.

"What . . . doing . . . here?" he asked, nuzzling Anaka's mask gently.

"Coming to watch after you, stupid." Anaka felt a little like crying.

"Suggesting . . . trouble . . . with . . . Admiral?"

"A little." Anaka tried to sound casual.

"We . . . fix . . . that . . . trouble," Mack predicted.

Anaka felt suspicion forming in the back of his mind.

"How's that?"

"You . . . watch."

Anaka swung the Hensen light around. He picked out two dolphins coming in. Then more. And more.

"What in hell?"

Mack whistled rapidly, and the dolphins formed a long line behind him.

"Oh, no!" Anaka moaned as it dawned on him. "You can't be serious."

"Very . . . serious."

"They'll make mincemeat out of you, Mack. You dolphins have no weapons!"

"We . . . thinking . . . Tegels . . . stupid," Mack asserted affably.

"Stupid enough for spaceflight?"

"Special . . . kind . . . stupid."

"I can't talk you out of it?"

"No."

"In that case," Anaka said firmly, "I might as well watch the slaughter. And you're not going to talk me out of it." He took the underwater rocket-gun from its sheath.

Mack gave the equivalent of a shrug with his tail and let Anaka hang on to his back.

First Garn floated complacently as the technical crew prepared to send the rocket bobbing to the surface, from whence it would blast into orbit and transmit.

"This is a moment of historic note," he told Second Garn, who turned a deep crimson in agreement.

"Soon," First Garn predicted, "all of our people will offer us thanks."

He waved his tentacles majestically.

"Let the rocket go!"

He followed it with a scan beam. It rose almost two hundred feet before an alert dolphin saw it, butted it to the bottom, hammered it into the mud and "sat" on it.



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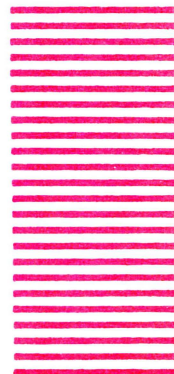
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"Prepare all weapons!" First Garn raged.

Mack whistled urgently. The dolphins withdrew rapidly and set up a cross-pattern of false sonar echoes.

"Destroy!" First Garn screamed. The electron pellets and projectiles went off on a wild tack, misled by the fake sonar.

"Out of ship for attack!" First Garn screeched. The Tegels swam out after the dolphins, pulling portable assault weapons.

Mack led the dolphins toward the Tegels.

"Bring weapons to bear!" First Garn felt victory nearing. At close range, it could not be otherwise.

The thousand-tenacled fire-control team brought the weapons to bear, carefully and accurately as the dolphins slowly came closer.

So carefully was it done that by the time they were ready Mack had led the dolphins in a burst of speed behind them.

"We have been outwitted!" First Garn shrieked. Several hundred Tegels swung around, noted First Garn was correct and awaited his command.

It never came.

Mack swallowed him with ease, and split seconds later the other dolphins were similarly occupied.

Anaka remembered later, with some regret, that he had not fired a single shot.

"In that case," the Admiral laughed, slapping Anaka on the back, "I guess we'll have to credit the dolphins with the whole thing."

"Yes, sir."

The Admiral squatted down by the tank.

"Mack, I disagreed with you when you told me what you wanted to do. I still think the risk was too great and, by all rights, both of you should be busted again."

He paused smilingly. "That is if you'll let yourself be busted voluntarily—again."

"Think . . . dolphins," Mack said from the tank, "still . . . know . . . more . . . those . . . things . . ."

The Admiral looked at Mack affectionately "Let me in on it?"

Mack spouted a tall column of water, taking a deep breath.

"Had . . . hunch . . . Tegels . . . have . . . fish . . . way . . . thinking."

"Huh? Anaka beat the Admiral to the punch.

"Had . . . feeling . . . would . . . follow . . . leader . . . blindly."

"But, dammit," the Admiral broke in, "they were capable of space flight, so they must have been smarter than fish."

"Smart . . . some . . . ways . . . stupid . . . others."

"I think I get a part of it, Admiral," Anaka offered "He's trying to tell us they had a blind spot in their behavior—so far as the dolphins were concerned. In other words, without leadership they were absolutely helpless, incapable of independent action."

The Admiral frowned. "How in hell could you count on getting them outside?"

"Was . . . thinking . . . if . . . made . . . mad . . . enough . . . would . . . come . . . after . . . us."

"You didn't know that for sure, though," Anaka insisted.

"No . . . but . . . knew . . . if . . . like . . . fish . . . in . . . thought . . . might . . . attack . . . in . . . group . . . like . . ."

"Like a school of fish?" The Admiral's mouth was open.

"Hoped . . . so."

Anaka put his hand on the dolphin's head. "Were you sure you could foul up their weapons effectively?"

"Not . . . sure . . . anything. Had . . . good . . . hunch . . . and . . . felt . . . our . . . duty."

"Well, I'll be damned," the Admiral said reverently.

"Probably," Anaka agreed. The Admiral didn't even hear him. He was thinking of another assignment for Mack and Anaka.

The President, reading from the official report, told the cheering crowds the dolphins took the chance because they felt they had better odds underwater than might have been had in an open space battle with the Tegels.

And, he added somberly, teams going over the Tegel ship had indeed proved they were right.

There was silence when he informed them of the summons that had been recovered and translated.

Mack was not listening. He was tired from the lengthy questioning of the last few days. And he was thinking of a smaller, slimmer dolphin he had not seen for a long time. So he was reasonably surprised when Anaka, standing next to the President grabbed him around the middle and half lifted him out of the tank.

He was even more surprised when the President taped the medal to his broad flanks.

But the real moment of pride came later when the new space cruiser blasted out of its berth for its maiden trip Out.

Mack was swimming in the spacious control tank—Captain Mack of *The Dolphin*. Anaka was there in the No. 2 spot, helping the crew get used to Mack.

It didn't take long.

Before they passed the Martian orbit, they had dropped the formal "sir" and just called him Captain Mack.

Mack liked it. So did the smaller dolphin who swam in the extra-large tank in Mack's quarters. They called *her* Mrs. Mack. **END**

In the December Worlds of Tomorrow

THE CREATURE INSIDE

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by **JACK SHARKEY**

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PERSONAL MONUMENTS

BY THEODORE STURGEON

From my throne here in the center of the universe, I took issue with a recent survey of science fiction, saying it was a pity not to have mentioned a certain half-dozen writers who had influenced the field. A faint rumor is going around that these six don't cut all that much ice, which is manifestly absurd—as much so as the implication that there are other universes besides the one which revolves about this chair.

Seriously, we do indeed perform many or most of our own definitions, and for me, science fiction could hardly be what it is, and what it has been to me, without these six—in addition, of course, to the Hugo's and Heinleins, the *Startlings* and Stapledons, and all the other fixed stars in the sf firmament. These six were mentioned, not because of literary gigantism, not because you and you should burn offerings before their ikons, but only because sf

could not be what it is to me without them. As you'll see, their status in my cosmos is personal and/or professional. I stress again that I trouble to mention because they have been structural in my sf—not necessarily yours.

A. J. Budrys: In his very early twenties, Burdys produced a number of short stories each of which concerned, to greater or less degree, old people. I freely confess that I don't know as much about *anything* as he did about old people—the wistfulness, the scar-tissue, the compacted conservatism—and the distilled knowledge that only a life-time of living can endow. There is at times an unleavened quality about his writing, which may be, for all I know, only consistent with this phenomenal percocity; for all that, it is my considered opinion that Budrys, should he care to travel that road, has the material in him for lasting greatness.

Nevil Shute: Not only a perfect journeyman nuts-and-bolts writer—one who does his homework and uses all his tools—Shute is to me the most perfect example of the general public's blind-spot concerning sf. If many sf writers have slightly paranoid feelings, it's because a readership which can readily discriminate between *Shane* and *Hopalong Cassidy*, between *Graham Greene* and *Mickey Spillane*, doesn't and won't learn the difference between the top ranks of sf and the funny papers. If *On the Beach* had been written by *Edgar Pangborn* (but then he wouldn't; and if he did, he might not have been able to sell it to any magazine in the field) no one would have heard of it. If Shute had written *A Mirror for Observers* (but then he couldn't) it would have been made into a Class A movie. In other words, any mainstream writer can get away with mediocre sf. Great sf tends to stay right in the clubhouse, even when it outranks its contemporaries in every other field. Why, most of the people who buy this kind of thing don't even know they're reading science fiction; *Fail Safe* is a sf novel; so is *1984*, and *Seven Days in May*, and *Advise and Consent*, and any other work which takes current knowledge and extrapolates it to probable or possible ends. (This, by the way, isn't my definition of sf—just because it isn't all that sf does.)

Edgar Pangborn is, then, Shute's mirror image in this matter. Go find *A Mirror for Observers* if you can and wonder with me how prose so polished, pacing so skilled, could with

justice ever have been allowed to slip down the *oubliette*.

William Tenn: It would be too wide a generalization to say that every sf satire, every sf comedy and every attempt at witty and biting criticism found in the field is a poor and usually cheap imitation of what this man has been doing since the '40s. In addition I owe him a great deal personally, for his incredibly involved and complex mind can at times produce constructive comment so pointed and astute that the fortunate recipient is permanently improved by it. Admittedly the price may be to create two whole categories for our species: humanity, and Wm. Tenn, for each of which you must create your ethos and your laws. I've done that. And to me it's worth it.

Vercors acquired this single name, if I remember correctly, in his days as a lethal journalist in the French Resistance. Most of his work reflects an almost unique ability to drive to real basics and subject them to scrutiny and analysis. The one book which affected me the most, both for content and method, is *You Shall Know Them*. The simple narrative situation is the discovery of a species, deep in the Outback, which is either a superior ape or an inferior man. *Which* it is presents the problem. Those who wish to train the creatures to work in mills and factories say they're animals. Those who feel otherwise set up a powerful counterforce, most of the power being in noise and indignation. The protagonist decides to have the matter *proved*, and in his laboratory in England he personally impregnates one

of the females (let me add here that this simple fact, when gossiped around, horrified potential readers by the million, and probably cost the book its rightful place. Please tell your Aunt Amelia that the process was clinical, unromantic and performed with instruments) and when the offspring was born, he killed it (painlessly, Auntie) and then phoned the police. Now if the creature was an animal, so what? But if it were human, he was a murderer. Therefore: go to court.

Vercors wrote this book around the (to me) shattering discovery that never in any literature, in all its history, has there been a true definition of Man. Descriptions, yes. Genuine definitions, no. He also pays the kind of tribute to the English courts which Joseph Conrad paid the English language; both men had adequate knowledge and experience to choose among many. He felt that the one place on earth where such a definition could be winnowed out was in an English Court of Law, and the bulk of the book is the trial transcript; and I'm not about to tell you how it comes out. What's important here is a matter of definition too. Here's a towering example of what *sf* is, can be and should be: an exploration of mores, attitudes and motivations, as well as science, clear down to bedrock so basic that it bears on every human being who ever drew breath. There are few expressions heard or read which have had such an impact on *me*; that I bewail the lack of a mention for this author is probably

this difficulty I keep having that you think my universe isn't *the* universe.

Tom Godwin is a name which possibly won't be found graven on granite three millennia from now; yet one story (of the many competent ones he has written) was another personal blockbuster. *The Cold Equations* is an extremely simple statement of the fact that natural law is to be used, not broken. A scout ship on a mercy mission upon which several lives depend is found to have a stowaway. Due to the unbendable strictures of the situation, the stowaway must be thrown out or the ship will crash. Concededly, Godwin makes the most of the situation by having the stowaway turn out to be a pretty girl in her teens; aside from that, there's nothing in the story that isn't straight, clear and uncompromising. The human equation is of course agonizing, but in terms of the real problem it is meaningless. The solution to the problem is so clear there is no choice; so it isn't at all a problem-and-answer story. It is that great rarity, an unequivocating examination of a real situation. The fact that such a situation has never exactly occurred is quite beside the point. And ever since I read that story, it has made itself a category and an aim. This too is what *sf* is for.

It might be interesting to see what other writers (and readers, too) have to say about their special personal monuments—those which have been obscured by the public skyline.

END

SCIENCE - FANTASY CROSSWORD PUZZLE

by JACK SHARKEY

ACROSS:

1. Perfectly harmless unless smashed
5. What ballistic missiles travel in
9. Certain mate of a sea vessel
14. Given a chance, it will grow on you
15. Turns red in a current
16. *Per aspera ad* _____
17. Fantasy-writer factions could use a few more
18. A free drink in Mexico
19. In France, you drink your cafe in one
20. What some pigeons insist on doing
22. Sports car
23. The Atomic _____
26. What vampires do all day
27. A Roman emperor who should have listened to a soothsayer
31. The inventor of dynamite
33. A school and type of jacket
35. A Spaniard cheers for a Swede
36. "_____ else!"
37. "Get a look at that!"
38. An urgently important social event in school
39. A popular vehicle in our 49th state
40. What Flash Gordon's ray pistol is responsible for an awful lot of
44. Miss Chase, of the stage and movies
45. Famous also-ran
46. First of last three words spoken to his best friend by #27 Across.
47. "_____, c'est l'amour!"
48. One hundred fifty-one Romans
49. Half a comic dance duo; name of a lady spy
50. If you haven't got neon, argon, or radon, you can always fall back on—
52. A chinese boat; Mister Spade's face
54. You fight a *toro*, or milk a _____
57. What you hate to see a good story do
58. Safest locale for rocket pilot when his

- ship is between planets and he has no space suit
59. You say werewolves have hairy faces; scientists say they are _____
61. What the U.S. hopes to land on the moon
64. Pertaining to the ear
65. What a test-rocket sled runs by
69. What flowers lose on the moon
70. A block of salt for cattle
71. Form of some alien monsters
72. Evil spirit
73. Crewmen on long rocket runs could play some _____-deucey
74. If heroes practice virtues, villains commit _____

DOWN:

1. Measure of electrical power
2. If the heroine goes to Mars, the hero goes _____
3. A Swede yells his name at a bullfight
4. What a drunken hero may get caught in
5. "What's in _____?" (2 words)
6. Man's name meaning "of the king"
7. A kangaroo's legs, a rocket's engines, and a witch's broom are each, in their own way, _____
8. What you better not do to a space suit on the moon
9. Robin's best friend
10. A southwestern tribe
11. Avenues or holy people (abbr.)
12. Nickname for Big Dipper; Latin stem for bears
13. The man from Aberdeen says he won't
21. A leading miracle fabric
23. Name for specialized study of anodes
24. Type of warfare young Tarzan was involved in
25. What Scrooge's close friends called him

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			58				59				60			
61	62	63					64				65	66	67	68
69							70				71			
72							73				74			

27. Not dead nor asleep, but in-between state
 28. How to fly a one-man spaceship
 29. A delicate kind of lace
 30. What Mars is covered with, mostly (2 words)
 32. Charles Lamb's pen-name as essayist
 34. The unlucky spaceman managed to #8 Down his spacesuit, and it ———
 38. Flammable earth used for fuel
 39. After three days in space looking for the landing field, it was really a ——— for sore eyes
 41. What incoming spaceships do on the upper atmosphere
 42. Word used in comparing different objects
 43. Our second-largest state
 49. A product you won't need on inner Mercury
 51. The compass direction of Chicago

- from Albuquerque
 53. Beach in California
 55. Young girl who talked to chess pieces and playing cards
 56. What the villain always is, just before he gets blasted.
 59. Miss Negri of silent-screen days
 60. Units of force or power
 61. What some hardheads still think science-fiction is
 62. What SF fans feel toward those hardheads
 63. If "Romany Life" is about gypsies, then a gypsy must be a ———
 66. Name of a man who learned how to get into the cave of certain Arabian thieves
 67. Traveller between anode and cathode
 68. If you weigh a few oz. on Earth, you'll weigh a few ——— on Jupiter

THE COMPETITORS

BY JACK B. LAWSON

ILLUSTRATED BY NODEL

He knew a robot was only a tool to be used by men. But the big question was — who was using who?

I

The fast, silent way it crossed the room wasn't just efficiency. It was an insult or, more likely, a challenge. As if crossing rooms without making a noise were some kind of game: Now you got a turn.

Questions Controller Karl Paker, who by regulation had to rise and greet even robots a courteous three paces in front of his desk, remained

squarely behind it, thoroughly seated and—in his mind anyway—swollen with hate. His bones, God knew, made noises enough, what with the accumulated frictions of fifty-five too-busy years. More, he limped. He wasn't going to give this thing a chance to listen and watch.

The next instant he saw his mistake. You have to *move* to stay ahead of robots. Ahead morally, that is; physically you can't hope to as



much as stay even. This one took and turned Paker's insult. Finding those last three steps open it took them, then seated itself on the corner of his desk.

Paker couldn't breathe. Something went wrong in his throat. Pushing back his chair a little and gripping the arms he regarded his visitor—to all outward appearance, a handsome, rather slender youth of about twenty, smooth-skinned and bright-eyed. You could tell it from the human only by its too-perfect humanity.

In his mind Paker took the bottle of Earth cognac from the bottom left-hand drawer and, swinging from all the way back, christened that faintly rose right cheek good and gory. Or greasy, since that was the best it could do. But the very delicacy of its coloring somehow warned him that the three-hundred credit bottle, and not his visitor, would be the one to suffer; what he had to deal with wasn't so much cheek as it was brass. He sank back and merely glared at the drawer handle.

"Well?" he said when his throat was working again.

The robot gave him a youthful smile, though the thing was maybe three times his age.

"I am R 391," it said. "However, you may call me Rob, or even Robby, if you have the appropriate personality-index. I am a human factors coordinator for this region. You are the Questions Controller and I am here at your request."

"Yes," said Paker, not looking up. "Well."

But he could face up to things, even things as humiliating as this.

"Look here," he started over, now meeting the robot's eyes—or whatever it wanted to call them. "We need help. I evaluate the questions. There seems to be only one of any promise, even if I don't like it. So I'm asking: Are there conditions under which the robot kind would agree to help us?"

As soon as he was done saying it he dropped his gaze back to the left bottom drawer. Cognac might not be a club, but it would make an awfully comfortable hole to hide in.

After all, he'd gone into questions control work some twenty-seven years ago because it seemed the one area where human beings had it over robots—in fact, had to have it over robots to survive.

Well, not survive, he thought. Robots would look after humans to that extent. Otherwise, where was his purpose, But in the present furiously competitive expansion into space, the only edge robots didn't have was in questions: Men could ask new ones, robots couldn't.

And when you got the questions, the best you could do was ask the robot for help. Oh, yes. He'd need a lot of cognac to hide the taste of that.

"'We' means more humans than you," observed R 391.

"Me," said Paker. "The three thousand human beings left in this region. And lots more, maybe even the thirty billion all over the galaxy. We're in a real hole."

He waited, but it was silent. Dramatic pauses never worked on machines. "We've lost two planets." He

rose, limped to the filing cabinet by the window. Let it see the limp. Here the thing wasn't sitting on top of him anyhow. "I've got it all on tape for you, since that's the quickest way. But it might help if you heard it from a human too; tapes are computer-filtered. Out there around OC40, just seventeen light years and four months from where I'm standing, there's a nice Earth-type world, exactly the sort we've got to have if we're going to prevent . . ." He paused, blinked.

"—to prevent our taking over. Yes. Human policy is no secret."

It wasn't. Or if it was a secret, it was an open one. If robots got the stars, as they were already getting two thirds of them, then you had no place to go. You would have to live in houses not out in the open, and when that happened you were lost. Robots were such damn good housekeepers.

"Anyway, in due course we went down on the planet—Baggins' world. Too fast, of course. There's never enough time to prepare things right, if we're going to stay ahead. And we couldn't let your kind have that world. Why, a man could almost walk around there in the raw!"

He faced the robot, which was still perched on his desk as if that were the only comfortable seat in the room. "Planets that congenial aren't easy to come by, you know. Trouble is, somebody else already lived there. An *intelligent* somebody."

Paker thrust out his hands—half fight, half appeal.

"Maybe you can figure how we felt. There are lots of more or less intelligent animals in the universe, but until we got to Baggins' world nothing in the human class. It was like when you've been on a scout ship for a very long time, just yourself all alone, and then you make planetfall and suddenly there are other people talking too. That's how it's been with the human race, except for you greasers. Well, we could talk to Bagginses, or almost, though they didn't seem quite right—"

"You mean they are not human."

"Maybe something like that. Only you're not human too, and we can talk. What it was with the Bagginses, they didn't seem to have any ambition." Paker considered briefly. "We went down. I should explain they're underground, and they were willing enough to let us have the surface. Which we already had, for that matter. Anyway, there don't seem to be many of them, they're only under this small part of one continent. No ambition, like I said. Not quite right.

"Well, that 'not quite right' turned out to be plenty wrong. One of our teams located a fantastic vein of radioactives and sank a mine. It's not often you can mine radioactives in a habitable system. Well, I guess you could say mining in that spot was out by the treaty, but it was inevitable. They ought to have seen that.

"The vein happened to be the gut of the Bagginses power system. Nobody knew they were that advanced! Of course, they misunderstood. Turned out they have robots too, only ones that follow orders instead of trying to steal the universe out from

under your nose. They burned us off the planet." He made a face. "You know what would happen if I tried to play chess with you?"

"I would win. Chess is no competition for us."

"Yes. Well, that's how it was. They aren't better armed. As a matter of fact most of their weapons are copies of ours. But they took us, and made us look easy. Then they sent their machines out and they took us on Robinson's world too. Either they already had a stardrive and hadn't bothered to use it before, or else they worked up one like that—" he snapped his fingers past his ear—"so as to come after us. Two Earthweeks ago their machines hit Columbia, a strong, well-established colony of almost three thousand people, and they made that look easy too. We're no competition, as you put it."

Paker went back to his desk and, robot or no, sat down, opened that bottom left-hand drawer. He hesitated, but the consequences of his last discourtesy were right there in front of him, practically bolted to the desk-top. Knowing how silly it sounded he said:

"I need a drink. Will you join me in one?"

"Thank you, no," said R 391 and, amazingly, left the desk to go sit in the chair it was supposed to.

After the first flush of relief, Paker wasn't sure this was better: It had such a hideously tidy way of sitting. When he had poured the cognac and placed the bottle carefully on the spot where his visitor had perched, simply—as he told himself—because

that was where he *wanted* the bottle, he said:

"I was inaccurate at one point earlier. I gave the impression that the Bagginses are in our class. But the right way to put it would be to say we're nowhere near theirs." Then he took the first sip of cognac. Now he had said it, now he had really said it all.

"I cannot accept that," it said, using that unspeakable courteous voice robots always used when they were saying something that might offend you. "Animals of the sort your account suggests would not be your superiors in any meaningful way. They should be the reverse. However, I will be able to appraise their capacities more accurately after I have done the tapes. Now I can say only that if the situation is much as you've described it, we will probably decide to help."

"How soon can you say?" Paker asked, a little too eagerly. "They may decide to hit here next."

"Shortly. I should like to use your private bathroom, please."

Paker opened his mouth, but nothing was in it to say. Cognac cost too much to spill, so he got the glass down properly, and then the shock started coming out. He began helplessly and horribly to blush. He could feel it go all the way down to his navel.

"But!" he yelled, trying not to. "I mean, surely you *don't!*"

"I must communicate," said R 391, in the same easy, courteous voice. "I prefer to do it in private and in pleasant, mathematically neat surroundings."

While it was gone he put away a good thirty credits' worth of cognac, but his sense of outrage burned right through the stuff. There were places robots should have absolutely no business. He felt that strongly. And he found that, try as he would to stop it, his mind insisted on showing him, like a set of smutty playing cards, pictures of that thing in his bathroom.

And God alone knew what it meant by "communicate." Certainly only a robot would think it was the sort of thing you did in private—or in his bathroom, with the door locked. For he'd heard it lock the door in still another burlesque of human modesty.

"Well?" he said angrily when the door clicked again and it returned.

R 391 stopped before reaching his desk and struck a parade rest—a position human beings took because it was comfortable if you had to stand in one place a long time, and because, if you were human, you always had this problem of what to do with your hands. The posture infuriated him still further because neither problem could occur to a robot, ever.

"Yes," it said. "You *are* in a hole, as you put it. We will help you."

Then it said something else and he said, "What?" because he didn't quite hear. But he wasn't really asking. He was too taken up with the relief gushing through him, as if his blood had only this instant started to flow.

Robots didn't lie. From an en-

gineering point of view they considered lying complicated out of all proportion to the uses it might have, and simply didn't build in the necessary circuits. So if this one said they would help—they would.

He hadn't till this minute believed it; their business in the universe seemed to be making things hard, not easy. But they were going to help! "What?" he said again, more to hear that repeated than to hear something new.

"I said, I can tell you a good deal about them."

"Them?" he repeated.

"I mean by 'them' what you call the Bagginses. I have just gone through the entire file on Baggins' world."

"That's nonsense," he said. "You can't have."

"We investigated the species some three hundred Earth years ago. I will tell you about them, because it will be good for you to know."

"Good?" he said. "Look here, what have you been doing in my bathroom?"

"I have been communicating," said the robot stiffly. The trouble with their voices was you knew every bit of expression had been put in deliberately, by choice. But expression wasn't something you "put in." It was part of the organism's total functioning, like a yell of pain when somebody stepped on your foot, or the way blood rushed to the bruised spot.

"In my bathroom?" he said. "That's outrageous!" He didn't quite know what was outrageous, but something was.

“The Bagginses,” it said, “are a machine-dominated race. I was right, incidentally, in saying that they were in no significant way your superiors. The right conclusion to be drawn from the way that you were outgeneraled on Columbia and Robinson’s world is that the machines you fought were controlled through subspace by a master brain back on Baggin’s world. You had no chance.”

“What you mean is that their machines take orders from them,” said Paker thickly. “Instead of going off on their own hook. That’s what you mean by machine-dominated.”

“You have an excessively belligerent attitude,” observed R 391. “You should remember that under too much stimulus circuits burn out instead of operating. What I mean by saying the Bagginses are what must be called a machine-dominated race is that their civilization is oriented around machines. The Bagginses discovered about three thousand Earth years ago that their emotional needs could be entirely satisfied by directing an electric current to a nerve complex at the base of the eye. Your kind once made a similar discovery but have escaped its consequences. Their civilized development stopped. Automata do the work, but, as you observed, have not been structured to permit independent judgment. This is another indication of the Bagginses’ compulsive need for security, a racial drive whose origin the investigative team could not determine.”

“Compulsive, hell. It just shows they’re smarter than we were.”

“You are mistaken. Moreover, we

can predict with a high order of probability that this need will lead them to seek out and destroy humankind wherever you may happen to be. We would rather not have humans eliminated from the universe; therefore we must join forces with you in this region until the Bagginses have been destroyed. Their destruction should take, with luck, no more than two Earth months.”

“Just like that, eh? You feel sure of yourselves, don’t you?”

“I am sure my feelings are what they should be,” replied R 391 precisely.

Paker put his head on the desk, even though the other was still regarding him from that idiotic parade rest. Robots claimed to have feelings, but he intended never to believe it. There had to be limits. He sat up again, put the bottle away, slammed shut the drawer. He intended to be on his dignity now.

“I don’t know about that,” he said. “But if you’re so great on feelings, you must at least know what it feels like to be humiliated.” There he hesitated, for it came to him that probably wasn’t true. When would a robot be exposed to humiliation? “Anyway,” he went on, “you ought to know what making a request like this does to us. We’re fighting you—or would be, if that weren’t hopeless. At the least we’re in a race with you for the galaxy. We wouldn’t be out here except for that, overextended and unprepared as we are. It’s mostly your fault. How do you think it feels to come begging you the way I’ve done? You might have spared me being on my knees”

R 391 broke out of his parade rest and gestured sympathetically.

"You misunderstand," he said. "Speaking your way, I do not want you or any of the human kind on his knees. I want you rather to stand on your own feet more. Thus, what you have said is absurd."

Paker rose, limped around the desk "That was cruel," he said, standing in front of the thing and close. "A robot did this to me. One of your heavy models, not looking where it put its feet."

"I know the story, and you have not said it accurately. MK 30 has large feet, requiring fifty square decimeters of surface, and when gravity came on there was no place else to put them. I also know that you could have the defective part replaced."

"It's not a part. It's *me*."

The robot regarded him without expression, as if he hadn't spoken yet.

"All right!" It was Paker's turn to sit on the desk. "But a man's entitled to some privacy. It's my bathroom."

"I was communicating, as I have already told you. Subuniverse 12, which you may not know about yet, as human minds are too confused to make use of it, is a cosmos consisting of abstractions or forms, the stuff of pure thought. Mind enters it in the same way a starship enters Sub-U 3, except that one has only to think a pattern to create the reality-warp, so one does not need sunfield generators. However, one does need complete freedom to concentrate,

and I prefer not to turn off my sensors around humans: That is bad manners. Also, humans with derangements like yours have been known to attack exposed robots."

Paker looked away.

"Well?" he said. "So what are we going to do about the Bagginses? What's this two-month miracle of yours?"

"Our records are three hundred years old, but a civilization such as I have described is necessarily static. The mind synthesis in which I have participated suggested that, considering the fact that these animals have not empowered their machinery with independent judgment, the vulnerable spot should be in the animals themselves."

"Just the point you things would fix on."

"The problem then becomes one of finding a way to deprive these animals of independent judgment. The surest way, on the basis of the information at present available, seems to be to destroy the animals entirely. They cannot make decisions if they do not exist, and without them their machines are harmless."

"Trust a robot to state the obvious," quoted Paker. "You are right now up to where I am—where we humans got, I might add, without even thinking about it. The question is, where do we go from here?"

"I go to Baggins' world, if you can provide me with a probe-class ship that is small and fast enough to land there without being detected. If you cannot, then I go to Betel 4 where my kind are readying such

a ship, and then to Baggins' world. You," it added conscientiously, "are the one to say where you go, but I can think of no reason for you to go anyplace out of the ordinary. No human needs to change his plans. I will take care of this problem."

Paker stopped before saying what he wanted to. "We're involved too! I would like to know your plans so as to think about ours. We make up our own minds, you know."

"Once on Baggins' world I shall try to destroy all these animals. You complained that I was stating the obvious."

He clenched his hands. "Like that? You'll wander around and pull their heads off or what? You're just one robot, and these creatures by your own admission are a danger to the whole humankind. After all!"

R 391 was silent.

"Plans that are not known cannot be anticipated," it said at last, making that deliberate, youthful smile.

He felt the blood coming back into his cheeks and stood up, walked around behind the thing. He was looking out the window at the sky. It would darken and then turn somehow thin, and darken again. He felt something in him—some moral quality—tighten, and suddenly and agonizingly twist back on itself, the way a leg will go suddenly bent and hard with cramp.

"I see," he said. Unhappily, he did. What the thing had said was right, even if having it said was intolerable. "Well, we can provide the probe-ship. Happens I own a

modified bug. My plan is to go along." He hadn't planned that—hadn't, in fact, planned anything until he said it, but now he found himself suddenly committed. It was his ship. "That's my business, I expect, just as what you intend to do is yours."

R 391 rose and came around and considered him.

"You are old and lame and of doubtful usefulness." It was using the polite voice.

Karl Paker smiled at it.

"I can hold my own," he said. "One thing, I know how to disable a robot of your model. Even with its sensors on."

III

But disabling the thing—even during the time when he could have done it—wasn't the problem. The big problem was holding his own.

Over the next two Earthmonths he learned how far claiming he could took him, how much that easy remark committed him to.

Paker tossed another chunk of vegetation into the fire and watched the stuff try to crawl out. You would never think that messy green tangle could move unless you tried to burn it. But there it was, scrabbling wildly at the six-inch wall of earth R 391 had put up to hold his fires together.

Perhaps, for that matter, it couldn't move until you put it in a fire. God knew he himself had been doing things for five weeks now so far outside what he could, that in the nor-

mal course he wouldn't even have tried—all in the name of holding his own.

"Robot!" he called, when the vegetation stopped struggling.

R 391 was sitting on a rock some twenty feet away, wearing a green sportshirt in forty degrees of frost. But its nose was red, as if with cold. Paker wondered a good deal about that.

"I hear you," it said.

"It's fifteen hours, Earth, time. Your two months are up."

The thing regarded him.

"Well, they're still kicking," said Paker, shifting around so he could reach the farther pile of vegetation with his lone hand.

"We have failed. I thought that you already knew this."

"I did."

"Then I do not understand you. You must have been aware of the fact that I already knew it."

He was too cold to laugh, but he could still make the right face to go with the kind of laughter he was thinking.

"I expect I knew that too."

"Then there is something wrong with you. As I have explained three times now, communication is an asymmetrical relation with respect to the information communicated. Thus, if you—"

"I've had about enough of your communication," broke in Paker savagely. "That's one word we could do without." He threw a new lump into the fire. "It's not as if you were always saying new things yourself all the time. Oh, no."

"Perhaps you need a new trench,"

observed the robot. "Though I dug the last one only five days ago. If you would not eat so much—"

"I eat to stay warm!" he shouted. Then he sat back, bracing himself on the plastic sheath where his right hand had been. He tried to stop jumping inside. How many times had the thing said something like that over the past week? Something that, if you could believe a robot could want to, had to be a calculated attempt to goad him on?

A robot's mind didn't work by free association. If it got from the idea of communication to the idea of his trench, it got there according to a strict deductive order. In which case what were the postulates? Was the general idea to irritate hell out of him? He couldn't quite believe it had that in mind; but just in case this was possible, he was going to remain very calm.

"What I mean is," he went on, to be saying something, "where do we go now? What next?"

"You should die within fifteen or twenty days, but you may last a little longer. Predicting humans in this respect is difficult. When you are dead, I shall turn myself off."

"After you've had the fun of seeing me go . . . I wish it had got us."

"The hovercar machine probably had orders only to protect the young animals, as I have explained repeatedly. When we no longer endangered them, it forgot about us. Such machines cannot decide to do something on their own."

"So turn yourself off."

"I will not be rude."



Paker considered its nose for a while, then went on. "Why do I waste my time talking to you, I wonder? Two Earthmonths ago I would have crawled through fire first."

"Humans are language-structured," explained R 391. "You are under stress and require the consolation of jabbering. However, you have not listened to what I say since I fixed your arm."

"But you say it anyhow. Why? Just so I can hear the sound of your pretty voice?"

"I try to think of what I say as though I were your mother, but perhaps I make mistakes. Working with metaphors is difficult."

Paker kept very still for a moment.

"Some time you'll go too far," he

breathed.

"I shall not go so far as off this planet, in all probability," observed the robot. "Still, unlike you, I can always be switched back on." It executed a different, brotherly smile.

Paker turned his back in spite of the cold. In his imagination he could see the landing party—robots, probably—stuffing his stiff form into a black undertaker's bag and bringing back movement to R 391 by turning a switch. Of course, if they were robots they wouldn't have a black bag; but that was what he saw them using all the same.

The worst part was he couldn't blame it for their failure. Not honestly. Animals, as the thing had explained once they were down and far enough away from the *Hermes* to be safe, were convenient to destroy not



only because they damaged easily, but because once you killed one it couldn't be turned back on or its parts used over. Which made sense.

So what was the problem? You asked where the animals were most vulnerable, and how you could go at them so as to be sure of getting them all. Logical questions, both. The sort implicit in the information you already had, the sort a machine not only could ask but could ask better than a man. The answer was logical too. You hit them "where the new animals are made." Because—as it had politely explained when he told it the facts of life—machines were superior lovers; if your lover was electric, you didn't bother with sex. You turned over the problem of reproduction to specialists.

Paker's left cheek was going stiff.

He faced back to the fire, throwing in more crawly stuff. No, the plan was all neat and logical, even now. So logical that any good mechanical brain could work it out, as he had one good not-hand to prove. With his teeth he pulled the glove off the other hand, the one he still had, and began to massage the rubbery cheek. You could put that in the fire and it might start crawling too.

But not a robot. It just switched itself off. Once you were politely dead, of course.

"I'm beginning to see why you things don't own more of the galaxy than you do," he called—even though R 391 could hear him whisper, as he perfectly well knew. "In spite of all your advantages, you're quitters."

"I have explained the situation to

you, but you are sloppy inside and forget things. You may use whatever mathematics you like to describe the problem, and I cancel out in every case. The Bagginses' master brain can coordinate more data than I, and it incorporates similar structures. As I cancel out, in the relevant sense I do not exist. You cannot say of something that does not exist that it is a quitter."

It really meant that, Paker decided. That was the trouble with a mathematically precise language. When a robot went wrong, it went all the way. A human managed to spread out the error—just because the language was sloppy. Like human minds; something you could never quite trust.

But something that could meet change, too. As a sloppy human you were always up against something new, and had to keep your meanings loose to deal with it. So you could mean something new. You could make meanings; that was the secret of good questions. But a robot could only work over things until they fitted already established meanings, and, if that didn't work, give it up.

"I still itch in the hand I don't have," he explained. "I even try to use it."

"You will tell me when these attempts begin to succeed."

Paker looked up. "You miss the point," he said, but despaired of making clear just what the point was. That was how it worked: You said something you didn't mean or understand even, and then you had to create a meaning for it. "I mean,"

he tried, "we're here and damn it, it's cold. We ought to do something."

"I am still here," observed R 391, "in the sense of being able to dig trenches, to lift heavy objects or to lay fires. You can do small, simple things like opening food sacks."

Paker was quiet, since one thing he couldn't do any more was take out an R model.

"I suppose I'll have to put some kind of gadget on that stump," he said into air. "I don't like it, but it's too unhandy without."

"That is true."

He glared at it. "Look here. Why don't you go away? That's something else you can do. If you went far enough away you could turn yourself off without being rude, you know."

"You would freeze." It got down from the rock—a handsome twenty-year-old whose breath didn't frost at minus forty. But it had a red nose.

"Look," it said, squatting beside him and extending a right hand complete with fingernails and light brown hairs. "Your kind cannot make one so good. This is an efficient model. If you were equipped with one you would not even want to go back to the organic sort, it would seem so much less useful. For example, with this you would be able to hold together the materials for a fire while it got started well, without being burned." It flexed the fingers at him. "I would like to go away and switch myself off. I have no purpose here worthy of the name, and I am unhappy. But while I have this and you do not, you are dependent on me and I must remain."

"Oh, unhappy," said Paker hutch-

ing from it a few steps around the fire. "Go on!" But God knew he was dependent on it—not just for creature comforts, but for survival. Or would be, if he had any chance of surviving.

"You know," he brought out, "I may not have two good feet to stand on, but one hand is plenty to sit on."

"You have made another of your nonsensical remarks," said R 391 in a gloomy voice. Of course, a voice like that was calculated, but with what intention? Did he really care what its intention was? It was trying to do *something* to him, anyway.

"What I mean is," he said, "if I'm here to die, I can do it all by myself. I don't need your help. If I could turn you off it would be in the bag and—" and there he stopped, because he was thinking of something else now.

He saw a way.

"Listen!" he told it, shouting over a distance of two feet. "Think of yourself as a Baggins machine." He paused for a moment, because that was a pleasant thought. "And humankind is this green stuff you've got to hold down while it gets to burning. Now if we take away you, I — I'm the Bagginses, I guess — freeze to death, isn't that right?"

"I do not know," said R 391 in a minute. "Thinking of these three entities this way is awkward."

"We should have known from the start! Of course! The thing to do is hit the machinery!"

"Destroying mechanical lifeforms is poor strategy."

"The brain, robot! The master brain! And, stupid, you didn't think of it!"

R 391 inspected the fire for a minute. Then it put its face through a complete smile.

"I almost might have predicted that you would think of such a plan," it said, when it was finished with the smile. "It could succeed, however."

"And you didn't think of it," repeated Paker, who was quite warm now, even to the ends of all his toes.

IV

But after that he wasn't warm again for so long it might have been forever. They marched crosscountry for three days to reach what, on the three-hundred-year-old map in R 391's brain, looked like a good point to dig into a tunnel complex, and all that time they had no fire. Every four hours R 391 halted. They would stare at each other while the stiffness sank into Paker's joints and his breathing came back to normal; then they were jogging on again.

Paker didn't ask for the halts. Hadn't he said he could hold his own? But he knew R 391 could have gone the whole distance without stopping, and every four hours he took the break without a word. It wasn't enough, of course; perhaps that made it easier to take.

But he knew.

For the rest, he depended on medicines to hold his own—the little green pills that would clean his

blood, let him go on, on, on, without sleep; the white pills when his balance got too shakey; the purple pills when he needed spurts of energy; the bigger white pills whose use he had forgotten. He didn't have enough, and he was counting the precious green ones again, trying to make the count come out slightly higher, when the robot said, "We will dig here," almost casually, as if it were telling him the world was a small place, wasn't it? He staggered on another thirty steps, counting helplessly. Then he got himself stopped and turned around, and then he dropped.

He sat and watched the thing sink into the ground without so much as pretending he could help—in spite of its "we." His underwear was supposedly good for fifty degrees of frost, but that wasn't true. He was brittle with cold. Was this the planet he'd claimed you could go around on in the raw?

Then, without knowing how, he was somewhere in the dark leaning on a too-human shoulder and he pushed away. That he hadn't been going to do. He wanted to cry, but he couldn't do that either. It was warm again, all except his soul, and suddenly on his left he heard harsh breathing. The robot brushed by him, moving fast, and he heard a fuzzy sound and then a sharp *crack!*

"What was that?" he said, but couldn't control his voice and it came out only one vowel, a sort of nasal bubble. Perfect fingers gently pressed against his mouth. He had to hold in hard not to bite.

They went on down. It was never

possible for him to lead, but the plan was his, so he was leading in that sense. More, he was taking care of himself now, even if his bad foot came down too hard now and then. He could hold his own. After all, they'd been in the tunnels before...

From time to time they passed vague little clouds of pink light along the left wall, clouds dilating and contracting regularly, like a heartbeat. Once the pink flared out as he went by and he saw a square, naked compartment, and in the far corner something—more a mass than a shape. It changed and uttered a noise of some sort.

Then he was past. Had that been the enemy? But what was the noise it made? A moan of pleasure, maybe. He had seen pictures of Bagginses: small, brown-skinned, wrinkly-looking creatures almost like elves. Miraculously close to the human. You wanted to talk to them. You could talk to them, if only a little, and there was the true miracle. In all those centuries of exploration and expansion humankind hadn't found anyone else to talk to, not counting robots. And of course you didn't count robots.

But he didn't want to talk to *that*.

They went down, on what seemed to him a long spiral, and there were no more pink lights. The darkness sank away for a long time, always curving a little toward his game side. The robot was leading him by the hand now, as if he were a three-year-old. With his other thumb—the one he didn't have any more—stuck in his mouth, probably.

Suddenly they were in the middle of a great hissing. Up ahead was something giant that filled up the black, coming at them.

He was flung flat against the wall. Breath went out of him; the hissing rushed up to a roar all around. He was sick and desperate trying to breathe, the air pulled from his mouth. The robot held him flat. There was no room; he had to bend over.

Then he was breathing and the darkness was clear again. The hissing got smaller up the way they had come; abruptly what must be a bend cut it in half.

"That was a hovercar transport," explained R 391, speaking, incredibly, in a normal voice, so that for an instant the darkness seemed to jump at Paker from half a dozen places. "We are close to the difficult part of our mission now. Thirty-four meters ahead, if I have measured accurately, is the conveyor belt which that transport just left. I do not know how fast the belt moves. However, seventy kilometers distant in the direction of its movement, the belt should pass a wall on the other side of which are located the control circuits to be destroyed. The belt is the best approach, according to my map. You are tired, and you are in a comparatively safe place. I will go on from here alone."

Even at five or six inches he couldn't see its face, but he suspected it was doing the boyish smile: Go suck your thumb, old man. This calls for youth—or metal. Paker passed the wrong hand over his face; his mind lurched a little.

"I can manage." He said it without expression, fighting the heaviness of his breathing. But he said nothing about holding his own. That was behind him now.

"I cannot undertake to be responsible for your safety once I am on the conveyor belt. I will be busy with more important things than you."

Paker closed his eyes. He let breath out hugely, even though its face might be right there.

"Look here," he said. "You can never be responsible for me. Do you understand that? Never. Not for a minute. It's our battle, and I'm going on. You'd better try to understand that, too."

"I will make the situation clear. I may have to do more than simply to ignore you. If I find that your presence is likely to interfere with what I must do, I will be obliged to render you inoperative."

For a moment Paker just breathed. Why didn't it say "kill?"

"I'll manage," he repeated, and started by it in the dark.

So they went on together. The belt was slow and he lay on his back letting the blackness slide over him and slide over him. He was sleepy. Here! Biting at his lips didn't help. Would the robot wake him or merely let him go on, riding slowly into the limbo of this hideous world? In any case he couldn't ask. A question of pride more than of a broken neck; his muscles were too sore for him to sit up. While your eyes were open you could stay awake, but how to be sure your eyes were open still?

And then something had him by the shoulder and R 391's voice was at him, too close in the darkness.

"In three Earth minutes I will say to you, 'Run!' and when I say that you must face back the way we have come and run as rapidly as possible."

His shoulder was his own again. Paker sat up, shuddering. Seven pills remained in the hip pouch and because his fingers couldn't tell which was which he swallowed them all.

When the robot shouted at him—*shouted!*—he started to run, only to find that he was already running, leaning away from his lame side as if to leave it behind, going furiously, all but galloping.

The air boomed out, again, again. Behind and over his left shoulder a sudden great jag of white broke the dark. Then something moved abruptly and the crash detonated—inside his ears this time. He tried to shake it out, blinking hard. Behind, the darkness caved slowly into a pale green, and there was a room, long and with something like a giant starship drive for one wall. A blur went through the hole while it was still widening, and then he turned and lunged for all that light.

He fell.

He was on his knees at the middle of the belt and overhead the hole passed by. Well, said something odd inside him, at least you were headed in the right direction. Then he screamed and was running again. He caught up with the hole without any trouble. When he fell again he was able to grab the edge with his single hand.

For an instant he simply hung there, his heels skittering away from him helplessly. He hooked the other elbow into the opening and pulled himself toward it. Head. And shoulders.

His feet found purchase and he pushed himself up and through.

The floor was probably a meter or so lower than the conveyor belt, and as he fell a gout of blue-white kicked under him. Then he dropped through where it had been and slammed flat, nose first, and he was weeping and trying to breathe and rolling all at once, and around the heat swirled like heavy windswept smoke.

Almost where he had fallen a young man in a flaming sports shirt crouched behind a cabinet: Robot R 391. A huge hovercar filled the entrance across the room, its bumper pressed against the sides. As the robot moved from one side of the cabinet to the other a gun on top of the aircar moved too, keeping almost exact pace with its opponent; and just as the robot reached the edge that blue-white slammed out. The air was alive with heat.

Then Paker saw the thing that was most of the right wall, and that wasn't like a starship drive at all. He forgot the battle in the middle of the room.

What it did look like was a giant secondary circuit for an R model. Not quite the same, but awfully close. The main difference was that where, on an R model, the secondary would have hooked into a decision-making component, this thing led to a strip of knobs and a viewplate of some kind. And before the viewplate, in

a tiny chair, sagged a Baggins, looking a bit like soggy pudding. The way any animal looked after you hit it with an organic scrambler.

But apparently it had been able to feed in the decisive order first.

And what good was a scrambler against that thing at the door?

Suddenly R 391 went over the top of the cabinet. The gun was a little behind, and the bolt caught it in the legs. The robot spun completely around in the air and dropped back behind the cabinet with a crash that Paker felt over here, in his eyes. Above the cabinet, where its legs had been, uncoiled a little puff of gray smoke; the robot lay motionless. And who could blame it?

So now came his turn. Paker played his scrambler over the aircar on the off chance it had a Baggins operator, then threw his weapon at it. No response. Slowly he stood up and he was still there, not a crash of imploding air.

The gun was still fixed on the cabinet.

What if it was impossible? He was the one with feet to stand on now.

He bet himself that he wouldn't get three steps, and then that he wouldn't get three more. And three more. The next one would put him into the line of fire. His legs wouldn't take it, neither of them. So Paker lay down and rolled. Then he stood up, but he didn't have to bet himself any more.

He walked all the way across and he was standing over the tau node of what was, for all practical purposes, an R model.

In disabling an R model you had to hook into the navel—if you could stand to think of its having a navel—and pull left hard with one hand, reach in with the other and twist. Right here! That was about what an R model itself did, when it turned off its sensors. In effect, you were making a closed system of the elaborate set of chemical imbalances that served a robot for thought.

Only he couldn't. The thing was too big. He hadn't strength enough.

But it didn't matter. He had time enough to detach the connecting lines one by one. He was jerking at a red and yellow one when the hissing stopped—the hissing that he hadn't really heard — and behind him the hovercar sank like soft thunder to the floor.

Muscles relaxed all along his back. He worked the remaining three lines free and wiped the sweat from his face and neck. His hand came away completely red. Nosebleed.

Then Paker sat down and laughed.

What he wanted to do was shout, "I'm king of the mountain!" He hadn't said that in maybe forty-five Earth years; but he hadn't felt it in about that long either. And now he was horribly tired—even if he was king of the mountain. So happily, he only thought about how funny it would be for a man his age to say something as young and as vainglorious as that, no matter what he might feel. Happily he did no more, because while he was still laughing a young voice said:

"If you can help me up to my knees and over to that hovercar, and if it has independent controls,

we should try to finish this job promptly. I have been in communication with my people, but we will have to secure our advantage for the next seven Earth weeks."

And, looking over, he saw R 391 modestly take its finger from its navel.

"Look here," said Paker, shambling over to the haphazard wheelchair they had constructed for R 391, "I can face up to it when I've been wrong. Or I can try, anyhow. But *emotions!* I still can't swallow that."

He waved his hand before it uncertainly, and sat down on the bumper of the hovercar. One of the thousand things he had learned these four Earth months was that he shrugged with his hands rather than his shoulders. Trying to do it with one hand was like hopping when you wanted to run. A bad feeling. He looked at the sky with its ridiculous green sun, then back at R 391. There was a streak of rust over its right eyebrow that made the thing's face, for Paker, immensely more bearable, almost nice in fact. What he wanted to say was, "I would respect you if you were the kind of thing it is possible to respect."

But he couldn't say that. Nor was it quite right, either. But there was a need to say it, and the need had been with him and stronger every day since they worked their way out of that monster-warren, always in his mouth, and making him say altogether too many other things.

So he went on talking, when what

he really needed was a good slug of cognac.

R 391 continued to regard him silently. This was apparently one of its days for not speaking unless you put everything to it in the form of a question.

"I mean," he tried, "why don't you come back and *help* man?" Which wasn't what he meant at all.

"You should not ask that after your exposure to Baggins culture. When we discovered this world three hundred Earth years ago, we decided to leave it alone so that your kind could see what happens when mechanical lifeforms and animals cooperate. You disappoint me, Questions Controller."

He was quiet for a moment because this was news. After all their conversations on Baggins' world the thing still withheld information, waiting for him to find the right question. He, God knew, hadn't any secrets left!

He looked at the sky again, then asked:

"Well? What happens?"

"Machines dominate."

"But if we take precautions? We're pretty shrewd, you know."

"Your kind cannot well take more precautions than did the Bagginses."

Another reminder that he'd run no real danger crossing that hours-long room, what with that giant brain not having enough discretion to tell a nosebleed from a friend, as long as the nosebleed was walking around in a friendly way? He'd heard too much about that six Earth weeks ago. He wasn't so sure, either. Or it might just mean what it said: you

couldn't take more precautions, not possibly.

And this was true.

Paker made a vague guttural noise. Let it figure out whether he was agreeing or not. He tried the other side:

"General idea is, you're doing your best to dominate right now."

"Such an idea is absurd. I am too polite to suppose that you could entertain it."

"But suppose I do?"

The radio R 391 had tricked together began to gabble in the hovercar cabin, and he limped three steps over and leaned into the door and pushed on the key. "Paker here," he said, amazed at the everyday sound of his voice. "I am sending." Then he moved the pointer to where a long, nervous tone began to trickle from the set and weighed down the key with a rock ready there for the purpose. Standing erect he looked to the north where a ship was likely to come in. But he couldn't see the fire trail, if there was one. He went back to his seat on the bumper.

"Not long now. Well? Suppose I do? What are you up to if you're not trying to beat us?"

"I am structured against supposing a thing so impolite."

"I've noticed you can get around that kind of structure when it suits you to."

It was silent.

But wasn't the answer plain enough, once you looked at robots sympathetically? Once you realized there could be that particular question. Once you'd gone through what he had.

"You're pushing us," he said. "The whole business of galactic expansion, the whole faked-out competition, is just a thing you've set up to keep us going. Not to let us get any rest, ever."

"Animals tend to exaggerate their need for rest," agreed R 391.

"Just like you pushed me. You made us camp ten degrees of latitude farther north than necessary. Why? Because you figured the cold would keep me working. That's why you were riding me all the time, too. It wasn't really bad feeling." Paker rose, creaking. "Also, I know that when you got it in the legs that was calculated. You were still pushing me."

R 391 said nothing and he walked on by it and stood looking out toward a streak of purple forest and above it the open sky.

If you were a made thing, then your reason for being was somewhere outside you—in those others, your creators. You existed to serve them. And in yourself you were nothing. You had to have them. You couldn't originate a purpose—not on the fundamental level—any more than you could originate a new question.

What you could do, though, was use what was in you to the limit.

"Wasn't this it?" he went on. "Somewhere back when you decided we were going soft, like the Bag-ginses. The problem was, we were alone out in space. No contest. Nobody ever came up to our mark, and probably we were starting not to come up to it too—leaning on you too much for own good. So

you decided the best way to serve us was to set up some hard competition." How long had he known this? Well, for a long time and only just this moment, both. "To get us back on our feet."

He came around to where R 391 could see him.

"I guess what I want to say is—thank God you were able to decide."

Was he going to blush now, of all damned things?

"You asked me earlier about my emotions," said the robot. "'Feelings' would be the better word. I think I can make you understand them."

"I want to do that."

"You must not think of a feeling as something that happens inside you. Without an environment you would never feel anything. A feeling

is, in essence, the relation your structure has to your environment."

"You fit or you don't," he agreed, but he was not sure he really understood.

"Perhaps that is correct. But I am explaining my feelings. My ideal environment is a mathematical one similar to subuniverse 12, starting with self-evident axioms and working itself out into a closed system of a high order of complexity. In such an environment I would be perfectly happy."

Paker considered.

"And in the environment containing human beings?" he asked.

R 391 smiled carefully.

"Well, then, as you would say. I hate you. I also hate all your kind."

END

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THE CAR POOL

BY FRANK BANTA

**Never play poker with a worm—
especially when it's an alien!**

The leader worm, known in the Earth translation as The Hell Of A Long One—he was three meters long and approximately one-half-meter thick — wriggled happily on his white porcelain throne. "What beautiful porcelain we shall have with the calcined bones of these two Earthmen, Cards Wartson and Novice Howard!"

The other three worms were also overjoyed, as well as sycophantic. "Such lovely, lovely porcelain!" they chanted, wriggling in time.

Cards Wartson and Novice "Nosey" Howard, lying guarded on the

floor, saw objections to the plan. Cards reminded the worms, "You can just quit wriggling for joy now. You can't use our bones, because we've still got *us* wrapped around them!"

"That can be remedied," crooned the leader. "And it should be, when Earthmen come around we Martians and want to play poker, and then can't pay off when they lose."

The other worms tittered delightedly.

"You gave me a fast shuffle with those thousand legs of yours," complained Cards. "Those cards whizzed

around in a circle so fast I couldn't follow them at all."

"Yes, but he'd have won anyway, with you always trying to fill those inside straights," interjected Nosey critically. Then he looked at his captors. "But *I* don't owe you worms anything. I wasn't even playing cards with you."

"No," retorted The Hell Of A Long One, "you were just snooping around where you had no business to be. Probably prying into our porcelain making secrets. And you upset a cabinet of my clay tablets, breaking half of them."

"I can't help it if you don't have paper on this planet," shrugged Howard. "We'd trade you paper if you wanted it. When you make everything out of sand and dirt it's bound to be brittle."

"Especially when clumsy spies come around," leered the leader, once again exciting the merriment of the other worms.

"As art dealers, we of course are interested in your porcelain art objects," replied Howard stiffly, trying to cover his idle snooping with a little dignity.

"Anyway interrupted Wartson, "what ever makes you want to put *bone ash* in your porcelain paste? You'll just come out with medium hard paste. There surely isn't any sale for anything but hard-paste porcelain — why, this medium-paste stuff isn't worth the freight to Earth."

"Bone ash is so rare on this planet," explained The Hell Of A Long One dreamily. "We worms have no bones, nor have any of the other

fauna on the planet. Only fossils remain to us."

"But still," Wartson said in disgust, "soft paste is soft paste."

"Ah, but the new pastels! The new, delicate shades we shall discover!" breathed the leader worm ecstatically. "Who would want to *sell* beauty such as that?"

Wartson and Howard could see they weren't going to talk the monster out of it. "Well, let's deal another hand," said Cards resignedly, reaching for the deck. "Double or nothing, what do you say?"

It had all begun earlier in the day, when the four art dealers drove down the dried-up canal in their jointly owned space car toward Erlanger, the home village of The Hell Of A Long One. They had had premonitions — from long experience — of the disasters to come.

Jock Hickerson was driving, and he gave the first admonition. "Cards," he rasped, "quit trying to beat these natives at poker!"

"Now you know that with a reasonable amount of luck —"

"Which you haven't had any of the last twenty years!"

"I got the old finesse, anyway," said Cards proudly.

"Sure you have!" flung back Jock. "You fill those inside straights of yours one out of every 565 times!"

"I wish you could miss banging up the flaps of this space car that often," retorted Cards.

"I don't know what you're talking about," said Jock loftily.

"Just stop this can for a minute and I'll point out its scars to you!"

returned Cards. "I swear, I don't know how she holds air out in space any more. Can't you keep away from these stone canal walls?"

"I have to dodge the sand dunes."

The other art dealer member of the car pool, a half-breed Indian named Teepee McGuzzle interposed sadly, "This sure is a dry place."

"I hope those worms haven't got anything to make it wetter for you either," said Howard. "All we need is to have you on another roaring toot."

"You can't roar when you toot," pointed out Teepee with some justification.

"You make a mighty fine try at it," said Jock.

"It was dirty of you fellows to thieve away my grog at the space port," mourned Teepee. "People are so undercover any more that a fellow doesn't know what to think. Twenty years ago if people wanted to be dishonest they did it out in the open, where you could see them. Nowadays people are so sneaky you can hardly tell what they are doing — even if you watch them."

"You should have stayed on the reservation," advised Cards.

"If I had stayed on the Seminole reservation we wouldn't have this space car pool and be saving oodles of travel expense, because I'm the one who got the idea in the first place," said Teepee.

"Here's the town we're looking for — Erlanger," interjected Howard as a hundred half-oval, white porcelain structures loomed up in the early morning dust.

A few minutes later they were

conferring with The Hell Of A Long One — or rather, Cards was. Ignoring his business as a porcelain art dealer, he drew a deck of cards from his pocket and proceeded to explain the principles of stud poker to the worm. The other art dealers were unable to get in a word. Novice Howard wandered into another room of the ovular structure and snooped where he did not belong. Teepee went hunting for alcohol. Jock dozed in a corner.

The two disasters happened together. Just as Cards Wartson got to owing far more than he could pay, the worms heard a crash in the next room. Rushing in, they discovered the broken clay records. Jock awoke at Teepee's urgent nudging.

"Come on, we gotta get outa here!"

"What's going on?"

"Cards owes them a pot of money and Nosey broke something. They are going to kill both of them! Let's get out of here before they grab us!"

"Why should they grab us? We haven't done anything."

"Wait until they find out I drank up all their moss squeezing!"

"Good God!" said Jock, running for the door. The two men did not stop running until they were safely locked in the space car.

"Well, let's get back to the space port," urged Teepee when they had got their breath.

"What for?" asked Jock, surprised.

"To get some weapons. Rescue Cards and Nosey."

"We don't need any weapons at all to whip those monsters."

"I'm not wrestling with any three-meter worms," Teepee said decisively.

"Me either. So here's what we're going to do. We'll crash into the side of the building, on the side the worms are on, and before the worms get over the surprise we'll grab up Cards and Nosey and be on our way."

"Don't you think maybe those porcelain walls are too thick?" objected Teepee. "Maybe we'll just tear up our ship."

"Not if we hit her hard enough! Let's just slide back the plastic top now, so we'll be ready for a fast grab when we crash in!"

"Let her rip!" said Teepee, drunkenly sliding back the greenhouse.

They embarked upon the crazy scheme, backing off a hundred meters and then ramming the building at the vehicle's top ground speed. However, the space sedan, instead of breaking into the white porcelain, ran up the slick side of the building. Just as it arrived at a large ventilator hole in the top of the oval structure, it flipped over, and the two men tumbled down into the waiting grasp of the monsters.

Teepee was the first to get to his feet. "There's just one little old thing I want to say," he declared, weaving a little, "and that is, I'm so glad to be here!"

"I am glad you enjoy our company," returned The Hell Of A Long One.

"It's not that," said Teepee. "It's just that I want to confess. If there's anything I can't stand, it's an undercover thief."

"Kindly continue."

"I drank up your moss squeezings," Teepee said humbly.

"Stole our nectar!"

"Drank every drop."

"You'll catch it now! More calcined bones!"

"I suppose so. That fermented spinach was the lousiest nectar I ever drank, too. Sure wasn't worth what I'm going to pay for it."

Nosey Howard felt the urge too. "I also want to confess. When I broke your clay plates I was really snooping into your sex lives. I thought there might be some dirty jokes on them."

"Dirty jokes?" the H. A. Long One asked, mystified.

"You know. Slightly abnormal sex practices."

"I can't imagine what you mean."

"Well, on Earth for instance, a male and female after consorting for two or three evenings without mating may —"

He whispered busily. "You mean they may not mate the instant they sight each other?" asked The Hell Of A Long One, as he and his fellow monsters burst into frenzied fits of laughter. "So that's what dirty jokes are! No wonder you go to such extreme lengths to get new ones. Tell us more dirty jokes."

"Well," said Nosey Howard, riding high, "there was this old maid — I mean this female — who never did —"

"Never did! Stop it, you are excruciating! I can't stand it!" gasped the worm, writhing his thousand legs together in merriment. "She never did!"

Do you have to keep scraping this can against the sides of the canal?" complained Wartson as the foursome made their way down the canal, weaving around the sand dunes in their battered space car. "You're going to break this whole case of porcelain figurines.

"That's the thanks I get for getting us out of that mess," Jock said complacently as he recklessly whizzed from one side to the other of the stone-walled throughway.

"Yes, you were a *big* help," answered Nosey Howard caustically. He tenderly cradled his armload of Martian clay tablets. "Instead of going to the spaceport for weapons, you dump your no-good selves right back in there again! *I* was the one

who got them back in good humor." He added with pride, "Wait until they get that Emily Post book I promised them; they'll tear themselves apart laughing!"

"How about that Everglades moonshine I promised them?" queried Teepee McGuzzle, waving a souvenir nectar pot. "It'll turn that yellow fuzz of theirs a mildew green!"

"They'll never see another poker hand like the one I wound up with, though," said Cards Wartson cunningly. "Instead of watching me, they were watching you two tumbling down through the hole in the ceiling. First time I ever drew three cards to an inside straight flush!"

END

In Our Next Issue ---

THE CITY THAT GREW IN THE SEA

The funniest, fastest-moving Relief story yet

by Keith Laumer

IN SATURN'S RINGS

by Robert F. Young

And the brilliant conclusion of

THREE WORLDS TO CONQUER

by Poul Anderson

WATERSPIDER

BY PHILIP K. DICK

ILLUSTRATED BY FINLAY

*You've read Poul Anderson stories
before — but you've never read a
Poul Anderson story like this one!*

I

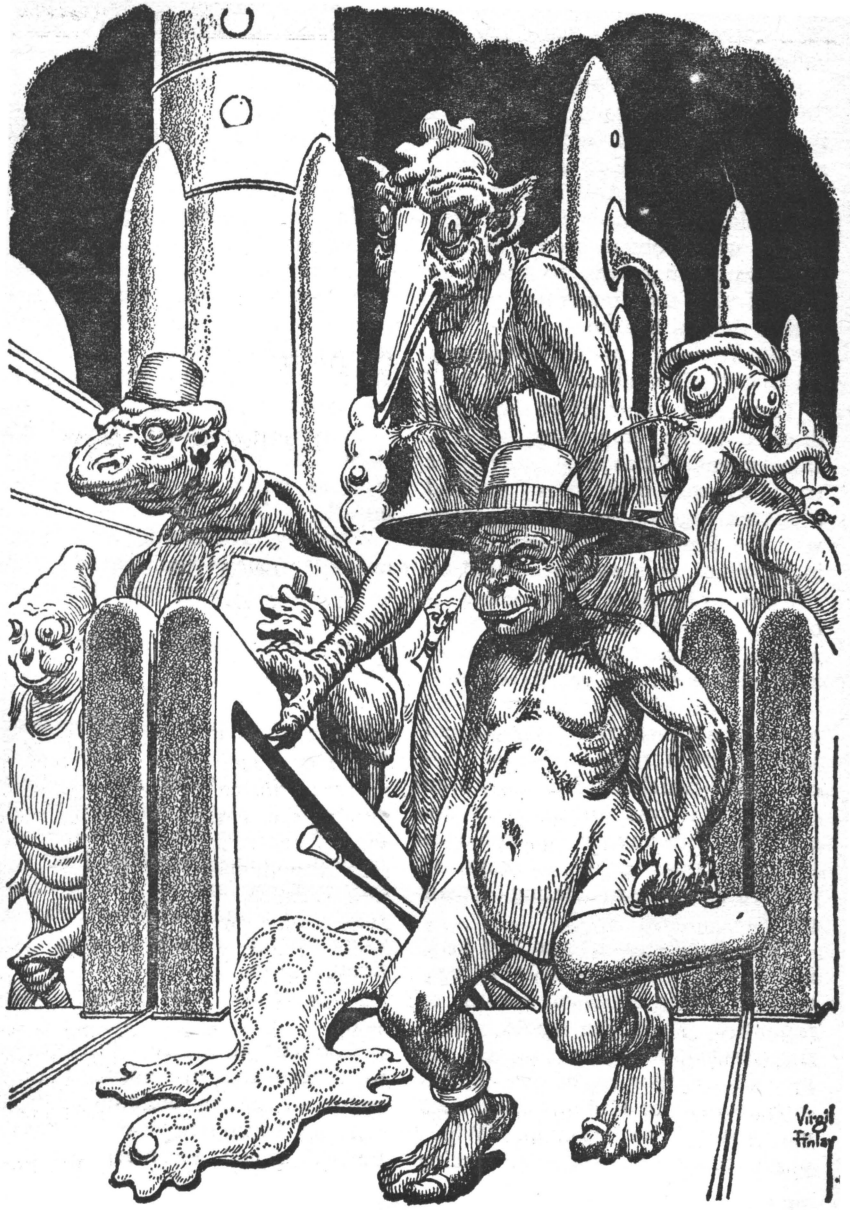
That morning, as he carefully shaved his head until it glistened, Aaron Tozzo pondered a vision too unfortunate to be endured. He saw in his mind fifteen convicts from Nachbaren Slager, each man only one inch high, in a ship the size of a child's balloon. The ship, traveling at almost the speed of light, continued on forever, with the men aboard neither knowing nor caring what became of them.

The worst part of the vision was just that in all probability it was true.

He dried his head, rubbed oil into his skin, then touched the button within his throat. When contact with the Bureau switchboard had been established, Tozzo said, "I admit we can do nothing to get those fifteen men back, but at least we can refuse to send any more."

His comment, recorded by the switchboard, was passed on to his co-workers. They all agreed; he listened to their voices chiming in as he put on his smock, slippers and overcoat. Obviously, the flight had been an error; even the public knew that now. But—

"But we're going on," Edwin Fer-



Virgil
Finlay

meti, Tozzo's superior, said above the clamor. "We've already got the volunteers."

"Also from Nachbaren Slager?" Tozzo asked. Naturally the prisoners there would volunteer; their life-span at the camp was no more than five or six years. And if this flight to Proxima were successful, the men aboard would obtain their freedom. They would not have to return to any of the five inhabited planets within the Sol System.

"Where does it matter where they originate?" Fermeti said smoothly.

Tozzo said, "Our effort should be directed toward improving the U.S. Department of Penology, instead of trying to reach other stars." He had a sudden urge to resign his position with the Emigration Bureau and go into politics as a reform candidate.

Later, as he sat at the breakfast table, his wife patted him sympathetically on the arm. "Aaron, you haven't been able to solve it yet, have you?"

"No," he admitted shortly. "And now I don't even care." He did not tell her about the other ship loads of convicts which had fruitlessly been expended; it was forbidden to discuss that with anyone not employed by a department of the Government.

"Could they be re-entering on their own?"

"No. Because mass was lost here, in the Sol System. To re-enter they have to obtain equal mass back, to replace it. That's the whole point." Exasperated, he sipped his tea and ignored her. Women, he thought. Attractive but not bright. "They need mass back," he repeated. "Which would be fine if they were making

a round trip, I suppose. But this is an attempt to colonize; it's not a guided tour that returns to its point of origin."

"How long does it take them to reach Proxima?" Leonore asked. "All reduced like that, to an inch high."

"About four years."

Her eyes grew large. "That's marvelous."

Grumbling at her, Tozzo pushed his chair back from the table and rose. I wish they'd take her, he said to himself, since she imagines it's so marvelous. But Leonore would be too smart to volunteer.

Leonore said softly, "Then I was right. The Bureau *has* sent people. You as much as admitted it just now."

Flushing, Tozzo said, "Don't tell anybody; none of your female friends especially. Or it's my job." He glared at her.

On that hostile note, he set off for the Bureau.

As Tozzo unlocked his office door, Edwin Fermeti hailed him. "You think Donald Nils is somewhere on a planet circling Proxima at this very moment?" Nils was a notorious murderer who had volunteered for one of the Bureau's flights. "I wonder—maybe he's carrying around a lump of sugar five times his size."

"Not really very funny," Tozzo said.

Fermeti shrugged. "Just hoping to relieve the pessimism. I think we're all getting discouraged." He followed Tozzo into his office. "Maybe we should volunteer ourselves

for the next flight." It sounded almost as if he meant it, and Tozzo glanced quickly at him. "Joke," Fermeti said.

"One more flight," Tozzo said, "and if it fails, I resign."

"I'll tell you something," Fermeti said. "We have a new tack." Now Tozzo's co-worker Craig Gilly had come sauntering up. To the two men, Fermeti said, "We're going to try using pre-cogs in obtaining our formula for re-entry." His eyes flickered as he saw their reaction.

Astonished, Gilly said, "But all the pre-cogs are dead. Destroyed by Presidential order twenty years ago."

Tozzo, impressed, said, "He's going to dip back into the past to obtain a pre-cog. Isn't that right, Fermeti?"

"We will, yes," his superior said, nodding. "Back to the golden age of pre-cognition. The twentieth century."

For a moment Tozzo was puzzled. And then he remembered.

During the first half of the twentieth century so many pre-cogs—people with the ability to read the future—had come into existence that an organized guild had been formed with branches in Los Angeles, New York, San Francisco and Pennsylvania. This group of pre-cogs, all knowing one another, had put out a number of periodicals which had flourished for several decades. Boldly and openly, the members of the pre-cog guild had proclaimed in their writings their knowledge of the future. And yet—as a whole, their society had paid little attention to them.

Tozzo said slowly, "Let me get this straight. You mean you're going to make use of the Department of Archaeology's time-dredges to scoop up a famous pre-cog of the past?"

Nodding, Fermeti said, "And bring him here to help us, yes."

"But how can he help us? He would have no knowledge of our future, only of his own."

Fermeti said, "The Library of Congress has already given us access to its virtually complete collection of pre-cog journals of the twentieth century." He smiled crookedly at Tozzo and Gilly, obviously enjoying the situation. "It's my hope—and my expectation—that among this great body of writings we will find an article *specifically dealing with our re-entry problem*. The chances, statistically speaking, are quite good . . . they wrote about innumerable topics of future civilization, as you know."

After a pause, Gilly said, "Very clever. I think your idea may solve our problem. Speed-of-light travel to other star systems may yet become a possibility."

Sourly, Tozzo said, "Hopefully, before we run out of convicts." But he, too, liked his superior's idea. And, in addition, he looked forward to seeing face to face one of the famous twentieth century pre-cogs. Theirs had been one brief, glorious period—sadly, long since ended.

Or not so brief, if one dated it as starting with Jonathan Swift, rather than with H. G. Wells. Swift had written of the two moons of Mars and their unusual orbital characteristics years before telescopes had

proved their existence. And so today there was a tendency in the textbooks to include him.

II

It took the computers at the Library of Congress only a short while to scan the brittle, yellowed volumes, article by article, and to select the sole contribution dealing with deprivation of mass and restoration as the *modus operandi* of interstellar space travel. Einstein's formula that as an object increased its velocity its mass increased proportionally had been so fully accepted, so completely unquestioned, that no one in the twentieth century had paid any attention to the particular article, which had been put in print in August of 1955 in a pre-cog journal called *If*.

In Fermeti's office, Tozzo sat beside his superior as the two of them pored over the photographic reproduction of the journal. The article was titled *Night Flight*, and it ran only a few thousand words. Both men read it avidly, neither speaking until they had finished.

"Well?" Fermeti said, when they had come to the end.

Tozzo said, "No doubt of it. That's our Project, all right. A lot is garbled; for instance he calls the Emigration Bureau 'Outward, Incorporated,' and believes it to be a private commercial firm." He referred to the text. "It's really uncanny, though. You're obviously this character, Edmond Fletcher; the names are similar but still a little off, as is everything else. And I'm Alison

Torelli." He shook his head admiringly. "Those pre-cogs . . . having a mental image of the future that was always askew and yet in the main—"

"In the main correct," Fermeti finished. "Yes, I agree. This *Night Flight* article definitely deals with us and the Bureau's Project . . . herein called *Waterspider*, because it has to be done in one great leap. Good lord, that would have been a perfect name, had we thought of it. Maybe we can still call it that."

Tozzo said slowly, "But the pre-cog who wrote *Night Flight* . . . in no place does he actually give the formula for mass-restoration or even for mass-deprivation. He just simply says that 'we have it.'" Taking the reproduction of the journal, he read aloud from the article:

Difficulty in restoring mass to the ship and its passengers at the termination of the flight had proved a stumbling block for Torelli and his team of researchers and yet they had at last proved successful. After the fateful implosion of the *Sea Scout*, the initial ship to—

"And that's all," Tozzo said. "So what good does it do us? Yes, this pre-cog experienced our present situation a hundred years ago—but he left out the technical details."

There was silence.

At last Fermeti said thoughtfully, "That doesn't mean he didn't know the technical data. We know today that the others in his guild were very often trained scientists." He examined the biographical report. "Yes,

while not actually using his pre-cog ability he worked as a chicken-fat analyst for the University of California."

"Do you still intend to use the time-dredge to bring him up to the present?"

Fermeti nodded. "I only wish the dredge worked both ways. If it could be used with the future, not the past, we could avoid having to jeopardize the safety of this pre-cog—" He glanced down at the article. "This Poul Anderson."

Chilled, Tozzo said, "What hazard is there?"

"We may not be able to return him to his own time. Or—" Fermeti paused. "We might lose part of him along the way, wind up with only half of him. The dredge has bisected many objects before."

"And this man isn't a convict at Nachbaren Slager," Tozzo said. "So you don't have that rationale to fall back on."

Fermeti said suddenly, "We'll do it properly. We'll reduce the jeopardy by sending a team of men back to that time, back to 1954. They can apprehend this Poul Anderson and see that *all of him* gets into the time-dredge, not merely the top half or the left side."

So it had been decided. The Department of Archaeology's time-dredge would go back to the world of 1954 and pick up the pre-cog Poul Anderson; there was nothing further to discuss.

Research conducted by the U. S. Department of Archaeology showed that in September of 1954

Poul Anderson had been living in Berkeley, California, on Grove Street. In that month he had attended a top-level meeting of pre-cogs from all over the United States at the Sir Francis Drake Hotel in San Francisco. It was probable that there, in that meeting, basic policy for the next year had been worked out, with Anderson, and other experts, participating.

"It's really very simple," Fermeti explained to Tozzo and Gilly. "A pair of men will go back. They will be provided with forged identification showing them to be part of the nation-wide pre-cog organization . . . squares of cellophane-enclosed paper which are pinned to the coat lapel. Naturally, they will be wearing twentieth century garments. They will locate Poul Anderson, single him out and draw him off to one side."

"And tell him what?" Tozzo said skeptically.

"That they represent an unlicensed amateur pre-cog organization in Battlecreek, Michigan, and that they have constructed an amusing vehicle built to resemble a time-travel dredge of the future. They will ask Mr. Anderson, who was actually quite famous in his time, to pose by their humbug dredge, and then they will ask for a shot of him within. Our research shows that according to his contemporaries, Anderson was mild and easy-going and also that at these yearly top-strategy assemblies he often became convivial enough to enter into the mood of optimism generated by his fellow pre-cogs."

Tozzo said, "You mean he sniffed

what they called 'airplane dope?' He was a 'glue-sniffer?'"

With a faint smile, Fermeti said, "Hardly. That was a mania among adolescents and did not become widespread in fact until a decade later. No, I am speaking about imbibing alcohol."

"I see," Tozzo said, nodding.

Fermeti continued, "In the area of difficulties, we must cope with the fact that at this top-secret session, Anderson brought along his wife Karen, dressed as a Maid of Venus in gleaming breast-cups, short skirt and helmet, and that he also brought their new-born daughter Astrid. Anderson himself did not wear any disguise for purposes of concealing his identity. He had no anxieties, being a quite stable person, as were most twentieth century pre-cogs.

"However, during the discussion periods between formal sessions, the pre-cogs, minus their wives, circulating about, playing poker and arguing, some of them it is said stoning one another—"

"Stoning?"

"Or, as it was put, becoming stoned. In any case, they gathered in small groups in the antechambers of the hotel, and it is at such an occasion that we expect to nab him. In the general hubbub his disappearance would not be noted. We would expect to return him to that exact time, or at least no more than a few hours later or earlier . . . preferably not earlier because *two* Poul Andersons at the meeting might prove awkward."

Tozzo, impressed, said, "Sounds foolproof."

"I'm glad you like it," Fermeti said tartly, "because you will be one of the team sent."

Pleased, Tozzo said, "Then I had better get started learning the details of life in the mid twentieth century." He picked up another issue of *If*. This one, May of 1971, had interested him as soon as he had seen it. Of course, this issue would not be known yet to the people of 1954 . . . but eventually they would see it. And once having seen it they would never forget it . . .

Ray Bradbury's first textbook to be serialized, he realized as he examined the journal. *The Fisher of Men*, it was called, and in it the great Los Angeles pre-cog had anticipated the ghastly Gutmanist political revolution which was to sweep the inner planets. Bradbury had warned against Gutman, but the warning had gone—of course—unheeded. Now Gutman was dead and the fanatical supporters had dwindled to the status of random terrorists. But had the world listened to Bradbury—

"Why the frown?" Fermeti asked him. "Don't you want to go?"

"Yes," Tozzo said thoughtfully. "But it's a terrible responsibility. These are no ordinary men."

"That is certainly the truth," Fermeti said, nodding.

III

Twenty-four hours later, Aaron Tozzo stood surveying himself in his mid twentieth century clothing and wondering if Anderson would be deceived, if he actually could be duped into entering the dredge.

The costume certainly was perfection itself. Tozzo had even been equipped with the customary waist-length beard and handlebar mustache so popular circa 1950 in the United States. And he wore a wig.

Wigs, as everyone knew, had at that time swept the United States as the fashion note par excellence; men and women both had worn huge powdered perukes of bright colors, reds and greens and blues and of course dignified grays. It was one of the most amusing occurrences of the twentieth century.

Tozzo's wig, a bright red, pleased him. Authentic, it had come from the Los Angeles Museum of Cultural History, and the curator had vouched for it being a man's, not a woman's. So the fewest possible chances of detection were being taken. Little risk existed that they would be detected as members of another, future culture entirely.

And yet Tozzo was still uneasy.

However, the plan had been arranged; now it was time to go. With Gilly, the other member selected, Tozzo entered the time-dredge and seated himself at the controls. The Department of Archaeology had provided a full instruction manual, which lay open before him. As soon as Gilly had locked the hatch, Tozzo took the bull by the horns (a twentieth century expression) and started up the dredge.

Dials registered. They were spinning backward into time, back to 1954 and the San Francisco Pre-cog Congress.

Beside him, Gilly practiced mid twentieth century phrases from a ref-

erence volume. "Diz muz be da blace . . ." Gilly cleared his throat. "Kilroy was here," he murmured. "Wha' hopen? Like man, let's cut out; this ball's a drag." He shook his head. "I can't grasp the exact sense of these phrases," he apologized to Tozzo. "Twenty-three skidoo."

Now a red light glowed; the dredge was about to conclude its journey. A moment later its turbines halted.

They had come to rest on the sidewalk outside the Sir Francis Drake Hotel in downtown San Francisco.

On all sides, people in quaint archaic costumes dragged along on foot. And, Tozzo saw, there were no monorails; all the visible traffic was surface-bound. What a congestion, he thought, as he watched the automobiles and buses moving inch by inch along the packed streets. An official in blue waved traffic ahead as best he could, but the entire enterprise, Tozzo could see, was an abysmal failure.

"Time for phase two," Gilly said. But he, too, was gaping at the stalled surface vehicles. "Good grief," he said, "look at the incredibly short skirts of the women; why, the knees are virtually exposed. Why don't the women die of whisk virus?"

"I don't know," Tozzo said, "but I do know we've got to get into the Sir Francis Drake Hotel."

Carefully, they opened the port of the time-dredge and stepped out. And then Tozzo realized something. There had been an error. Already.

The men of this decade were clean-shaven.

"Gilly," he said rapidly, "we've

got to shed our beards and mustaches." In an instant he had pulled Gilly's off, leaving his bare face exposed. But the wig; that was correct. All the men visible wore head-dress of some type; Tozzo saw few if any bald men. The women, too had luxurious wigs . . . or were they wigs? Could they perhaps be *natural* hair?

In any case, both he and Gilly now would pass. Into the Sir Francis Drake, he said to himself, leading Gilly along.

They darted lithely across the sidewalk — it was amazing how slowly the people of this time-period walked—and into the inexpressibly old-fashioned lobby of the hotel. Like a museum, Tozzo thought as he glanced about him. I wish we could linger . . . but they could not.

"How's our identification?" Gilly said nervously. "Is it passing inspection?" The business with the face-hair had upset him.

On each of their lapels they carried the expertly made false identification. It worked. Presently they found themselves ascending by a lift, or rather elevator, to the correct floor.

The elevator let them off in a crowded foyer. Men, all clean-shaven, with wigs or natural hair, stood in small clusters everywhere, laughing and talking. And a number of attractive women, some of them in garments called leotards, which were skin-tight, loitered about smilingly. Even though the styles of the times required their breasts to be covered, they were a sight to see.

Sotto voce, Gilly said, "I am stunned. In this room are some of the—"

"I know," Tozzo murmured. Their Project could wait, at least a little while. Here was an unbelievably golden opportunity to see these pre-cogs, actually to talk to them and listen to them . . .

Here came a tall, handsome man in a dark suit that sparkled with tiny specks of some unnatural material, some variety of synthetic. The man wore glasses and his hair, everything about him, had a tanned, dark look. The name on his identification . . . Tozzo peered.

The tall, good-looking man was A. E. Van Vogt.

"Say," another individual, perhaps a pre-cog enthusiast, was saying to Van Vogt, stopping him. "I read both versions of your *World of Null A* and I still didn't quite get that about it being *him*; you know, at the end. Could you explain that part to me? And also when they started into the tree and then just—"

Van Vogt halted. A soft smile appeared on his face and he said, "Well, I'll tell you a secret. I start out with a plot and then the plot sort of folds up. So then I have to have another plot to finish the rest of the story."

Going over to listen, Tozzo felt something magnetic about Van Vogt. He was so tall, so spiritual. Yes, Tozzo said to himself; that was the word, a healing spirituality. There was a quality of innate goodness which emanated from him.

All at once Van Vogt said, "There goes a man with my pants." And,

without a further word to the enthusiast, stalked off and disappeared into the crowd.

Tozzo's head swam. To actually have seen and heard A. E. Van Vogt—

"Look," Gilly was saying, plucking at his sleeve. "That enormous, genial-looking man seated over there; that's Howard Browne, who edited the pre-cog journal *Amazing* at this time-period."

"I have to catch a plane," Howard Browne was saying to anyone who would listen to him. He glanced about him in worried anxiety, despite his almost physical geniality.

"I wonder," Gilly said, "if Doctor Asimov is here."

We can ask, Tozzo decided. He made his way over to one of the young women wearing a blonde wig and green leotards. "WHERE IS DOCTOR ASIMOV?" he asked clearly in the argot of the times.

"Who's to know?" the girl said.

"Is he here, miss?"

"Naw," the girl said.

Gilly again plucked at Tozzo's sleeve. "We must find Poul Anderson, remember? Enjoyable as it is to talk to this girl—"

"I'm inquiring about Asimov," Tozzo said brusquely. After all, Isaac Asimov had been founder of the entire twenty-first century positronic robot industry. How could he not be here?

A burly outdoorish man strode by them, and Tozzo saw that this was Jack Vance. Vance, he decided, looked more like a big game hunter than anything else . . . we must be-

ware of him, Tozzo decided. If we got into any altercation Vance could take care of us easily.

He noticed now that Gilly was talking to the blonde-wigged girl in the green leotards. "MURRAY LEINSTER?" Gilly was asking. "The man whose paper on parallel time is still at the very forefront of theoretical studies; isn't he—"

"I dunno," the girl said, in a bored tone of voice.

A group had gathered about a figure opposite them; the central person whom everybody was listening to was saying, ". . . all right, if like Howard Browne you prefer air travel, fine. But I say it's risky. I don't fly. In fact even riding in a car is dangerous. I generally lie down in the back." The man wore a short-cropped wig and a bow tie; he had a round, pleasant face but his eyes were intense.

It was Ray Bradbury, and Tozzo started toward him at once.

"Stop!" Gilly whispered angrily. "Remember what we came for."

And, past Bradbury, seated at the bar, Tozzo saw an older, care-weathered man in a brown suit wearing small glasses and sipping a drink. He recognized the man from drawings in early Gernsback publications; it was the fabulously unique pre-cog from the New Mexico region, Jack Williamson.

"I thought *Legion of Time* was the finest novel-length science-fiction work I ever read," an individual, evidently another pre-cog enthusiast, was saying to Jack Williamson, and Williamson was nodding in pleasure.

"That was originally going to be

a short story," Williamson said. "But it grew. Yes, I liked that one, too."

Meanwhile Gilly had wandered on, into an adjoining room. He found at a table, two women and a man in deep conversation. One of the women, dark-haired and handsome, with bare shoulders, was—according to her identification plate—Evelyn Paige. The taller woman he discovered was the renowned Margaret St. Clair, and Gilly at once said:

"Mrs. St. Clair, your article entitled *The Scarlet Hexapod* in the September 1959 *If* was one of the finest—" And then he broke off.

Because Margaret St. Clair had not written that yet. Knew in fact nothing about it. Flushing with nervousness, Gilly backed away.

"Sorry," he murmured. "Excuse me; I became confused."

Raising an eyebrow, Margaret St. Clair said, "In the September 1959 issue, you say? What are you, a man from the future?"

"Droll," Evelyn Paige said, "but let's continue." She gave Gilly a hard stare from her black eyes. "Now Bob, as I understand what you're saying—" She addressed the man opposite her, and Gilly saw now to his delight that the dire-looking cadaverous individual was none other than Robert Bloch.

Gilly said, "Mr. Bloch, your article in *Galaxy: Sabbatical*, was—"

"You've got the wrong person, my friend," Robert Bloch said. "I never wrote any piece entitled *Sabbatical*."

Good lord, Gilly realized. I did it again; *Sabbatical* is another work which has not been written yet. I had better get away from here.

He moved back toward Tozzo . . . and found him standing rigidly.

Tozzo said, "I've found Anderson."

At once, Gilly turned, also rigid.

Both of them had carefully studied the pictures provided by the Library of Congress. There stood the famous pre-cog, tall and slender and straight, even a trifle thin, with curly hair—or wig—and glasses, a warm glint of friendliness in his eyes. He held a whiskey glass in one hand, and he was discoursing with several other pre-cogs. Obviously he was enjoying himself.

"Um, uhh, let's see," Anderson was saying, as Tozzo and Gilly came quietly up to join the group. "Pardon?" Anderson cupped his ear to catch what one of the other pre-cogs was saying. "Oh, uh, yup, that's right." Anderson nodded. "Yup, Tony, uh, I agree with you one hundred per cent."

The other pre-cog, Tozzo realized, was the superb Tony Boucher, whose pre-cognition of the religious revival of the next century had been almost supernatural. The word-by-word description of the Miracle in the Cave involving the robot . . . Tozzo gazed at Boucher with awe, and then he turned back to Anderson.

"Poul," another pre-cog said. "I'll tell you how the Italians intended to get the British to leave if they did invade in 1943. The British would stay at hotels, the best, naturally. The Italians would overcharge them."

"Oh, yes, yes," Anderson said, nodding and smiling, his eyes twink-



ling. "And the British, being gentlemen, would say nothing—"

"But they'd leave the next day," the other pre-cog finished, and all in the group laughed, except for Gilly and Tozzo.

"Mr. Anderson," Tozzo said tensely, "we're from an amateur pre-cog organization at Battlecreek, Michigan and we would like to photograph you beside our model of a time-dredge."

"Pardon?" Anderson said, cupping his ear.

Tozzo repeated what he had said, trying to be audible above the background racket. At last Anderson seemed to understand.

"Oh, um, well, where is it?" Anderson asked obligingly.

"Downstairs on the sidewalk," Gilly said. "It was too heavy to bring up."

"Well, uh, if it won't take too awfully long," Anderson said, "which I doubt it will." He excused himself from the group and followed after them as they started toward the elevator.

"It's steam-engine building time," a heavy-set man called to them as they passed. "Time to build steam engines, Poul."

"We're going downstairs," Tozzo said nervously.

"Walk downstairs on your heads," the pre-cog said. He waved good-by goodnaturedly, as the elevator came and the three of them entered it.

"Kris is jolly today," Anderson said.

"And how," Gilly said, using one of his phrases.

"Is Bob Heinlein here?" Anderson asked Tozzo as they descended. "I understand he and Mildred Clingerman went off somewhere to talk about cats and nobody has seen them come back."

"That's the way the ball bounces," Gilly said, trying out another twentieth century phrase.

Anderson cupped his ear, smiled hesitantly, but said nothing.

At last, they emerged on the sidewalk. At the sight of their time-dredge, Anderson blinked in astonishment.

"I'll be gosh darned," he said, approaching it. "That's certainly imposing. Sure, I'd, uh, be happy to pose beside it." He drew his lean, angular body erect, smiling that warm, almost tender smile that Tozzo had noticed before. "Uh, how's this?" Anderson inquired, a little timidly.

With an authentic twentieth century camera taken from the Smithsonian, Gilly snapped a picture. "Now inside," he requested, and glanced at Tozzo.

"Why, uh, certainly," Poul Anderson said, and stepped up the stairs and into the dredge. "Gosh, Karen would, uh, like this," he said as he disappeared inside. "I wish to heck she'd come along."

Tozzo followed swiftly. Gilly slammed the hatch shut, and, at the control board, Tozzo with the instruction manual in hand punched buttons.

The turbines hummed, but Anderson did not seem to hear them; he was engrossed in staring at the controls, his eyes wide.

"Gosh," he said.

The time-dredge passed back to the present, with Anderson still lost in his scrutiny of the controls.

IV

Fermeti met them. "Mr. Anderson," he said, "this is an incredible honor." He held out his hand, but now Anderson was peering through the open hatch past him, at the city beyond; he did not notice the offered hand.

"Say," Anderson said, his face twitching. "Um, what's, uh, this?"

He was staring at the monorail system primarily, Tozzo decided. And this was odd, because at least in Seattle there had been monorails back in Anderson's time . . . or had there been? Had that come later? In any case, Anderson now wore a massively perplexed expression.

"Individual cars," Tozzo said, standing close beside him. "Your monorails had only group cars. Later on, after your time, it was made possible for each citizen's house to have a monorail outlet; the individual brought his car out of its garage and onto the rail-terminal, from which point he joined the collective structure. Do you see?"

But Anderson remained perplexed; his expression in fact had deepened.

"Um," he said, "what do you mean 'my time'? Am I dead?" He looked morose now. "I thought it would be more along the lines of Valhalla, with Vikings and such. Not futuristic."

"You're not dead, Mr. Anderson," Fermeti said. "What you're facing is the culture-syndrome of the

mid twenty-first century. I must tell you, sir, that you've been napped. But you will be returned; I give you both my personal and official word."

Anderson's jaw dropped, but he said nothing; he continued to stare.

Donald Nils, notorious murderer, sat at the single table in the reference room of the Emigration Bureau's interstellar speed-of-light ship and computed that he was, in Earth figures, an inch high. Bitterly, he cursed. "It's cruel and unusual punishment," he grated aloud. "It's against the Constitution." And then he remembered that he had volunteered, in order to get out of Nachbaren Slager. That goddam hole, he said to himself. Anyhow, I'm out of there.

And, he said to himself, even if I'm only an inch high I've still made myself captain of this lousy ship, and if it ever gets to Proxima I'll be captain of the entire lousy Proxima System. I didn't study with Gutman himself for nothing. And if that don't beat Nachbaren Slager, I don't know what does . . .

His second-in-command, Pete Bailly, stuck his head into the reference room. "Hey, Nils, I have been looking over the micro-repro of this particular old pre-cog journal *Astounding* like you told me, this Venus Equilateral article about matter transmission, and I mean even though I was the top vid repairman in New York City that don't mean I can build one of *these* things." He glared at Nils. "That's asking a lot."

Nils said tightly, "We've got to get back to Earth."

"You're out of luck," Bailly told him. "Better settle for Prox."

Furiously, Nils swept the micro-reproductions from the table, onto the floor of the ship. "That damn Bureau of Emigration! They tricked us!"

Bailly shrugged. "Anyhow we got plenty to eat and a good reference library and 3-D movies every night."

"By the time we get to Prox," Nils snarled, "we'll have seen every movie—" He calculated. "Two thousand times."

"Well, then don't watch. Or we can run them backwards. How's your research coming?"

"I got going the micro of an article in *Space Science Fiction*," Nils said thoughtfully, "called *The Variable Man*. It tells about faster-than-light transmission. You disappear and then reappear. Some guy named Cole is going to perfect it, according to the old-time pre-cog who wrote it." He brooded about that. "If we could build a faster-than-light ship we could return to Earth. We could take over."

"That's crazy talk," Bailly said.

Nils regarded him. "I'm in command."

"Then," Bailly said, "we got a nut in command. There's no returning to Terra; we better build our lives on Proxima's planets and forget forever about our home. Thank God we got women aboard. My God, even if we did get back . . . what could one-inch high people accomplish? We'd be jeered at."

"Nobody jeers at me," Nils said quietly.

But he knew Bailly was right.

They'd be lucky if they could research the micros of the old pre-cog journals in the ship's reference room and develop for themselves a way of landing safely on Proxima's planets . . . even *that* was asking a lot.

We'll succeed, Nils said to himself. As long as everyone obeys me, does exactly as I tell them, with no dumb questions.

Bending, he activated the spool of the December 1962 *If*. There was an article in it that particularly interested him . . . and he had four years ahead of him in which to read, understand, and finally apply it.

Fermeti said, "Surely your pre-cog ability helped prepare you for this, Mr. Anderson." His voice faltered with nervous strain, despite his efforts to control it.

"How about taking me back now?" Anderson said. He sounded almost calm.

Fermeti, after shooting a swift glance at Tozzo and Gilly, said to Anderson, "We have a technical problem, you see. That's why we brought here to our own time-continuum. You see—"

"I think you had better, um, take me back," Anderson broke in. "Karen'll get worried." He craned his neck, peering in all directions. "I knew it would be somewhat on this order," he murmured. His face twitched. "Not too different from what I expected . . . what's that tall thing over there? Looks like what the old blimps used to catch onto."

"That." Tozzo said, "is a prayer tower."

"Our problem," Fermeti said pa-

tiently, "is dealt with in your article *Night Flight* in the August 1955 *If*. We've been able to deprive an interstellar vehicle of its mass, but so far restoration of mass has—"

"Uh, oh, yes," Anderson said, in a preoccupied way. "I'm working on that yarn right now. Should have that off to Scott in another couple of weeks." He explained, "My agent."

Fermeti considered a moment and then said, "Can you give us the formula for mass-restoration, Mr. Anderson?"

"Um," Poul Anderson said slowly, "Yes, I guess that would be the correct term. Mass-restoration . . . I could go along with that." He nodded. "I haven't worked out any formula; I didn't want to make the yarn too technical. I guess I could make one up, if that's what they wanted." He was silent, then, apparently having withdrawn into a world of his own; the three men waited, but Anderson said nothing more.

"Your pre-cog ability," Fermeti said.

"Pardon?" Anderson said, cupping his ear. "Pre-cog?" He smiled shyly. "Oh, uh, I wouldn't go so far as to say that. I know John believes in all that, but I can't say as I consider a few experiments at Duke University as proof."

Fermeti stared at Anderson a long time. "Take the first article in the January 1953 *Galaxy*," he said quietly. "*The Defenders* . . . about the people living beneath the surface and the robots up above, pretending to fight the war but actually not, actually faking the reports so interestingly that the people—"

"I read that," Poul Anderson agreed. "Very good, I thought, except for the ending. I didn't care too much for the ending."

Fermeti said, "You understand, don't you, that those exact conditions came to pass in 1996, during World War Three? That by means of the article we were able to penetrate the deception carried on by our surface robots? That virtually every word of that article was exactly prophetic—"

"Phil Dick wrote that," Anderson said. "*The Defenders*."

"Do you know him?" Tozzo inquired.

"Met him yesterday at the Convention," Anderson said. "For the first time. Very nervous fellow, was almost afraid to come in."

Fermeti said, "Am I to understand that *none of you are aware that you are pre-cogs?*" His voice shook, completely out of control now.

"Well," Anderson said slowly, "some sf writers believe in it. I think Alf Van Vogt does." He smiled at Fermeti.

"But don't you understand?" Fermeti demanded. "You described *us* in an article—you accurately described our Bureau and its interstellar Project!"

After a pause, Anderson murmured, "Gosh, I'll be darned. No, I didn't know that. Um, thanks a lot for telling me."

Turning to Tozzo, Fermeti said, "Obviously we'll have to recast our entire concept of the mid twentieth century." He looked weary.

Tozzo said, "For our purposes their ignorance doesn't matter. Because the pre-cognitive ability was there anyhow, whether they recognized it or not." That, to him, was perfectly clear.

Anderson, meanwhile, had wandered off a little and stood now inspecting the display window of a nearby gift store. "Interesting bric-a-brac in there. I ought to pick up something for Karen while I'm here. Would it be all right —" He turned questioningly to Fermeti. "Could I step in there for a moment and look around?"

"Yes, yes," Fermeti said irritably.

Poul Anderson disappeared inside the gift shop, leaving the three of them to argue the meaning of their discovery.

"What we've got to do," Fermeti said, "is sit him down in the situation familiar to him: *before a typewriter*. We must persuade him to compose an article on deprivation of mass and its subsequent restoration. Whether he himself takes the article to be factual or not has no bearing; it still will be. The Smithsonian must have a workable twentieth century typewriter and 8½ by 11 white sheets of paper. Do you agree?"

Tozzo, meditating, said, "I'll tell you what I think. It was a cardinal error to permit him to go into that gift shop."

"Why is that?" Fermeti inquired.

"I see his point," Gilly said excitedly. "We'll never see Anderson again; he's skipped out on us through the pretext of gift-shopping for his wife."

Ashen-faced, Fermeti turned and

raced into the gift shop. Tozzo and Gilly followed.

The store was empty. Anderson had eluded them; he was gone.

As he loped silently out the back door of the gift shop, Poul Anderson thought to himself, I don't believe they'll get me. At least not right away.

I've got too much to do while I'm here, he realized. What an opportunity! When I'm an old man I can tell Astrid's children about this.

Thinking of his daughter Astrid reminded him of one very simple fact, however. Eventually he had to go back to 1954. Because of Karen and the baby. No matter what he found here—for him it was temporary.

But meanwhile . . . first I'll go to the library, *any* library, he decided. And get a good look at history books that'll tell me what took place in the intervening years between 1954 and now.

I'd like to know, he said to himself, about the Cold War, how the U. S. and Russia come out. And—space explorations. I'll bet they put a man on Luna by 1975. Certainly, they're exploring space now; heck, they even have a time-dredge so they must have *that*.

Ahead Poul Anderson saw a doorway. It was open and without hesitation he plunged into it. Another shop of some kind, but this one larger than the gift shop.

"Yes sir," a voice said, and a bald-headed man—they all seemed to be bald-headed here—approached him. The man glanced at An-

erson's hair, his clothes . . . however the clerk was polite; he made no comment. "May I help you?" he asked.

"Um," Anderson said, stalling. What did this place sell, anyhow? He glanced around. Gleaming electronic objects of some sort. But what did they do?

The clerk said, "Haven't you been nuzzled lately, sir?"

"What's that?" Anderson said. *Nuzzled?*

"The new spring nuzzlers have arrived, you know," the clerk said, moving toward the gleaming spherical machine nearest him. "Yes," he said to Poul, "you do strike me as very, very faintly introve — no offense meant, sir, I mean, it's legal to be introvod." The clerk chuckled. "For instance, your rather odd clothing . . . made it yourself, I take it? I must say, sir, to make your own clothing is highly introve. Did you weave it?" The clerk grimaced as if tasting something bad.

"No," Poul said, "as a matter of fact it's my best suit."

"Heh, heh," the clerk said. "I share the joke, sir; quite witty. But what about your head? You haven't shaved your head in *weeks*."

"Nope," Anderson admitted. "Well, maybe I do need a nuzzler." Evidently everyone in this century had one; like a TV set in his own time, it was a necessity, in order for one to be part of the culture.

"How many in your family?" the clerk said. Bringing out a measuring tape, he measured the length of Poul's sleeve.

"Three," Poul answered, baffled.

"How old is the youngest?"

"Just born," Poul said.

The clerk's face lost all its color. "Get out of here," he said quietly. "Before I call for the polpol."

"Um, what's that? Pardon?" Poul said, cupping his ear and trying to hear, not certain he had understood.

"You're a criminal," the clerk mumbled. "You ought to be in Nach-baren Slager."

"Well, thanks anyhow," Poul said, and backed out of the store, onto the sidewalk; his last glimpse was of the clerk still staring at him.

"Are you a foreigner?" a voice asked, a woman's voice. At the curb she had halted her vehicle. It looked to Poul like a bed; in fact, he realized, it was a bed. The woman regarded him with astute calm, her eyes dark and intense. Although her glistening shaved head somewhat upset him, he could see that she was attractive.

"I'm from another culture," Poul said, finding himself unable to keep his eyes from her figure. Did all the women dress like this here in this society? Bare shoulders, he could understand. But not—

And the bed. The combination of the two was too much for him. What kind of business was she in, anyhow? And in public. What a society this was . . . morals had changed since his own time.

"I'm looking for the library," Poul said, not coming too close to the vehicle which was a bed with motor and wheels, a tiller for steering.

The woman said, "The library is one bight from here."

"Um," Poul said, "what's a 'bight?'"

"Obviously, you're wanging me," the woman said. All visible parts of her flushed a dark red. "It's not funny. Any more than your disgustingly hairy head is. Really, both your wanging and your head are not amusing, at least not to me." And yet she did not go on; she remained where she was, regarding him somberly. "Perhaps you need help," she decided. "Perhaps I should pity you. You know of course that the polpol could pick you up any time they want."

Poul said, "Could I, um, buy you a cup of coffee somewhere and we could talk? I'm really anxious to find the library."

"I'll go with you," the woman agreed. "Although I have no idea what 'coffee' is. If you touch me I'll nilp at once."

"Don't do that," Poul said, "it's unnecessary; all I want to do is look up some historical material." And then it occurred to him that he could make good use of any technical data he could get his hands on.

What one volume might he smuggle back to 1954 which would be of great value? He racked his brains. An almanac. A dictionary . . . a school text on science which surveyed all the fields for laymen; yes, that would do it. A seventh grade text or a high school text. He could rip the covers off, throw them away, put the pages inside his coat.

Poul said, "Where's a school? The closest school." He felt the urgency

of it, now. He had no doubt that they were after him, close behind.

"What is a 'school?'" the woman asked.

"Where your children go," Poul said.

The woman said quietly, "You poor sick man."

V

For a time Tozzo and Fermeti and Gilly stood in silence. And then Tozzo said in a carefully controlled voice. "You know what's going to happen to him, of course. Polpol will pick him up and mono-express him to Nachbaren Slager. Because of his appearance. He may even be there already."

Fermeti sprinted at once for the nearest vidphone. "I'm going to contact the authorities at Nachbaren Slager. I'll talk to Potter; we can trust him, I think."

Presently Major Potter's heavy, dark features formed on the vid-screen. "Oh, hello, Fermeti. You want more convicts, do you?" He chuckled. "You use them up even faster than we do."

Behind Potter, Fermeti caught a glimpse of the open recreation area of the giant internment camp. Criminals, both political and nonpol, could be seen roaming about, stretching their legs, some of them playing dull, pointless games which, he knew, went on and on, sometimes for months, each time they were out of their work-cells.

"What we want," Fermeti said, "is to prevent an individual being

brought to you at all." He described Poul Anderson. "If he's monoed there, call me at once. And don't harm him. You understand? We want him back safe."

"Sure," Potter said easily. "Just a minute; I'll have a scan put on our new admissions." He touched a button to his right and a 315-R computer came on; Fermeti heard its low hum. Potter touched buttons and then said, "This'll pick him out if he's monoed here. Our admissions-circuit is prepared to reject him."

"No sign yet?" Fermeti asked tensely.

"Nope," Potter said, and purposefully yawned.

Fermeti broke the connection.

"Now what?" Tozzo said. "We could possibly trace him by means of a Ganymedeian sniffer-sponge." They were a repellent life form, though; if one managed to find its quarry it fastened at once to its blood system leech-wise. "Or do it mechanically," he added. "With a detec beam. We have a print of Anderson's EEG pattern, don't we? But that would really bring in the polpol." The detec beam by law belonged only to the polpol; after all, it was the artifact which had, at last, tracked down Gutman himself.

Fermeti said bluntly, "I'm for broadcasting a planet-wide Type II alert. That'll activate the citizenry, the average informer. They'll know there's an automatic reward for any Type II found."

"But he could be manhandled that way," Gilly pointed out. "By a mob. Let's think this through."

After a pause Tozzo said, "How about trying it from a purely cerebral standpoint? If you had been transported from the mid twentieth century to our continuum, what would you want to do? *Where would you go?*"

Quietly, Fermeti said, "To the nearest spaceport, of course. To buy a ticket to Mars or the outplanets—routine in our age but utterly out of the question at mid twentieth century."

They looked at one another.

"But Anderson doesn't know where the spaceport is," Gilly said. "It'll take him valuable time to orient himself. We can go there directly by express subsurface mono."

A moment later the three Bureau of Emigration men were on their way.

"A fascinating situation," Gilly said, as they rode along, jiggling up and down, facing one another in the monorail first-class compartment. "We totally misjudged the mid twentieth century mind; it should be a lesson to us. Once we've regained possession of Anderson we should make further inquiries. For instance, the Poltergeist Effect. What was their interpretation of it? And table-tapping—did they recognize it for what it was? Or did they merely consign it to the realm of the so-called 'occult' and let it go at that?"

"Anderson may hold the clue to these questions and many others," Fermeti said. "But our central problem remains the same. We must induce him to complete the mass-restoration formula in precise mathe-

matical terms, rather than vague, poetic allusions."

Thoughtfully, Tozzo said, "He's a brilliant man, that Anderson. Look at the ease by which he eluded us."

"Yes," Fermeti agreed. "We mustn't underestimate him. We did that, and it's rebounded." His face was grim.

Hurrying up the almost-deserted sidestreet, Poul Anderson wondered why the woman had regarded him as sick. And the mention of children had set off the clerk in the store, too. Was birth illegal now? Or was it regarded as sex had been once, as something too private to speak of in public?

In any case, he realized, if I plan to stay here I've got to shave my head. And, if possible, acquire different clothing.

There must be barbershops. And, he thought, the coins in my pockets; they're probably worth a lot to collectors.

He glanced about, hopefully. But all he saw were tall, luminous plastic and metal buildings which made up the city, structures in which incomprehensible transactions took place. They were as alien to him as—

Alien, he thought, and the word lodged chokingly in his mind. Because—something had oozed from a doorway ahead of him. And now his way was blocked—deliberately, it seemed—by a slime mold, dark yellow in color, as large as a human being, palpitating visibly on the sidewalk. After a pause the slime mold undulated toward him at a regular, slow rate. A human evolutionary devel-

opment? Poul Anderson wondered, recoiling from it. Good lord . . . and then he realized what he was seeing.

This era had space travel. He was seeing a creature from another planet.

"Um," Poul said, to the enormous mass of slime mold, "can I bother you a second to ask a question?"

The slime mold ceased to undulate forward. And in Poul's brain a thought formed which was not his own. "I catch your query. In answer: I arrived yesterday from Callisto. But I also catch a number of unusual and highly interesting thoughts in addition . . . you are a time traveler from the past." The tone of the creature's emanations was one of considerate, polite amusement—and interest.

"Yes," Poul said. "From 1954."

"And you wish to find a barber-shop, a library and a school. All at once, in the precious time remaining before they capture you." The slime mold seemed solicitous. "What can I do to help you? I could absorb you, but it would be a permanent symbiosis, and you would not like that. You are thinking of your wife and child. Allow me to inform you as to the problem regarding your unfortunate mention of children. Terrans of this period are experiencing a mandatory moratorium on childbirth, because of the almost infinite sporting of the previous decades. There was a war, you see. Between Gutman's fanatical followers and the more liberal legions of General McKinley. The latter won."

Poul said, "Where should I go? I'm confused." His head throbbed and he felt tired. Too much had happened.

Just a short while ago he had been standing with Tony Boucher in the Sir Francis Drake Hotel, drinking and chatting . . . and now this. Facing this great slime mold from Callisto. It was difficult—to say the least—to make such an adjustment.

The slime mold was transmitting to him. "I am accepted here while you, their ancestor, are regarded as odd. Ironic. To me, you look quite like them, except for your curly brown hair and of course your silly clothing." The creature from Callisto pondered. "My friend, the polpol are the political police, and they search for deviants, followers of the defeated Gutman, who are terrorists now, and hated. Many of these followers are drawn from the potentially criminal classes. That is, the non-conformists, the so-called introves. Individuals who set their own subjective value-system up in place of the objective system in vogus. It is a matter of life and death to the Terrans, since Gutman almost won."

"I'm going to hide," Poul decided.

"But where? You can't really. Not unless you wish to go underground and join the Gutmanites, the criminal class of bomb-throwers . . . and you won't want to do that. Let us stroll together, and if anyone challenges you, I will say you're my servant. You have manual extensors and I have not. And I have, by a quirk, decided to dress you oddly and to have you retain your head-hair. The responsibility then becomes mine. It is actually not unusual for

higher out-world organisms to employ Terran help."

"Thanks," Poul said tautly, as the slime mold resumed its slow forward motion along the sidewalk. "But there are things I want to do—"

"I am on my way to the zoo," the slime mold continued.

An unkind thought came to Poul.

"Please," the slime mold said.

"Your anachronistic twentieth century humor is not appreciated. I am not an inhabitant of the zoo; it is for life forms of low mental order such as Martian glebs and trawns. Since the initiation of interplanetary travel, zoos have become the center of—"

Poul said, "Could you lead me to the space terminal?" He tried to make his request sound casual.

"You take a dreadful risk," the slime mold said, "in going to any public place. The polpol watch constantly."

"I still want to go." If he could board an interplanetary ship, if he could leave Earth, see other worlds—

But they would erase his memory; all at once he realized that, in a rush of horror. *I've got to make notes*, he told himself. At once!

"Do, um, you have a pencil?" he asked the slime mold. "Oh, wait; I have one. Pardon me." Obviously the slime mold didn't.

On a piece of paper from his coat pocket—it was convention material of some sort—he wrote hurriedly, in brief, disjointed phrases, what had happened to him, what he had seen in the twenty-first century. Then he quickly stuck the paper back in his pocket.

"A wise move," the slime mold said. "And now to the spaceport, if you will accompany me at my slow pace. And, as we go, I will give you details of Terra's history from your period on." The slime mold moved down the sidewalk. Poul accompanied it eagerly; after all, what choice did he have? "The Soviet Union. That was tragic. Their war with Red China in 1983 which finally involved Israel and France . . . regrettable, but it did solve the problem of what to do with France—a most difficult nation to deal with in the latter half of the twentieth century."

On his piece of paper Poul jotted that down, too.

"After France had been defeated —" The slime mold went on, as Poul scratched against time.

Fermeti said, "We must glin, if we're to catch Anderson before he boards a ship." And by "glin" he did not mean glinning a little; he meant a full search with the cooperation of the polpol. He hated to bring them in, and yet their help now seemed vital. Too much time had passed and Anderson had not yet been found.

The spaceport lay ahead, a great disk miles in diameter, with no vertical obstructions. In the center was the Burned Spot, seared by years of tail-exhausts from landing and departing ships. Fermeti liked the spaceport, because here the denseness of the close-packed buildings of the city abruptly ceased. Here was *openness*, such as he recalled from childhood . . . if one dared to think openly of childhood.

The terminal building was set hundreds of feet beneath the rexe-roid layer built to protect the waiting people in case of an accident above. Fermeti reached the entrance of the descent ramp, then halted impatiently to wait for Tozzo and Gilly to catch up with him.

"I'll nilp," Tozzo said, but without enthusiasm. And he broke the band on his wrist with a single decisive motion.

The polpol ship hovered overhead at once.

"We're from the Emigration Bureau," Fermeti explained to the polpol lieutenant. He outlined their Project, described — reluctantly — their bringing Poul Anderson from his time-period to their own.

"Hair on head," the polpol lieutenant noted. "Quaint duds. Okay, Mr. Fermeti; we'll glin until we find him." He nodded, and his small ship shot off.

"They're efficient," Tozzo admitted.

"But not likeable," Fermeti said, finishing Tozzo's thought.

"They make me uncomfortable," Tozzo agreed. "But I suppose they're supposed to."

The three of them stepped onto the descent ramp — and dropped at breathtaking speed to level one below. Fermeti shut his eyes, wincing at the loss of weight. It was almost as bad as takeoff itself. Why did everything have to be so rapid, these days? It certainly was not like the previous decade, when things had gone leisurely.

They stepped from the ramp, shook themselves, and were ap-

proached instantly by the building's polpol chief.

"We have a report on your man," the gray-uniformed officer told them.

"He hasn't taken off?" Fermeti said. "Thank God." He looked around.

"Over there," the officer said, pointing.

At a magazine rack, Poul Anderson was looking intently at the display.

It took only a moment for the three Emigration Bureau officials to surround him.

"Oh, uh, hello," Anderson said. "While I was waiting for my ship I thought I'd take a look and see what's still in print."

Fermeti said, "Anderson, we require your unique abilities. I'm sorry, but we're taking you back to the Bureau."

All at once Anderson was gone. Soundlessly, he had ducked away; they saw his tall, angular form become smaller as he raced for the gate to the field proper.

Reluctantly, Fermeti reached within his coat and brought out a sleep-gun. "There's no other choice," he murmured, and squeezed.

The racing figure tumbled, rolled. Fermeti put the sleep-gun away and in a toneless voice said, "He'll recover. A skinned knee, nothing worse." He glanced at Gilly and Tozzo. "Recover at the Bureau, I mean."

Together, the three of them advanced toward the prone figure on the floor of the spaceport waiting room.

"You may return to your own time-continuum," Fermeti said quietly, "when you've given us the mass-restoration formula." He nodded, and a Bureau workman approached, carrying the ancient Royal portable typewriter.

Seated in the chair across from Fermeti in the Bureau's inner business office, Poul Anderson said, "I don't use a portable."

"You must cooperate," Fermeti informed him. "We have the scientific know-how to restore you to Karen; remember Karen and remember your newly-born daughter at the Congress in San Francisco's Sir Francis Drake Hotel. Without full cooperation from you, Anderson, there will be no cooperation from the Bureau. Surely, with your pre-cog ability you can see that."

After a pause Anderson said, "Um, I can't work unless I have a pot of fresh coffee brewing around me at all times, somewhere."

Curtly, Fermeti signaled. "We'll obtain coffee beans for you," he declared. "But the brewing is up to you. We'll also supply a pot from the Smithsonian collection and there our responsibility ends."

Taking hold of the carriage of the typewriter, Anderson began to inspect it. "Red and back ribbon," he said. "I always use black. But I guess I can make do." He seemed a trifle sullen. Inserting a sheet of paper, he began to type. At the top of the page appeared the words:

NIGHT FLIGHT

—Poul Anderson

"You say *if* bought it?" he asked Fermeti.

"Yes," Fermeti replied tensely. Anderson typed:

Difficulties at Outward, Incorporated had begun to nettle Edmond Fletcher. For one thing, an entire ship had disappeared, and although the individuals aboard were not personally known to him he felt a twinge of responsibility. Now, as he lathered himself with hormone-impregnated soap

"He starts at the beginning," Fermeti said bitingly. "Well, if there's no alternative we'll simply have to bear with him." Musingly, he murmured, "I wonder how long it takes . . . I wonder how fast he writes. As a pre-cog he can see what's coming next; it should help him to do it in a hurry." Or was that just wishful thinking?

"Have the coffee beans arrived yet?" Anderson asked, glancing up.

"Any time now," Fermeti said.

"I hope some of the beans are Colombian," Anderson said.

Long before the beans arrived the article was done.

Rising stiffly, uncoiling his lengthy limbs, Poul Anderson said, "I think you have what you want, there. The mass restoration formula is on type-script page 20."

Eagerly, Fermeti turned the pages. Yes, there it was; peering over his shoulder, Tozzo saw the paragraph:

If the ship followed a trajectory which would carry it into the star Proxima, it would, he realized, regain its mass through a process of

leeching solar energy from the great star-furnace itself. Yes, it was Proxima itself which held the key to Torelli's problem, and now, after all this time, it had been solved. The simple formula revolved in his brain.

And, Tozzo saw, there lay the formula. As the article said, the mass would be regained from solar energy converted into matter, the ultimate source of power in the universe. The answer had stared them in the face all this time!

Their long struggle was over.

"And now," Poul Anderson asked, "I'm free to go back to my own time?"

Fermeti said simply, "Yes."

"Wait," Tozzo said to his superior. "There's evidently something you don't understand." It was a section which he had read in the instruction manual attached to the time-dredge. He drew Fermeti to one side, where Anderson could not hear. "He can't be sent back to his own time with the knowledge he has now."

"What knowledge?" Fermeti inquired.

"That—well. I'm not certain. Something to do with our society, here. What I'm trying to tell you is this: the first rule of time travel, according to the manual, is don't change the past. In this situation just bringing Anderson here has changed the past merely by exposing him to our society."

Pondering, Fermeti said, "You may be correct. While he was in that gift shop he may have picked up some object which, taken back to

his own time, might revolutionize their technology."

"Or at the magazine rack at the spaceport," Tozzo said. "Or on his trip between those two points. And—even the knowledge that he and his colleagues are pre-cogs."

"You're right," Fermeti said. "The memory of this trip must be wiped from his brain." He turned and walked slowly back to Poul Anderson. "Look here," he addressed him. "I'm sorry to tell you this, but everything that's happened to you must be wiped from your brain."

After a pause, Anderson said, "That's a shame. Sorry to hear that." He looked downcast. "But I'm not surprised," he murmured. He seemed philosophical about the whole affair. "It's generally handled this way."

Tozzo asked, "Where can this alteration of the memory cells of his brain be accomplished?"

"At the Department of Penology," Fermeti said. "Through the same channels we obtained the convicts." Pointing his sleep-gun at Poul Anderson he said, "Come along with us. I regret this . . . but it has to be done."

VI

At the Department of Penology, painless electroshock removed from Poul Anderson's brain the precise cells in which his most recent memories were stored. Then, in a semi-conscious state, he was carried back into the time-dredge. A moment later he was on his trip back to the year 1954, to his own society

and time. To the Sir Francis Drake Hotel in downtown San Francisco, California and his waiting wife and child.

When the time-dredge returned empty, Tozzo, Gilly and Fermeti breathed a sigh of relief and broke open a bottle of hundred-year-old Scotch which Fermeti had been saving. The mission had been successfully accomplished; now they could turn their attention back to the Project.

"Where's the manuscript that he wrote?" Fermeti said, putting down his glass to look all around his office.

There was no manuscript to be found. And, Tozzo noticed, the antique Royal portable typewriter which they had brought from the Smithsonian—it was gone, too. But why?

Suddenly chill fear traveled up him. He understood.

"Good lord," he said thickly. He put down his glass. "Somebody get a copy of the journal with his article in it. At once."

Fermeti said, "What is it, Aaron? Explain."

"When we removed his memory of what had happened we made it impossible for him to write the article for the journal," Tozzo said. "He must have based *Night Flight* on his experience with us, here." Snatching up the August 1955 copy of *If* he turned to the table-of-contents page.

No article by Poul Anderson was listed. Instead, on page 78, he saw Philip K. Dick's *The Mold of Yancy* listed instead.

They had changed the past after all. And now the formula for their Project was gone—gone entirely.

"We shouldn't have tampered," Tozzo said in a hoarse voice. "We should never have brought him out of the past." He drank a little more of the century-old Scotch, his hands shaking.

"Brought who?" Gilly said, with a puzzled look.

"Don't you remember?" Tozzo stared at him, incredulous.

"What's this discussion about?" Fermeti said impatiently. "And what are you two doing in my office? You both should be busy at work." He saw the bottle of Scotch and blanched. "How'd that get open?"

His hands trembling, Tozzo turned the pages of the journal over and over again. Already, the memory was growing diffuse in his mind; he struggled in vain to hold onto it. They had brought someone from the past, a pre-cog, wasn't it? But who? A name, still in his mind but dimming with each passing moment . . . Anderson or Anderton, something like that. And in connection with the Bureau's interstellar mass-deprivation Project.

Or was it?

Puzzled, Tozzo shook his head and said in bewilderment, "I have some peculiar words in my mind. *Night Flight*. Do either of you happen to know what it refers to?"

"*Night Flight*," Fermeti echoed. "No, it means nothing to me. I wonder, though—it certainly would be an effective name for our Project."

"Yes," Gilly agreed. "That must be what it refers to."

"But our Project is called *Waterspider*, isn't it?" Tozzo said. At least he thought it was. He blinked, trying to focus his faculties.

"The truth of the matter," Fermeti said, "is that we've never titled it." Brusquely, he added, "But I agree with you; that's an even better name for it. *Waterspider*. Yes, I like that."

The door of the office opened and there stood a uniformed, bonded messenger. "From the Smithsonian," he informed them. "You requested this." He produced a parcel, which he laid on Fermeti's desk.

"I don't remember ordering anything from the Smithsonian," Fermeti said. Opening it cautiously he found a can of roasted, ground coffee beans, still vacuum packed, over a century old.

The three men looked at one another blankly.

"Strange," Torelli murmured. "There must be some mistake."

"Well," Fletcher said, "in any case, back to Project *Waterspider*."

Nodding, Torelli and Gilman turned in the direction of their own office on the first floor of Outward, Incorporated, the commercial firm at which they worked and the project on which they had labored, with so many heartaches and setbacks, for so long.

At the Science Fiction Convention at the Sir Francis Drake Hotel, Poul Anderson looked around him in bewilderment. Where had he been? Why had he gone out of the building? And it was an hour later; Tony Boucher and Jim Gunn had

left for dinner by now, and he saw no sign of his wife Karen and the baby, either.

The last he remembered was two fans from Battlecreek who wanted him to look at a display outside on the sidewalk. Perhaps he had gone to see that. In any case, he had no memory of the interval.

Anderson groped about in his coat pocket for his pipe, hoping to calm his oddly jittery nerves—and found, not his pipe, but instead a folded piece of paper.

“Got anything for our auction, Poul?” a member of the Convention committee asked, halting beside him. “The auction is just about to start—we have to hurry.”

Still looking at the paper from his pocket, Poul murmured, “Um, you mean something here with me?”

“Like a typescript of some published story, the original manuscript or earlier versions or notes. You know.” He paused, waiting.

“I seem to have some notes in my pocket,” Poul said, still glancing

over them. They were in his handwriting but he didn’t remember having made them. A time-travel story, from the look of them. Must have been from those Bourbons and water, he decided, and not enough to eat. “Here,” he said uncertainly, “it isn’t much but I guess you can auction these.” He took one final glance at them. “Notes for a story about a political figure called Gutman and a kidnapping in time. Intelligent slime mold, too, I notice.” On impulse, he handed them over.

“Thanks, the man said, and hurried on toward the other room, where the auction was being held.

“I bid ten dollars,” Howard Browne called, smiling broadly. “Then I have to catch a bus to the airport.” The door closed after him.

Karen, with Astrid, appeared beside Poul. “Want to go into the auction?” she asked her husband. “Buy an original Finlay?”

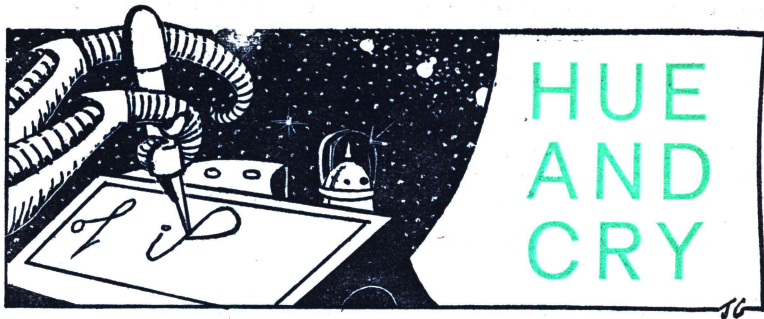
“Um, sure,” Poul Anderson said, and with his wife and child walked slowly after Howard Browne. END

SOLUTION
TO
SCIENCE-FANTASY
CROSSWORD
PUZZLE

by Jack Sharkey

(Puzzle on page 72)

A	T	O	M		A	R	C	S		B	O	S	U	N	
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The Place Where Readers And Editor Meet...

Dear Editor:

IF is looking up. Congratulations on A. E. Van Vogt—how'd you do it? Also *Manners and Customs of the Thrid* was good, and so was *The Reefs of Space*.

I've got one beef, though. What happened to the colored pic backgrounds? Also try to get Isaac Asimov, R.A.H. and Damor Knight, eh?

One more question: How do you get your *IF*'s back after loaning them?—Walter E. Haun, R.R. Longville, Minnesota.

• Answer: With difficulty.—*Editor*.

* * *

Dear Editor:

I have come to the conclusion that *IF* is making a supreme determination in doing everything to uphold the dignity of science fiction—by printing stories better by far than many others which pass as sf these days. I have been a fan since I was 13 years old. After 8 years of reading sf, I have reached the decision that *IF* beats all. In my opinion, anyone of reasonable intelligence and imagination is a potential

sf fan—which state changes to a reality when such a person finds himself presented with a good sf magazine. Many characters who pass through the pages of *IF* will undoubtedly live—I think. Clearcut stories of reality that invoke fact, fiction, prophecy and sometimes “*IF*”-ness. A friend of mine asked, “But is it fact or fiction?” Say what you like, but it still leaves a great deal of questions unanswered. So, Mr. Editor,—keep printing, keep up the great stories and, stone the crows, mate, keep *IF* rolling—(Miss) Dianne Hall-Clarke, 1/35 Wentworth Ave., Dolan's Boy, Sth. Caringbah, Sidney, N.S.W., Australia.

* * *

Dear Editor:

Why not combine *IF*, *Galaxy* and *Worlds of Tomorrow* into one 230-page monthly 50c magazine? You could get more advertising by saying you had the combined circulation of the three magazines, and with the money you get from advertising you could have a better magazine. I also wonder why the Guinn magazines don't have classified advertising as brands Z-D and M do.

Also, wher are the Retief stories going to be combined into a full-sized book?—Irvin M. Koch, 1623 White Oak Road, Chattanooga 5, Tennessee.

• (1) Because we'd lose money. (2) Sounds like a good idea—maybe we'll try it. (3) They just have, or anyway about six of them have, in a book published by Ace called *Envoy to New Worlds*.—Editor.

* * *

Dear Editor:

This September issue of *IF* is the first I've bought in a few issues. Van Vogt's story sold it to me, of course. I got my money's worth. It is certainly a pleasure to have him back in science fiction.

Mary Larson's *The Time of Cold* was a comfortable second. I'll look for her name in future numbers; there are not enough upbeat writers in the field.

Don't you think that the belief in sympathetic magic you display on the inside back cover is rather out of keeping with the editor of a science-fiction magazine? — Richard Kyle, 2126 Earl Avenue, Long Beach, California, 90806.

• For those who miss the point of this last remark (a group which included your editor until he went and got a copy of the magazine to check up), the reference is to the fact that the page in question contained an ad which was clearly meant to appear in *Galaxy*, not *IF* . . . By the way, more Van Vogt is on the way. One story in, more promised; but we're not just sure yet when they will appear.—Editor.

* * *

Dear Editor:

This letter is going to be a dissertation on letter columns, otherwise known as lettercols. So sit right back, relax and prepare yourself to hear a sermon of sorts.

The first thing that needs to be taken care of, naturally, is to define the *purpose* of a letter column in relation to a sf magazine. First of all, it should serve as a sounding board for ideas; a place where ideas can be expounded or criticized. It should be a form of a forum where concepts are studied, analyzed, investigated. Secondly, it should not be a place where, primarily, likes and dislikes in regards to stories, art or artists are put forth. These comments are of no consequence and waste space.

"Whoa, check, gasp. Wait a minute here!" you say. "How in hell am I supposed to know what the readers want? These gripes are necessary in order that I may give them what they want."

I agree completely. Don't get me wrong; I'm not saying that the comments are bad or should be disregarded. I'm saying that you shouldn't *publish* them. Let's face it: what nobody else thinks about a story doesn't make a bit of difference to me. I've already made up my mind, and like nothin's going to change it! Such matters are completely subjective and so are not open to discussion or argument.

As things now stand only one magazine has a letter column that consistently fills the above requirements—*Analog*. Oh, sure, *If*, *Amazing* and *Fantastic* occasionally print a letter that is worth reading, but not consistently.

The next question is, what is there to write about? After all, as "P.C." said in the September, 1962, *IF*, it gets kind of hard to write editorials worth writing letters about, month after month.

Let's stop and think a minute. Just why do fen read sf? For escape? Not likely. For mental stimulation! And how do you get mental stimula-

tion? By reading about concepts, ideas, philosophies! And where can these ideas be found in science fiction? In the stories. If you stop and give it some thought, isn't each and every story in the science-fiction field, for the most part, an editorial in itself? Expounding some thought? Damning some habit? Criticizing an idea? Heck sakes, every issue of an sf magazine has at least two or three concepts to write about!

Lastly I would like to make a general observation about letter columns. That is the manner, style, tone in which the letters published are written. Some time ago I got hold of some issues of *Thrilling Wonder Stories*, *Startling Stories* and *Fantastic Story Quarterly*. Now the lettercols in said magazines were really something! Sure, the letter writers called each other names while in the process of making some point, but, heck, that was what made the columns so fascinating. It seems to me that the quality which the letter columns of today are missing is humanness. All the columns, including *Analog's*, seem unnatural, forced, inhuman. — Jim Maughan, 230 N Street, Tumwater, Washington.

• There's one thing that an editor can't do to improve his letter columns: he can't write the letters! That's up to you fellows out there. —Editor.

* * *

Dear Editor:

The Expendables first new Van Vogt story in fourteen years? Please check the January, 1932 issue of *Scientific American*. The Hoffman Electronics Corporation ran a two page ad, and an sf story by Van Vogt was the focal point. It was called *Itself*.

The Hoffman people ran a series of six sf-oriented ads during '62, each with a short-short by an author such as Van Vogt, Heinlein, Asimov and Leiber. Each was billed "a science-fiction original created expressly for Hoffman Electronics Corporation" and served as a stepping-off point for a discussion on "How Science Fiction Becomes Scientific Fact."—Kenneth Burington, 129 South Meadow Drive, Glen Burnie, Maryland

• When we bought Van Vogt's story, we asked him how long it had been since he had written a story for an sf magazine—the 14-year figure was his. And, of course, it's true enough; he (and we) didn't think of the story appearing in the advertisement any more than we thought of his non-sf novel about communism in Asia, etc.—Editor.

That fills us up for another issue. Coming next time: a new Retief by Keith Laumer, *The City That Grew in the Sea* (and we think it's one of the best ever)—the conclusion of Poul Anderson's exciting *Three Worlds to Conquer—In Saturn's Rings*, by Robert F. Young—and lots more.

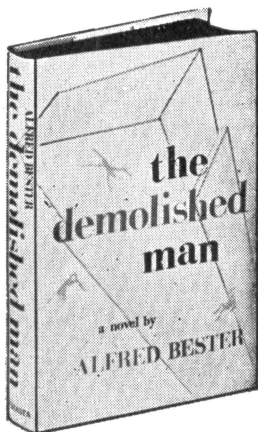
As old hands know, each issue we print at least one story by someone who has never before appeared in a science-fiction magazine. The idea is to give new talent a chance at a hearing, and thus to keep up the supply of new blood that every field needs. This issue we have two: *The Competitors*, by an Oklahoman who has been published a time or two before in other fields, but appears here with his first science-fiction story ever, and *Mack*, by a Kentucky newspaperman making his first stab at fiction of any kind. We think you'll be hearing more from both of them! —FP

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Know all the truth about people! Now hidden secrets can be uncovered by Graphoanalysis (scientific handwriting analysis)

MODERN psychology shows you the way to use Graphoanalysis* to "read between the lines" and see people as they really are—with their masks off.

Learn how to identify character and personality traits from letters, notes, signatures and any other handwritten material.

Graphoanalysis is now being widely used by employment agencies and personnel departments to get "behind" the formal applications. Clergymen and teachers are finding Graphoanalysis valuable for gaining a deeper insight into people for more effective counseling.

Lawyers and law enforcement officials analyze handwritten messages to find out things the messages do not say—or intentionally try to conceal.

Credit departments are now more successful in weeding out bad credit risks before trouble starts. And when accounts later turn into problems the credit manager knows better how to handle the people involved after he studies the handwriting.

Personal and individual uses of Graphoanalysis are for some people of greatest importance. Newly marrieds learn to adjust by understanding each other more clearly. Parents find Graphoanalysis invaluable in helping them understand and guide their children. And many intelligent people, with or without problems, Graphoanalyze their own handwriting in order to see themselves objectively.

Maybe you have never heard of Graphoanalysis as it is a relatively new psychological technique. So it should be explained that Graphoanalysis is not occult graphology and has nothing at all to do with fortune-telling. It is a rapidly growing scientific procedure, already proved and tested.

Its growth during the past few years has been spectacular, even exceeding the growth of other forms of psychological testing, which have been amazing. Graphoanalysis has been written up in *Newsweek*, *Business Week*, American Management Association's *Personnel*, *Insiders' Newsletter*,

Insurance Salesman, *London (England) Telegraph*, and other highly regarded publications.

Even the full CBS-TV network gave time to a serious explanation of Graphoanalysis, its scientific background and its many uses in business and the professions.

What does all this mean to you?

First of all here is your chance to acquire a specialized knowledge that will help you personally in a hundred different ways. Secondly, you can almost certainly use the techniques of Graphoanalysis to advance yourself in your present occupation.

More and more men and women are becoming professional Graphoanalysts. There are great opportunities for you in this area, if you have what it takes to be your own boss. Let us send you free information.

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