Galaxy
SCIENCE FICTION

December 1967

60¢

OUTPOST OF EMPIRE

by POUL ANDERSON

King of The Golden World

A Complete Short Novel

by ROBERT SILVERBERG

HANDICAP

by LARRY NIVEN

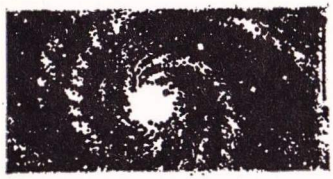
FOR

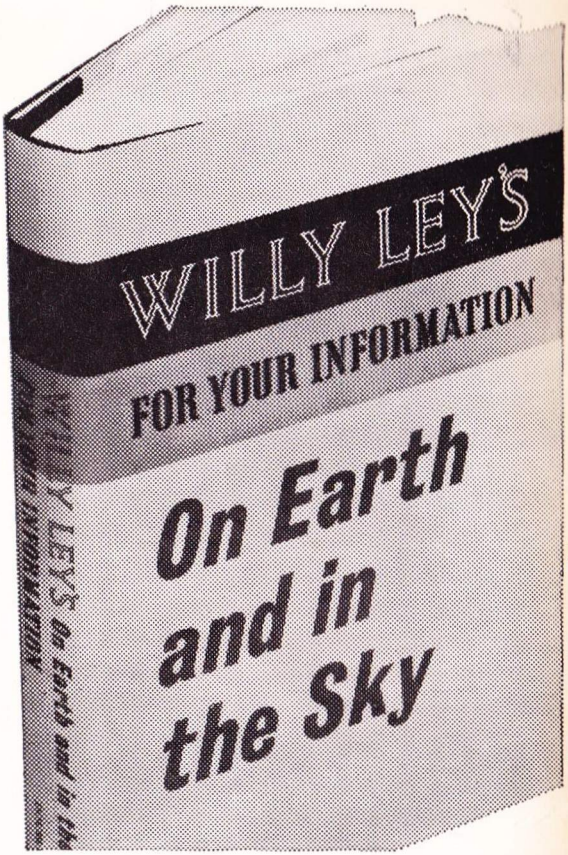
YOUR

INFORMATION

For sixteen years GALAXY'S most popular feature. Now in hardbound book form. The first of a series—updated and divided by subjects into separate books.

Facts and figures as only WILLY LEY can write them. Send today. Satisfaction guaranteed.





DOUBLEDAY & COMPANY, INC. (or to your bookstore)
Dept. 7-GA-3, GARDEN City, N.Y. 11531

Please send me ..... copies of WILLY LEY'S FOR YOUR INFORMATION: ON EARTH AND IN THE SKY. I understand that I may return the book(s) within two weeks without cost or obligation if not completely satisfied. Otherwise, I'll be billed just $4.95 per copy, plus shipping costs as payment in full.

NAME .....

ADDRESS .....

CITY ..... STATE ..... ZIP .....

SAVE! Send payment now and we pay postage. Same 2-week privilege guaranteed, of course.

For the first time anywhere—33 great new stories by all the science fiction masters of our time.

Not collected from magazines, not collected from other books, every one of these stories is new and original, especially written for this volume — to make it the most exciting science fiction anthology in years, and a "collector's item" in years to come.

DANGEROUS VISIONS, edited by Harlan Ellison, contains almost a quarter of a million words — one of the biggest anthologies of original material ever assembled in any field. Included are such long-awaited items as Theodore Sturgeon's first novelette in seven years, the first Fritz Leiber story in four years, the first story in twenty years by Howard Rodman . . . stories of all lengths: as short as Lester del Rey's "Evensong" and Henry Slesar's "Ersatz"; as long as Keith Laumer's 12,000 word "Test to Destruction" and Philip José Farmer's 33,000 word "Riders of the Purple Wage." Each is illustrated by Leo and Diane Dillon, each has a preface by Harlan Ellison and an afterword by the author, revealing insights to your favorite writers, available nowhere else.

To get your copy of **DANGEROUS VISIONS,** mail the free examination coupon. If you are not delighted with the book, you may return it and owe nothing.

THE COMPLETE ROSTER OF CONTRIBUTORS:

Lester Del Rey
Philip José Farmer
Harlan Ellison
Philip K. Dick
Joe L. Hensley
2 by David R. Bunch
Theodore Sturgeon
Sonya Dorman
Kris Neville
John Brunner
Roger Zelazny
Robert Silverberg
Miriam Allen deFord
Brian W. Aldiss
Larry Niven
Poul Anderson
Carol Emshwiller
Larry Eisenberg
John T. Sladek
R. A. Lafferty
Keith Laumer
Samuel R. Delany
Frederik Pohl
Robert Bloch
Howard Rodman
Fritz Leiber
James Cross
Damon Knight
Henry Slesar
Jonathan Brand
J. G. Ballard
Norman Spinrad

FREE EXAMINATION COUPON

To your bookseller or to
DOUBLEDAY & COMPANY, INC.
Dept. 7-GX-12, Garden City, N. Y. 11530

Please send me.....copies of **DANGEROUS VISIONS.** I understand I have two full weeks to decide whether to keep the book(s). If I wish, I may return them within that time and owe nothing. Otherwise, I'll be billed just $6.95 plus postage as payment in full.

NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

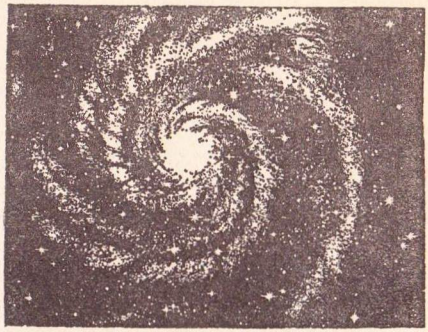
SAVE: Enclose payment now and we pay postage. Same return privilege guaranteed.

Offer available only in U.S.A. and Canada.

Galaxy
MAGAZINE

ALL STORIES NEW

Galaxy is published in French, German, Italian, Japanese and Spanish. The U. S. Edition is published in Braille and Living Tape.



December, 1967 ● Vol. 26, No. 2

CONTENTS

NOVELETTES

OUTPOST OF EMPIRE 9
by Poul Anderson

HANDICAP 153
by Larry Niven

SHORT STORIES

THE SOUTH WATERFORD RUMPLE CLUB. 85
by Richard Wilson

KING OF THE GOLDEN WORLD 97
by Robert Silverberg

BLACK CORRIDOR 121
by Fritz Leiber

THE RED EUPHORIC BANDS 132
by Philip Latham

THE FAIRLY CIVIL SERVICE 178
by Harry Harrison

NON-FACT ARTICLE

GALACTIC CONSUMER REPORT 145
by John Brunner

SCIENCE DEPARTMENT

FOR YOUR INFORMATION 110
by Willy Ley

FEATURES

EDITORIAL 6
by Frederik Pohl

GALAXY BOOKSHELF 187
by Algis Budrys

Cover by MORROW from OUTPOST OF EMPIRE

FREDERIK POHL
Editor

WILLY LEY
Science Editor

JUDY-LYNN BENJAMIN
Associate Editor

ROBERT M. GUINN
Publisher

LAWRENCE LEVINE ASSOC.
Advertising

MAVIS FISHER
Circulation Director

GALAXY MAGAZINE is published bi-monthly by Galaxy Publishing Corporation. Main offices: 421 Hudson Street, New York, N.Y. 10014. 60c per copy Subscription: (12 copies) $6.00 in the United States, Canada, Mexico, South and Central America and U. S. Possessions. Elsewhere $7.00. Second-class postage paid at New York, N.Y. and at additional mailing offices.

Printed in the U.S.A.
By The Guinn Co., Inc. N. Y.
Title Reg. U. S. Pat. Off.

ON HUGOS

A lot more than thirty years ago, when I was about ten years old, another kid gave me a copy of a magazine that seemed pretty strange and wonderful. The cover showed a large, scaly green monster battering a spaceship with a rock about the size of a three-story house. I opened it up, and was lost.

I don't now recall a single story in that first issue of a science-fiction magazine I ever read. Which is a pity, because it certainly changed my life. I do recall that the name of the magazine was *Science Wonder Stories Quarterly,* and that the editor was a man named Hugo Gernsback.

Time passed. *Science Wonder Stories Quarterly* changed into just plain *Wonder Stories,* and a couple of years later, along about 1932, the same Hugo Gernsback had an idea for a club of science-fiction readers. It was called The Science Fiction League, and, though his motives were of course more concerned with selling a few extra copies of the magazine than with shaping human destinies, the SFL in its turn changed lots of lives. It filled a need. Science-fiction readers in those days had a tendency to hide under rocks. (Now, of course, we're respectable — I mean, after all, sf now has the proud record of having forecast atomic energy, rocket ships, television, radar, *etc.,* so people take us more seriously. But in those days, you see, we were just *making* the predictions; they hadn't come true yet.) The SFL was a way of getting in touch with other people who shared the same crazy, secret pleasure in thinking about other times and other planets; and it prospered. Chapters started up all over the place — a big one in Brooklyn, a lively one in Chicago, a Los Angeles chapter so healthy that even now it's still meeting, though it changed its name somewhen over

"WITH GOD All Things Are Possible"!

Matthew 19:26

Dear Friend:

Have You Got PERSONAL PROBLEMS That Are Worrying You?

Have World-Wide Sin, Violence and Depression upset your life as they have so many, many others?

Are You In Poor Health?

Are You Worried About Money Troubles, Debts or Your Job?

Is Some One Dear to You Drinking or Gambling Too Much?

Would You Like to Have More Friends?

Are You Worried About Some One Dear to You For Any Reason?

Have You Got Love or Family Troubles?

Would You Like to Have Deeper Spiritual Understanding?

Are You Lonely? Are You Afraid of The Future?

Would You Like More Success, Happiness, "Good Fortune", Peace of Mind?

If you have any of these Problems, or others like them, Dear Friend, then here is wonderful NEWS of a remarkable NEW WAY of PRAYER that is helping thousands to glorious new happiness and joy! Ahd it may bring a whole new world of happiness and joy to you — very, very quickly, too!

FREE to All Who Need Help

Just clip this message NOW and mail with your name and address, (even a post card will do. We will rush you this wonderful NEW MESSAGE of PRAYER and FAITH to you by Return Mail, plus a FREE copy of our magazine called FAITH which will show you exactly how to apply our wonderful NEW WAY of PRAYER in seeking God's Guidance and Help in meeting your Problems. We will also send you FREE the beautiful golden Cross shown below, for you to keep and treasure. You will bless this day, Dear Friend, so don't delay! If you would like more Happiness, Success and "Good Fortune" in life please use the coupon below to send us your name and address NOW!

FREE If You Act Now

This Lovely Golden CROSS for you to keep and treasure.

Please clip and mail this Coupon now!

To LIFE-STUDY FELLOWSHIP
4 East 46th St., New York, N.Y. 10017

Please send me absolutely FREE, your Wonderful NEW MESSAGE of PRAYER AND FAITH, plus a FREE Copy of FAITH Magazine and the FREE Golden Cross. My name and address is:

MR.
MRS._____
MISS

ADDRESS_____

CITY_____ STATE_____

the years, another in Philadelphia that's also still around. When fan met fan, the result was what we now call "fandom" . . . .

Hugo Gernsback was probably thinking of other things, but he lit the fuse that led to such huge affairs as the recent World Science Fiction Convention, with 1600 people swarming into a single hotel in New York.

Of course, that's not all Hugo Gernsback did. He was an inventor. He was a publisher of science and medical books, as well as science fiction. And he was a writer — you can still find copies of his most successful novel around; it was called *Ralph 124C41+*, and it had to do with a superhero (that's the "plus" in his number) who watched girls in peril through a super-TV and flew to their rescue in a super-airplane.

A little while ago (as this is written) we got word that the Father of Science Fiction would be with us no more. He died on the 19th of August, of a kidney ailment; because he was the kind of man he was, he donated his body to science, and now some young medical student at Cornell University is no doubt learning anatomy through his posthumous help. It's a sort of a strange thought, but not altogether an unpleasant one; it's what Hugo Gernsback wanted, after all.

Not very many people have done as much with their lives as Hugo Gernsback did with his. Although he was seriously ill in recent years and past the time for taking an active part in science fiction, he still read the magazines now and then. And it was good to know he was out there.

We'll miss him.

But Gernsback's name still lives on — in more than one way, and especially in the annual awards for excellence in the field of science fiction called the "Hugos." There was a moment of silence before they were presented at the recent convention, which was appropriate, and then the Hugos were given out with great noise and ceremony. And that was appropriate, too.

One of the winners came from *Galaxy*, a fact in which we take pride: Jack Vance's "The Last Castle," published here in April, 1966. (Which made it a clean sweep for us, because the others were from our companion magazine, *If* — which won the "best magazine" Hugo again — and the "best artist" was the one who illustrated Vances's story, Jack Gaughan.)

Winning a Hugo is always an honor. This year maybe a little more so than ever.

—THE EDITOR.

Outpost Of Empire

by POUL ANDERSON

Illustrated by MORROW

The plane was a pawn in the galaxy-wide power struggle. Its people demanded only freedom — the one thing they couldn't have!

I

"No dragons are flying —" Karlsarm looked up. The fog around him was as yet thin enough that he could glimpse the messenger. Its wings sickled across night-blue and those few stars — like diamond Spica and ember Betelgeuse — which were too bright and near to be veiled. So deep was the stillness that he heard the messenger's feathers rustle.

"Good," he murmured. "As I hoped." Louder: "Inform Mistress Jenith that she can get safely across open ground now. She is to advance her company to Gallows Wood on the double. There let someone keep watch from a treetop, but do not release

the fire bees without my signal. Whatever happens."

The sweet, unhuman voice of the messenger trilled back his order.

"Correct," Karlsarm said. The messenger wheeled and flew northward.

"What was that?" Wolf asked.

"Enemy hasn't got anyone aloft, far as Rowlan's scouts can tell," Karlsarm replied. "I instructed — "

"Yes, yes," growled his lieutenant. "I do know Anglic, if not bird language. But are you sure you want to keep Jenith's little friends in reserve? We might have no casualties at all if they went in our van."

"But we'd have given away another secret. And we may very badly want a surprise to spring, one of these times. You go tell Mistress Randa the main body needs maximum cover. I'm after a last personal look. When I get back, we'll charge."

Wolf nodded. He was a rangy man, harsh-faced, his yellow hair braided. His fringed leather suit did not mark him off for what he was, nor did his weapons; dirk and tomahawk were an ordinary choice. But the two great hellhounds that padded black at his heels could only have followed the Grand Packmaster of the Windhook.

He vanished into fog and shadow. Karlsarm loped forward. He saw none of his hundreds, but he sensed them in more primitive ways. The mist patch that hid them grew tenuous with distance, until it lay behind the captain. He stopped, shadow-roofed by a lone sail tree, and peered before and around him.

They had had the coastal marshes to conceal them over most of their route. The climb by night, however, straight up Onyx Heights, had required full moonlight if men were not to fall and shatter themselves. This meant virtually no moon on the second night, when they entered the cultivated part of the plateau. But with a sidereal period of two and and a third days, Selene rose nearly full again, not long after the third sundown, and waxed as it crossed the sky. At present it was hardly past maximum, a dented disk flooding the land with iciness. Karlsarm felt naked to the eyes of his enemies.

None seemed aware of him, though. Fields undulated away to a flat eastern horizon, kilometer after kilometer. They were planted in rye, silvery and silent under the moon, sweet-smelling where feet had crushed it. Far off bulked a building, but it was dark; probably nothing slept within except machines. The fact that agriculture took place entirely on robo-

tized latifundia made the countryside thinly populated. Hence the possibility existed for Karlsarm of leading his people unobserved across it after sunset — to a five-kilometer distance from Domkirk.

Even this near, the city looked small. It was the least of the Nine, housing only about fifty thousand, and it was the second oldest, buildings huddled close together and much construction underground in the manner of pioneer settlements. Aside from streets, its mass was largely unilluminated. They were sober folk here who went early to bed. In places windows gleamed yellow. A single modern skyscraper sheened metallic beneath Selene, and it too had wakeful rooms. Several upper facets of the cathedral were visible above surrounding roofs. The moon was so brilliant that Karlsarm would have sworn he could see color in their reflection of it.

A faint murmur of machinery breathed across the fields. Alien it was, but Karlsarm almost welcomed the sound. The farmlands had oppressed him with their emptiness — their essential *lifelessness*, no matter how rich the crops and sleek the pastured animals — when he remembered his forests. He shivered in the chill. As if to seek comfort, he looked back westward. The fogbank that camouflaged the center of his army shimmered startingly white. Surely it had been seen; but the phenomenon occurred naturally, this near the Lawrencian Ocean. Beyond the horizon, barely visible, as if disembodied, floated the three highest snowpeaks of the Windhook. Home was a long march off: an eternal march for those who would die.

"Stop that, you," Karlsarm whispered to himself. He unshipped his crossbow, drew a quarrel from his quiver, loaded and cocked the piece. Hard pull on the crank, snick of the pawl were somehow steadying. He was not a man tonight but a weapon.

He trotted back to his people. The fog was thickening, swirling in cold wet drifts, as Mistress Randa sent ever more of her pets from their cages. He heard her croon a spell —

"Shining mist, flow and twist,
fill this cup of amethyst.
Buzzing dozens, brotherlings,
sing your lullaby of wings.
Ah! the moonlight flew and missed!"

He wondered if it was really needed. Why must women with Skills be that secretive about their work? He heard likewise the tiny hum of the insects, and glimpsed a few when Selene

sparked iridescence off them. They kept dropping down to the ryestalks after they had exuded all the droplets they could, filling up with dew and rising again. Soon the cloud was so dense that men were almost blind. They kept track of each other by signals — imitated bird calls, chirrs, cheeps, mews — and by odor, most of them having put on their distinctive war perfumes.

Karlsarm found Wolf near the red gleam of one hellhound's eyes. "All set?" he asked.

"Aye. If we can keep formation in this soup."

"We'll keep it close enough. Got a lot of practice in the tidelands, didn't we? Very well, here we go." Karlsarm uttered a low, shuddering whistle.

The sound ran from man to man, squad to squad, and those who knew flutecat language heard it as: "We have stalked the prey down, let us leap."

The fog rolled swiftly toward Domkirk; and none in the city observed that there was no wind to drive it.

II

John Ridenour had arrived that day. But he had made planetfall a week earlier and before then had crammed himself with every piece of information about Freehold that was available to him — by any means necessary, from simple reading and conversation to the most arduous machine-forced mnemonics. His whole previous career taught him how little knowledge that was. It had amused as well as annoyed him that he ended his journey explaining things to a crewman of the ship that brought him thither.

The *Ottokar* was a merchantman, Germanian owned, as tautly run as most vessels from that world. Being short of bottom on the frontiers, the Imperial Terrestrial Navy must needs charter private craft when trouble broke loose. They carried only materiel; troops still went in regular transports, properly armed and escorted.

But Ridenour was a civilian: also on time charter, he thought wryly. His job was not considered urgent. They gave him a Crown ticket on Terra and said he could arrange his own passage. It turned out to involve several transfers from one ship to another, two of them with nonhuman crews. Traffic was sparse, here where the Empire faded away into a wilderness of suns unclaimed and largely unexplored. The Germanians were of his own species, of course. But since they were a bit standoffish by culture, and he by nature, he had rattled about rather alone on what was

to be the final leg of his trip.

Now, when he would actually have preferred silence and solitude, the off-duty steward's mate joined him in the saloon and insisted on talking. That was the annoyance — with Freehold in the viewscope.

"I have never seen anything more . . . *prachtig* . . . more magnificent," the steward's mate declared.

Then why not shut your mouth and watch it? grumbled Ridenour to himself.

"But this is my first long voyage," the other went on shyly.

He was little more than a boy, little older than Ridenour's first son. No doubt the rest of the men kept him severely in his place. Certainly he had hitherto been mute as far as the passenger was concerned. Ridenour found he could not be ungracious to him. "Are you enjoying it . . . ah, I don't know your name?"

"Dietrich, sir. Dietrich Steinhauer. Yes, the time has been interesting. But I wish they would tell me more about the port planets we make on our circuit. They do not like me to question them."

"Well, don't take that to heart," Ridenour advised. He leaned back in his chair and got out his pipe — a tall, wiry, blond, hatchet-faced man, his gray tunic-and-trousers outfit more serviceable than fashionable. "With so much loneliness between the stars, so much awe, men have to erect defenses. Terrans are apt to get boisterous on a long voyage. But from what I've heard of Germanians, I could damn near predict they'd withdraw into routine and themselves. Once your shipmates grow used to you, decide you're a good reliable fellow, they'll thaw."

"Really? Are you an ethnologist, sir?"

"No, xenologist."

"But there are no nonhumans on Freehold, except the Arulians. Are there?"

"N-no. Presumably not. Biologically speaking, at any rate. But it is a strange planet, and such have been known to do strange things to their colonists."

Dietrich gulped and was quiet for a few blessed minutes.

The globe swelled, ever greater greater in its changing phases as the *Ottokar* swung down from parking orbit. Against starry blackness it shone blue, banded with blinding white cloudbanks, the continents hardly visible through the deep air. The violet border that may be seen from space on the rim of any terrestroid world was broader and more richly hued than Terra's. Across the whole orb flickered aurora, invisible on dayside but a pale

sheet of fire on nightside. It would not show from the ground, being too diffuse; Freehold lacked the magnetic field to concentrate solar particles at the poles. Yet here it played lambent before the eye, through the thin upper layers of atmosphere. For the sun of Freehold was twice as luminous as Sol, a late type F. At a distance of 1.25 a.u., its disk was slightly smaller than that which Terra sees. But the illumination was almost a third again as great, more white than yellow; and through a glare filter one could watch flares and prominences leap millions of kilometers into space and shower fierily back.

The single moon hove into view. It was undistinguished, even in its name (how many satellites of human-settled worlds are known as Selene?), having just a quarter the mass of Luna. But it was sufficiently close in to show a fourth greater angular diameter. Because of this, and the sunlight, and a higher albedo — fewer mottlings — it gave better than twice the light. Ridenour spied it full on and was almost dazzled.

"Freehold is larger than Germania, I believe." Dietrich's attempt at pompousness struck Ridenour as pathetic.

"Or Terra," the xenologist said. "Equitorial diameter in excess of 16,000 kilometers. But the mean density is quite low, making surface gravity a bare ninety per cent of standard."

"Then why does it have such thick air, sir? Especially with an energetic sun and a nearby moon of good size."

Hm, Ridenour thought, you're a pretty bright boy after all. Brightness should be encouraged; there's precious little of it around. "Gravitational potential," he said. "Because of the great diameter, field strength decreases quite slowly. Also, even if the ferrous core is small, making for weaker tectonism and less outgassing of atmosphere than normal — still, the sheer pressure of mass on mass, in an object this size, was bound to produce respectable quantities of air and heights of mountains. These different factors work out to the result that the sea-level atmosphere is denser than Terran, but safely breathable at all altitudes of terrain," He stopped to catch his breath.

"If it has few heavy elements, the planet must be extremely old," Dietrich ventured.

"No, the early investigators found otherwise," Ridenour said. "The system's actually younger than Sol's. It evidently formed in some metal-poor region of the galaxy and wandered into this spiral arm afterward."

"But at least Freehold is old by historical standards. I have heard it was settled more than five centuries ago. And yet the population is small. I wonder why?"

"Small initial colony, and not many immigrants afterward, to this far edge of everything. High mortality rates, too — originally, I mean, before men learned the ins and out of a world which they had never evolved on: a more violent and treacherous world than the one your ancestors found, Dietrich. That's why, for many generations, they tended to stay in their towns, where they could keep nature at bay. But they didn't have the economic base to enlarge the towns very fast. Therefore they practiced a lot of birth control. To this day, there are only nine cities on that whole enormous surface, and five of them are on the same continent. Their inhabitants total fourteen and a half megapeople."

"But I have heard about savages, sir. How many are they?"

"Nobody knows," Ridenour said. "That's one of the things I've been asked to find out."

He spoke too curtly, of a sudden, for Dietrich to dare question him further. It was unintentional. He had merely suffered an experience that came to him every once in a while, and shook him down to bedrock.

Momentarily, he confronted the sheer magnitude of the universe.

Good God, he thought, if You do not exist — terrible God, if You do — here we are, Homo sapiens, children of Earth, creators of bonfires and flint axes and proton converters and gravity generators and faster-than-light spaceships, explorers and conquerors, dominators of an Empire which we ourselves founded, whose sphere is estimated to include four million blazing suns . . . he we are, and what are we? What are four million stars, out on the fringe of one arm of the galaxy, among its hundred billion; and what is the one galaxy among so many.

Why, I shall tell you what we are and these are, John Ridenour. We are one more-or-less intelligent species in a universe that produces sophonts as casually as it produces snowflakes. We are not a hair better than our great, greenskinned, gatortailed Merseian rivals, not even considering that they have no hair; we are simply different in looks and language, similar in imperial appetites. The galaxy — what tiny part of it we can ever control — cares not one quantum whether their youthful greed and boldness overcome our wearied satiety and caution. (Which is a thought born of an aging civilization, by the way).

Our existing domain is already too big for us. We don't comprehend it. We can't.

Never mind the estimated four million suns inside our borders. Think just of the approximately one hundred thousand whose planets we do visit, occupy, order about, accept tribute from. Can you visualize the number? A hundred thousand; no more; you could count that high in about seven hours. But can you conjure up before you, in your mind, a well with a hundred thousand bricks in it: and see all the bricks simultaneously?

Of course not. No human brain can go as high as ten.

Then consider a planet, a world, as big and diverse and old and mysterious as ever Terra was. Can you see the entire planet at once? Can you hope to understand the entire planet?

Next consider a hundred thousand of them.

No wonder Dietrich Steinhauer here is altogether ignorant about Freehold. I myself had never heard of the place before I was asked to take this job. And I am a specialist in worlds and the beings that inhabit them. I should be able to treat them lightly. Did I not, a few years ago, watch the total destruction of one?

Oh, no. Oh, no. The multiple millions of . . . of everything alive . . . bury the name Starkad, bury it forever. And yet it was a single living world that perished, a mere single world.

No wonder Imperial Terra let the facts about Freehold lie unheeded in the data banks. Freehold was nothing but an obscure frontier dominion, a unit in the statistics. As long as no complaint was registered worthy of the sector governor's attention, why inquire further? How could one inquire further? Something more urgent is always demanding attention elsewhere. The Navy, the intelligence services, the computers, the decision makers are stretched too ghastly thin across too many stars.

And today, when war ramps loose on Freehold and Imperial marines are dispatched to fight Merseia's Arulian cat's-paws — we still see nothing but a border action. It is most unlikely that anyone at His Majecty's court is more than vaguely aware of what is happening. Certainly our admiral's call for help took long to go through channels: "We're having worse and worse trouble with the hinterland savages. The city people are no use. They don't seem to know either what's going on. Please advise."

And the entire answer that can be given to this appeal thus far is me. One man. Not even a

Naval officer — not even a specialist in human cultures — such cannot be gotten, except for tasks elsewhere that look more vital. One civilian xenologist, under contract to investigate, report, and recommend appropriate action. Which counsel may or may not be heeded.

If I die — and the battles grow hotter each month — Lissa will weep; so will our children, for a while. I like to think that a few friends will feel sorry, a few colleagues remark what a loss this is, a few libraries keep my books on micro for a few more generations. However, that is the most I can hope for.

And this big, beautiful planet Freehold can perhaps hope for much less. The news of my death will be slow to reach official eyes. The request for a replacement will move slower yet. It may quite easily get lost.

Then what, Freehold of the Nine Cities and the vast, mapless, wild-man-haunted outlands that encircle them? Then what?

III

Once the chief among the settlements was Sevenhouses; but battle had lately passed through it. Though the spaceport continued in use and the *Ottokar* set down there, Ridenour learned that Terran military headquarters had been shifted to Nordyke. He hitched a ride in a supply barge. Because of the war, its robopilot was given a human boss, a young lieutenant named Muhammad Sadik, who invited the xenologist to sit in the control turret with him. Thus Ridenour got a good look at the country.

Sevenhouses was almost as melancholy a sight from the air as from the ground. The original town stood intact at one edge; but that was a relic, a few stone-and-concrete buildings which piety preserved. Today's reality had been a complex of industries, dwelling places — mainly apartments — schools, parks, shops, recreation centers. The city was not large by standards of the inner Empire. But it had been neat, bright, bustling, more up-to-date than might have been expected of a community in the marches.

Now most of it was rubble. What remained lay fire-scarred, crowded with refugees, the machinery silenced, the people sadly picking up bits and pieces of their lives. Among them moved Imperial marines, and warcraft patrolled overhead like eagles.

"Just what happened?" Ridenour asked.

Sadik shrugged. "Same as happened at Oldenstead. The Arulians made an air assault —

airborne troops and armor, I mean. They knew we had a picayune garrison and hoped to seize the place before we could reinforce. Then they'd pretty well own it, you know, the way they've got Waterfleet and Startop. If the enemy occupies a townful of His Majesty's subjects, we can't scrub that town. At least, doctrine says we can't . . . thus far. But here, like at Oldenstead, our boys managed to hang on till we got help to them. We clobbered the blues pretty good, too. Not many escaped. Of course, the ground fighting was heavy and kind of bashed the town around."

He gestured. The barge was now well aloft, and a broad view could be gotten. "Harder on the countryside, I suppose," he added. "We felt free to use nukes there. They sure chew up a landscape, don't they?"

Ridenour scowled. The valley beneath him had been lovely, green and ordered, a checkboard of mechanized agroenterprises run from the city. But the craters pocked it, and high-altitude bursts had set square kilometers afire, and radiation had turned sere most fields that were not ashen.

He felt relieved when the barge lumbered across a mountain range. The wilderness beyond was not entirely untouched. A blaze had run widely, and fallout appeared to have been heavy. But the reach of land was enormous, and presently nothing lay beneath except life. The forest that made a well-nigh solid roof was not quite like something from ancient Terra; those leaves, those meadows, those rivers and lakes had a curious brilliance; or was that due to sunlight, fierce and white out of a pale-blue sky where cumulus clouds towered intricately shadowed? The air was often darkened and clamorous with bird flocks which must number in the millions. And, as woodland gave way to prairie, Ridenour saw herds of grazers equally rich in size and variety.

"Not many planets this fertile," Sadik remarked. "Wonder why the colonists haven't done more with it?"

"Their society began in towns rather than smaller units like family homesteads," Ridenour answered. "That was unavoidable. Freehold isn't as friendly to man as you might believe."

"Oh, I've been through some of the storms. I know."

"And native diseases. And the fact that while native food is generally edible, it doesn't contain everything needed for human nutrition. In short, difficulties such as are normally en-

countered in settling a new world. They could be overcome, and were; but the process was slow, and the habit of living in a few centers became ingrained. Also, the Freeholders are under a special handicap. The planet is not quite without iron, copper and other heavy elements. But their ores occur too sparsely to support a modern industrial establishment, let alone permit it to expand. Thus Freehold has always depended on extraplanetary trade. And the system lies on the very fringe of human-dominated space. Traffic is slight and freight rates high."

"They could do better, though," Sadik declared. "Food as tasty as what they raise ought to go for fancy prices on places like Bonedry and Disaster Landing — planets not terribly far, lots of metals, but otherwise none too good a home for their colonists."

Ridenour wasn't sure if the pilot was patronizing him in revenge. He hadn't meant to be pedantic; it was his professional habit. "I understand that the Nine Cities were in fact developing such trade, with unlimited possibilities for the future," he said mildly. "They also hoped to attract immigrants. But then the war came."

"Yeh," Sadik grunted. "One always does, I guess."

Ridenour recollected that war was no stranger to Freehold. Conflict, at any rate, which occasionally erupted in violence. The Arulian insurgency was the worst incident to date — but perhaps nothing more than an incident, *sub specie aeternitatis.*

The threat from the savages was something else: less spectacular, but apt to be longer lasting, with more pervasive subtle effects on the long-range course of history here.

Nordyke made a pleasant change. The strife had not touched it, save to fill the airport with ships — and the seaport, as its factories drew hungrily on the produce of other continents — and the streets with young men from every corner of the Empire. The modern town, surrounding Catwick's bright turbulent waters, retained in its angular architecture some of the starkness of the old castle-like settlements on the heights above. But in the parks, roses and Jasmine were abloom; and elsewhere the taverns brawled with merriment. The male citizens were happily acquiring the money that the Imperialists brought with them; the females were still more happily helping spend it.

Ridenour had no time for amusement, even had he been in-

clined. Plain to see, Admiral Fernando Cruz Manqual considered him one more nuisance wished on a long-suffering planetary command by a home government that did not know its mass from a Dirac hole. He had to swing more weight than he actually carried, to get billeted in a float-shelter on the bay and arrange his background-information interviews.

One of these was with an Arulian prisoner. He did not speak any language of that world, and the slender, blue-feathered, sharp-snouted biped knew no Anglic. But both were fluent in the principal Merseian tongue, though the Arulian had difficulty with certain Eriau phonemes.

"Relax," said Ridenour, after the other had been conducted into the office he had borrowed, and the Terran marine had gone out. "I won't hurt you. I wear this blaster because regulations say I must. But you aren't so stupid as to attempt a break."

"No. Nor so disloyal as to give away what would hurt my people." The tone was more arrogant than defiant, as nearly as one could make comparisons with human emotions. The Arulian had already learned that captives were treated according to the Covenant. The reason was less moral than practical — the same reason why his own army did not try to annihilate Nordyke, though Terra's effort was concentrated here. Revenge would be total. As matters stood, the prisoners and towns they held, the other towns they could destroy, were bargaining counters. When they gave up the struggle (which surely they must, in a year or two), they could exchange these hostages for the right to go home unmolested.

"Agreed. I simply want to hear your side of the story." Ridenour offered a cigar. "Your species likes tobacco, does it not?"

"I thank." A seven-fingered hand took the gift with ill-concealed eagerness. "But you know why we fight. This is our home."

"Um-m-m . . . Freehold was man-occupied before your race began space flight."

"True. Yet Arulian bones have strengthened this soil for more than two centuries. By long-standing agreement, the Arulians who lived and died here did so under the Law of the Sacred Horns. For what can your law mean to us, Terran — your law of property to us who do things mutually with our pheromone-sharers; your law of marriage to us who have three sexes and a breeding cycle: your law of Imperial fealty to us who find truth's wellspring in Eternal Aruli? We might have compromised, after Freehold was incor-

porated into your domain. Indeed, we made every reasonable attempt to do so. But repeated and flagrant violation of our rights must in the end provoke secessive action."

Ridenour started his pipe. "Well, now, suppose you look at the matter as I do," he suggested. "Freehold is an old human colony, although it lies far from Terra. It was founded before the Empire and stayed sovereign after the Empire began. There was just no special reason why we should acquire it, take on responsibility for it, while the people remained friendly. But needing trade and not getting many human visitors, they looked elsewhere. The Merseians had lately brought modern technology to Aruli. Arulian mercantile associations were busy in this region. They had the reputation of being industrious and reliable, and they could use Freehold's produce. It was natural that trade should begin; it followed that numerous Arulians should come here to live; and, as you say, it was quite proper to grant them extraterritoriality.

"*But.*" He wagged his pipestem. "Relationships between the Terran and Merseian Empire grew more and more strained. Armed conflict became frequent in the marches. Freehold felt threatened. By now the planet had — if not a booming industry — at least enough to make it a military asset. A tempting target for anyone. Sovereign independence looked pretty lonely, not to say fictitious. So the Nine Cities applied for membership in the Empire and were accepted —as much to forestall Merseia as for any other reason. Of course the Arulian minority objected. But they were a small minority. And in any case, as you said, compromise should have been possible. Terra respects the rights of client species. We must; they are too many for suppression. In fact, no few nonhumans have Terran citizenship."

"Nevertheless," the prisoner said, "you violated what we hold hallowed."

"Let me finish," Ridenour said. "Your mother world Aruli, its sphere of influence, everything there has lately became a Merseian puppet. No, wait, I know you'll deny that indignantly; but think. Consider your race's recent history. Ask yourself what pronouncements have been made by the current Bearers of the Horns — as regards Merseia versus Terra — and remember that they succeeded by revolutionary overthrow of the legitimate heirs. Never mind what abuses they claim to be correcting; only recall that they are

Merseian-sponsored revolutionaries.

"Reflect how your people here, on this planet, have always considered themselves Arulians rather than Freeholders. Reflect how they have, in fact, as tensions increased, supported the interests of Aruli rather than Terra. Maybe this would not have occurred, had the humans here treated you more fairly in the past. But we were confronted with your present hostility. What would you expect us to — what would you do in our place — but decree some security regulations? Which is the prerogative of His Majesty's government, you know. The original treaty granting them extraterritoriality was signed by the Nine Cities, not by the Terran Empire.

"So you revolted, you resident aliens. And we discovered to our dismay that the rebellion was well prepared. Multiple tons of war supplies, multiple thousands of troops, had been smuggled beforehand into wilderness areas . . . from Aruli!"

"That is not true," the prisoner said. "Of course our mother world favors our righteous cause, but — "

But we have census figures, remember. The registered Arulian-descended Freeholders do not add up to anything like the total in your 'Sacred Horde.' You yourself, my friend, whose ancestors supposedly lived here for generations, cannot speak the language! Oh, I understand Aruli's desire to avoid an open clash with Terra, and Terra's willingness to indulge this desire. But let us not waste our personal time with transparent hypocrisies, you and I."

The prisoner refused response.

Ridenour sighed. "Your sacrifices, what victories you have had, everything you have done is for nothing," he went on. "Suppose you did succeed. Suppose you actually did win your 'independent world in pheromone association with the Holy Ancestral Soil' — do you really think your species would benefit? No, no. The result would mean nothing more than a new weapon for Merseia to use against Terra . . . a rather cheaply acquired one." His smile was weary. "We're familiar with the process, we humans. We've employed it against each other often enough in our past."

"As you like," the Arulian said. By instinct he was less combative as an individual than a human is, though possibly more so in a collectivity. "Your opinions make scant difference. The great objective will be achieved before long."

Ridenour regarded him with

pity. "Have your superiors really kept on telling you that?"

"Surely. What else?"

"Don't you understand the situation? The Empire is putting less effort into the campaign than it might, true. This *is* a distant frontier, however critical. Two hundred light-years make a long way from Terra. But our lack of energy doesn't matter in the long run, except to poor tormented Freehold.

"Because this system has in fact been taken by us. You aren't getting any more supplies from outside. You can't. Small fast courier boats might hope to run our blockade, I suppose, if they aren't too many and accept a high percentage of loss. But nothing except a full-sized task force would break it. Aruli cannot help you further. She hasn't that kind of fleet. Merseia isn't going to. The game isn't worth the candle to her. You are cut off. We'll grind you away to nothing if we must; but we hope you'll see reason, give up and depart.

"Think. You call it yaro fever, do you not — that disease which afflicts your species but not ours — for which the antibiotic must be grown on Aruli itself where the soil bacteria are right? We capture more and more of you who suffer from yaro. When did you last see a fresh lot of antibiotic?"

The prisoner screamed. He cast his cigar at Ridenour's feet, sprang from his chair and ran to the office door. "Take me back to the stockade!" he wept.

Ridenour's mouth twisted. Oh, well, he thought, I didn't really hope to learn anything new from any of those pathetic devils.

Besides, the savages are what I'm supposed to investigate. Though I've speculated if perhaps, in the two centuries they lived here, the Arulians had some influence on the outback people. Everybody knows they traded with them to some extent. Did ideas pass, as well as goods?

For certainly the savages have become troublesome.

IV

The next day Ridenour was lucky and got a direct lead. The mayor of Domkirk arrived in Nordyke on official business. And word was that the Domkirk militia had taken prisoners after beating off a raid from the wilderness dwellers. Ridenour waited two days before he got to see the mayor; but that was about par for the course in a project like this, and he found things to do meanwhile.

Rikard Uriason proved to be a short, elegantly clad, fussy man. He was obviously self-conscious about coming from the

smallest recognized community on the planet. He mentioned a visit he had once made to Terra and the fact that his daughter was studying on Ansa, twice in the first ten minutes after Ridenour entered his hotel room. He kept trying to talk the Emperor's Anglic and slipping back into Freeholder dialect. He fussed about, falling between the stools of being a gracious host and a man of the universe. Withal, he was competent and well informed where his own job was concerned.

"Yes, sir, we of Domkirk live closer to the outback than anyone else. For various reasons," he said, after they were finally seated with drinks in their hands. A window stood open to the breeze off Catwick — always slightly alien-scented, a hint of the smell that wet iron has on Terra — and the noise of streets and freight-belts, and the view of waters glittering out to the dunes of Longenhook. "Our municipality does not yet have the manpower to keep a radius of more than about two hundred kilometers under cultivation. Remember, Terran crops are fragile on this planet. We can mutate and breed selectively as much as we like. The native life forms will nonetheless remain hardier, eh? And, whole robotic machines do most of the physical work, the requirement for supervision, decision-making human personnel is inevitably greater than on a more predictable world. This limits our range. Then too, we are on a coastal plateau. Onyx Heights fall steeply to the ocean, westward to the Windhook, into marsh — unreclaimable — by us at our present stage of development, at any rate."

Good Lord, Ridenour thought, I have found a man who can outlecture me. Aloud: "Are those tidelands inhabited by savages, then?"

"No, sir, I do not believe so. Certainly not in any significant degree. The raiders who plague our borders appear to be centered in the Windhook Range and the Upwoods beyond. That was where the recent trouble occurred, on that particular margin. We have been fortunate in that the war's desolation has passed us by. But we feel, on this very account, our patriotic duty is all the more pressing, to make up the agricultural losses caused elsewhere. Some expansion is possible, now that refugees augment our numbers. We set about clearing land in the foothills. A valley, actually, potentially fertile once the weeds and other native pests have been eradicated. Which, with modern methods, takes only about one

year. A Freehold year, I mean, circa about twenty-five per cent longer than a Terran year. Ah . . . where was I? . . . yes. A band of savages attacked our pioneers. They might have succeeded. They did succeed in the past, on certain occasions, as you may know, sir. By surprise, and numbers, and proximity — for their weapons are crude. Necessarily so, iron and similar metals being scarce. But they did manage, for instance, several years ago, to frustrate an attempt on settling on Moon Garnet Lake, in spite of the attempt being supplied by air and backed by militia with reasonably modern small arms. Ahem! This time we were forewarned. We had our guards disguised as workers, their weapons concealed. Not with any idea of entrapment. Please understand that, sir. Our wish is not to lure any heathen to their deaths, only to avoid conflict. But neither had we any wish for them to spy out our capabilities. Accordingly, when a gang attacked, our militiamen did themselves proud, I may say. They inflicted casualties and drove the bulk of the raiders back into the forest. A full twenty-seven prisoners were flitted to detention in our city jail. I expect the savages will think twice before they endeavor to halt progress again."

Even Uriason must stop for breath sometime. Ridenour took the opportunity to ask: "What do you plan to do with your prisoners?"

The mayor looked a little embarrassed. "That is a delicate question, sir. Technically they are criminals — one might say traitors, when Freehold is at war. However, one is almost obliged morally, is one not, to regard them as hostiles protected by the Covenant? They do by now, unfortunately, belong to a foreign culture; and they do not acknowledge our planetary government. Ah . . . in the past, rehabilitation was attempted. But it was rarely successful, short of outright brainscrub, which is not popular on Freehold. The problem is much discussed. Suggestions from Imperial experts will be welcomed, once the war is over and we can devote attention to sociodynamic matters."

"But isn't this a rather long-standing problem?" Ridenour said.

"Well, yes and no. On the one hand, it is true that for several centuries people have been leaving the cities for the outback. Their reasons varied. Some persons were mere failures; remember, the original colonists held an ideal of individualism and made scant provision for anyone who could not, ah, cut the mustard. Some were fugitive crim-

inals. Some were disgruntled romantics, no doubt. But the process was quite gradual. Most of those who departed did not vanish overnight. They remained in periodic contact. They traded things like gems, furs, or their own itinerant labor for manufactured articles. But their sons and grandsons tended, more and more, to adopt a purely uncivilized way of life, one which denied any need for what the cities offered."

"Adaptation," Ridenour nodded. "It's happened on other planets. On olden Terra, even — like the American Frontier." Seeing that Uriason had never heard of the American frontier, he went on a bit sorrowfully: "Not a good process, is it? The characteristic human way is to adapt the environment to oneself, not oneself to the environment."

"I quite agree, sir. But originally, no one was much concerned in the Nine Cities. They had enough else to think about. And, indeed, emigration to the wilderness was a safety valve. Thus, when the anti-Christian upheavals occurred three hundred years ago, many Christians departed. Hence the Mechanists came to power with relatively little bloodshed — including the blood of Hedonists, who also disappeared rather than suffer persecution. Afterward, when the Third Constitution decreed tolerance, the savages were included by implication. If they wished to skulk about in the woods, why not? I suppose we, our immediate ancestors, should have made ethnological studies on them. A thread of contact did exist, a few trading posts and the like. But . . . well, sir, our orientation on Freehold is pragmatic rather than academic. We are a busy folk."

"Especially nowadays," Ridenour observed.

"Yes. Very true. I presume you do not speak only of the war. Before it started, we had large plans in train. Our incorporation into His Majesty's domains augured well for the furtherance of civilization on Freehold. We hope that, when the war is over, those plans may be realized. But admittedly the savages are a growing obstacle."

"I understand they sent embassies telling this and that city not to enlarge its operations further."

"Yes. Our spokesman pointed out to them that the Third Constitution gave each city the right to exploit its own hinterland as its citizens desired — a right which our Imperial charter has not abrogated. We also pointed out that they, the savages, were fellow citizens by virtue of resi-

dence. They need only adopt the customs and habits of civilization — and we stood ready to lend them educational, financial, even psychotherapeutic assistance toward this end. They need only meet the simple, essential requirements for the franchise, and they too could vote on how to best develop the land. Uniformly they refused. They denied the authority of the mayors and laid claim to all unimproved territory."

Ridenour smiled, but with little mirth. "Cultures, like individuals, die hard," he said

"True," Uriason nodded. "We civilized people are not unsympathetic. But after all! The outbacker population, their number, is unknown to us. However, it must be on the same order of magnitude as the cities', if not less. Whereas the potential population of a Freehold properly developed is — well, I leave that to your imagination, sir. Ten billion? Twenty? And not any huddled masses, either. Comfortable, well fed, productive, happy human beings. May a few million ignorant woodsrunners deny that many souls the right to be born?"

"None of my business," Ridenour said. "My contract just tells me to investigate."

"I might add," Uriason said, "that Terra's rivalry with Merseia bids fair to go on for long generations. A well populated highly industrialized large planet here on the Betelgeusean frontier would be of distinct value to the Empire. To the entire human species, I believe. Do you not agree?"

"Yes, of course," Ridenour said.

He readily got permission to return with Uriason and study the savage prisoners in depth. The mayor's car flitted back to Domkirk two days later — two of Freehold's twenty-one hour days. And thus it happened that John Ridenour was on hand when the city was destroyed.

V

Karlsarm loped well in among the buildings, with his staff and guards, before combat broke loose. He heard yells, crack of blasters, hiss of slugthrowers, snap of bowstrings, sharp bark of explosives, and grinned. For they came from the right direction, as did the sudden fire-flicker above the roofs. The airport was first struck. Could it be seized in time, no dragons would fly.

Selene light had drenched and drowned pavement luminosity. Now windows were springing to life throughout the town. Karlsarm's group broke into a run. The on-duty militiamen, bar-

racked at the airport, were few. Wolf's detachment should be able to handle them in the course of grabbing vehicles and that missile emplacement which Terran engineers had lately installed. But Domkirk was filled with other men, and some of them kept arms at home. Let them boil out and get organized, and the result would be slaughterous. But they couldn't organize without communications, and the electronic center of the municipality was in the new skyscraper.

A door opened, in the flat front of an apartment house. A citizen stood outlined against the lobby behind, pajama-clad, querulous at being roused. "What the hell d'you think — "

Light spilled across Karlsarm. The Domkirker saw: a man in bast and leather, crossbow in hands, crossbelts sagging with edged weapons; a big muscular body, weatherbeaten countenance, an emblem of authority which was not a decent insigne but the skull and skin of a catavray crowning that wild head. "*Savages!*" the Domkirker shrieked. His voice went eunuch high with panic.

Before he had finished the word, the score of invaders were gone from his sight. More and more keening lifted, under a gathering battle racket. It suited Karlsarm. Terrified folk were no danger to him.

When he emerged in the cathedral square, he found that not every mind in town had stampeded.

The church loomed opposite, overstamping the shops which otherwise ringed the plaza. For they were darkened and were, in any event, things that might have been seen anywhere in the Empire. But the bishop's seat was raised two centuries ago, in a style already ancient. It was all colored vitryl, panes that formed one enormous many-faceted jewel, so that by day the interior was nothing except radiances — and even by moonlight, the outside flashed and dim spectra played. Karlsarm had small chance to admire. Flames stabbed and bullets sang. He led a retreat back around the corner of another building.

"Somebody's got together," Link o' the Cragland muttered superfluously. "Think we can bypass them?"

Karlsarm squinted. The skyscraper poked above the cathedral, two blocks further on. But whoever commanded this plaza would soon isolate the entire area, once enough men had rallied to him. "We'd better clean them out right away," he decided, "Quick, intelligencers!"

"Aye." Noach unslung the box on his shoulder, set it down, talked into its ventholes and opened the lid. Lithe little shapes jumped forth and ran soundlessly off among the shadows. They were soon back. Noach chittered with them and reported: "Two strong squads, one in the right-hand street, one in the left. Doorways, walls, plenty of cover. Radiocoms, I think. The commanders talk at their own wrists, anyhow, and we can't jam short-range transmissions, can we? If we have to handle long-range ones too? Other men keep coming to join them. A team just brought what I suppose must be a tripod blastgun."

Karlsarm rephrased the information in bird language and sent messengers off, one to a chief of infantry, one to the monitors.

The latter arrived first, as proper tactics dictated. The beasts — half a dozen of them, scaled and scuted crocodilian shapes, each as big as two buffalo — were not proof against Imperial-type guns. Nothing was. And being stupid, they were inflexible; you gave them their orders and hoped you had aimed them right, because that was that. But they were hard to kill . . . and terrifying if you had never met them before. The blastgunners unleached a single ill-directed thunderbolt and fled. About half the group barricaded themselves in a warehouse. The monitors battered down the wall, and the defenders yielded.

Meanwhile the Upwoods infantry dealt with the opposition in the other street. Knifemen could not very well rush riflemen. However, bowmen could pin them down until the monitors got around to them, after which a melee occurred, and everyone fought hand-to-hand anyway. A more elegant solution existed; but doctrine stood, to hold secret weapons in reserve. The monitors were expendable, there being no way to evacuate creatures that long and heavy.

Karlsarm himself had already proceeded to capture the skyscraper and establish headquarters. From the top floor, he had an overview of the entire town. It made him nervous to be enclosed in lifeless plastic, and he had a couple of the big windows knocked out. Grenades were needed to break the vitryl. So his technicians manning the communication panels, a few floors down, must endure being caged.

A messenger blew in from the night and fluted: "The field of dragons has been taken, likewise a fortress wherein our people were captive — "

Karlsarm's heart knocked. "Let Mistress Evagail come to me."

Waiting, he was greatly busied. Reports, queries, suggestions, crises; directives, answers decisions, actions. The streets were a phosphor web, out to the icy moonlands, but most of the buildings hulked lightless again, terror drawn back into itself. Sporadic fire flared, the brief sounds of clash drifted faintly to him. The air grew colder.

When Evagail entered, he needed an instant to disengage his mind and recognize her. They had stripped off her buckskins and gold furs, swathed the supple height of her in a shapeless prison gown; and a bandage still hid most of the ruddy-coiled hair. But then she laughed at him, eyes and mouth alive with an old joy, and he leaped across a desk to seize her.

"Did they hurt you?" he finally got the courage to ask.

"No, except for this battle wound, and it isn't much," she said. "They did threaten us with a . . . what's the thing called? . . . a hypnoprobe, when we wouldn't talk. Just as well you came when you did, loveling."

His tone shook: "Better than well. If that horror isn't used exactly right, it cracks apart both reason and soul."

"You forget I have my Skill," she said grimly.

He nodded. That was one reason why he had launched his campaign earlier than planned: not only for her sake, but for fear that the Cities would learn what she was. She might not have succeeded in escaping or in forcing her guards to slay her, befor the hypnoprobe vibrations took over her brain.

She should never have accompanied that raid on Falconsward Valley. It was nothing but a demonstration, a test . . . militarily speaking. Emotionally, though, it had been a lashing back at an outrage committed upon the land. Evagail had insisted on practicing the combat use of her Skill; but her true reason was that she wanted to avenge the flowers. Karlsarm wielded no authority to stop her. He was a friend, occasionally a lover, some day perhaps to father her children; but was not any woman as free as any man? He was the war chief of Upwoods; but was not any Mistress of a Skill necessarily independent of chiefs?

Though a failure, the attack had not been a fiasco. Going into action for the first time, and meeting a cruel surprise, the outbackers had nonetheless conducted themselves well and retreated in good order. It was

sheer evil fortune that Evagail was knocked out by a grazing bullet before she had summoned her powers.

"Well, we got you here in time," Karlsarm said. "I'm glad." Later he would make a ballad about his gladness.

"How stands your enterprise?"

"We grip the place, barring a few holdouts. I don't know if we managed to jam every outgoing messages. Mistress Persa's buzzerwave bugs could have missed a transmitter or two. And surely our folk now handling the comcenter can't long maintain the pretense of being ordinary, undisturbed Domkirkers. No aircraft have showed thus far. Better not delay any more than we must, though. So we ought to clear out the population — and nobody's stirred from their miserable dens!"

"Um-m, what are you doing to call them forth?"

"An all-phones announcement."

Evagail laughed anew. "I can imagine that scene, loveling! A poor, terrified family, whose idea of a wilderness trip is a picnic in Gallows Wood. Suddenly their town is occupied by hairy, skin-clad savages — the same terrible people who burned the Moon Garnet camp and bushwacked three punitive expeditions in succession and don't pay taxes or send their children to school or support the Arulian war or do *anything* civilized — but were supposed to be safe, cozy hundreds of kilometers to the west, and never a match for regular troops on open ground — suddenly, here they are! They've taken Domkirk! They whoop and wave their tomahawks in these very streets! What can our family do but hide in their . . . apartment, is that the word? . . . their apartment, with furniture piled across the door? They can't even phone anywhere, the phone's dead, they can't call for help, can't learn what's become of Uncle Enry. Until the thing chimes. Hope leaps in Father's breast. Surely the Imperials, or the Nordyke militia, or somebody have come to the rescue! With shaking hand, he turns the instrument on. In the screen he sees — who'd you assign? Wolf, I'll wager. He sees a long-haired, stone-jawed wild man, who barks in an alien dialect: 'Come out of hiding. We mean to demolish your city.'"

Evagail clicked her tongue. "Did you learn nothing about civilization while you were there, Karlsarm?" she finished.

"I was too busy learning something about its machines," he said. "I couldn't wait to be done and depart. What would you do here?"

"Let a more soothing image make reassuring noises for a while. Best a woman; may as well be me." Karlsarm's eyes widened before his head nodded agreement. "Meanwhile," Evagail continued, "you find the mayor. Have him issue the actual order to evacuate." She looked down at her dress, grimaced, pulled it off and threw it in a corner with a violent motion. "Can't stand that rag another heartbeat. Synthetic . . . dead. Which way is the telephone central?"

Karlsarm told her. Obviously she had already discovered how to use gravshifts and slideways. She departed, striding like a leontine, and he dispatched men on a search for city officialdom.

That didn't take long. Apparently the mayor had been trying to find the enemy leader. Toms led him and another in at the point of a captured blaster. The weapon was held so carelessly that Karlsarm took it and pitched it out the window. But then, Toms was from the Trollspike region — as could be told from his breechclout and painted skin — and had probably never seen a gun before he enlisted.

Karlsarm dismissed him and stood behind the desk, arms folded, against the dark broken pane, letting the prisoners assess him while he studied them. One looked almost comical, short, potbellied, red-faced and pop-eyed, as if the doom of his city were a personal insult. The fellow with him was more interesting, tall, yellow-haired, sharp-featured, neither his hastily donned clothes nor his bearing nor even his looks typical of any place on Freehold that Karlsarm had heard of.

"Who are you?" the little man sputtered. "What's the meaning of this? Do you realize what you have done?"

"I expect he does," said his companion dryly. "Permit introductions. The mayor, Honorable Rikard Uriason; myself, John Ridenour, from Terra."

An Imperialist! Karlsarm must fight to keep face impassive and muscles relaxed. He tried to match Ridenour's bow. "Welcome, sirs. May I ask why you, distinguished outworlder, are here?"

"I was in Domkirk to interview, ah, your people," Ridenour said. "In the hope of getting an understanding, with the aim of eventual reconciliation. As a house guest of Mayor Uriason, I felt perhaps I could assist him — and you — to make terms."

"Well, maybe." Karlsarm didn't bother to sound skeptical. The Empire wasn't going to like

what the outbackers intended. He turned to Uriason. "I need your help quite urgently, Mayor. This city will be destroyed. Please tell everyone to move out immediately."

Uriason staggered. Ridenour saved him from falling. His cheeks went gray beneath a puce webwork. "What?" he strangled. "No. You are insane. Insane, I tell you. You cannot. Impossible."

"Can and will, Mayor. We hold your arsenal, your missile emplacement — nuclear weapons, which some of us know how to touch off. At most, we have only a few hours till a large force arrives from another town or an Imperial garrison. Maybe less time than that, if word got out. We want to be gone before then; and so must your folk; and so must the city."

Uriason collapsed in a lounger and gasped for air. Ridenour seemed equally appalled, but controlled it better. "For your own sakes, don't." the Terran said in a voice that wavered. "I know a good bit of human history. I know what sort of revenge is provoked by wanton destruction."

"Not wanton," Karlsarm answered. "I'm quite sorry to lose the cathedral. A work of art. And museums, libraries, laboratories — But we haven't time for selective demolition." He drove sympathy out of his body and said like one of the machines he hated: "Nor do we have the foolishness to let this place continue as a base for military operations against us and civilian operations against our land. Whatever happens, it goes up before daybreak. Do you or do you not want the people spared? If you do, get busy and talk to them!"

Evacuation took longer than he had expected. Obedience was swift enough after Uriason's announcement. Citizens moved like cattle, streamed down the streets and out onto the airport expanse, where they milled and muttered, wept and whimpered, under the bleak light of waning, setting Selene. (With less luminance to oppose, more stars had appeared, the stars of Empire; but one looked and understood how the gulf gaped between here and them, and shuddered in the pre-dawn wind.) Nevertheless, people got in each other's way, didn't grasp the commands of their herders, shuffled, fainted, stalled the procession while they tried to find their kin. Besides, Karlsarm had forgotten there would be a hospital, with some patients who must be carried out and provided for in an outlying latifundium.

But, one by one, the aircraft

filled with humans, and ran fifty kilometers upwind, and deposited their cargoes, and returned for more: until at last, when the first eastern paleness began to strengthen, Domkirk stood empty of everything save the wind.

Now the Upwoods army boarded and was flown west. Most of their pilots were city men, knives near to throats. Karlsarm and his few technicians saw the last shuttling vehicle off. It would return for them after they were through. (He was not unaware of the incongruity: skin-clad woodsrunners with dirks at their belts, proposing to sunder the atom!) Meanwhile it held Evagail, Wolf and Noach — his cadre — together with Uriason and Ridenour, who were helping control the crowds.

The mayor seemed to have crumpled after the pressure was off him. "You can't do this," he kept mumbling. "You can't do this." He was led up the gangway into the belly of the flyer.

Ridenour paused, a shadow in the door, and looked down. Was his glance quizzical? "I must admit to puzzlement about your method," he said. "How will you explode the town without exploding yourselves? I gather your followers have only the sketchiest notion of gadgetry. It isn't simple to jury-rig a timing device."

"No," Karlsarm said, "but it's simple to launch a missile at any angle you choose." He waved to unseen Evagail. "We'll join you shortly."

The bus took off and dwindled among the last stars. Karlsarm directed his crew in making preparations, then returned outside to watch the first part of the spectacle. Beyond the squat turret at his back, the airfield stretched barren gray to the ruined barracks. How hideous were the works of the Machine People!

But when the missiles departed, that was a heart-stopping sight.

They were solid-fuel rockets. There had been no reason to give expensive gravitic jobs to a minor colonial town so far from the battlefront that the Arulians couldn't possibly attack it in force. The weapons lifted out of their three launchers some distance away . . . with slow majesty, spouting sun-fire and white clouds, roaring their thunder-song that clutched at the throat until Karlsarm gripped his crossbow and glared in defiance of the terror they roused . . . faster, though, streaking off at a steep slant, rising and rising until the flames flickered out . . . still rising, beyond his eyes, but drawing to a halt, caught now by the upper winds that twisted their

noses downward, by the very rotation of the planet that aimed them at the place they should have defended —

And heavenward flew the second trio. And the third. Karlsarm judged he had better get into shelter.

He was at the bottom of the bunker with his men — tons of steel, concrete, force-screen generator shutting away the sky — when the rockets fell; and even so, he felt the room tremble around him.

Afterward, emerging, he saw a kilometers-high tree of dust and vapor. The command aircraft landed, hastily took on his group and fled the radioactivity. From the air he saw no church, no Domkirk, nothing but a wide, black, vitrified crater ringed in with burning fields.

He shook, as the bombproof had shaken, and said to no one and everyone: "This is what they would do to us!"

VI

Running from the morning, they returned to a dusk before dawn. The other raiders were already there. This was in the eastern edge of wilderness, where hills lifted sharply toward the Windhook Mountains.

Ridenour walked some distance off. He didn't actually wish to be alone; if anything, he wanted a companion for a shield between him and the knowledge that two hundred light-years reached from here to Lissa and the children, their home and Terra. But he must escape Uriason or commit violence. The man had babbled, gobbled, orated and gibbered through their entire time in the air. You couldn't blame him, maybe. His birthplace as well as his job had gone up in lethal smoke. But Ridenour's job was to gather information; and that big auburn-haired Evagail woman, whom he'd met not unamicably while she was still captive, had appeared willing to talk if she ever got a chance.

No one stopped Ridenour. Where could he flee? He climbed onto a crest and looked around.

The valley floor beneath him held only a few trees and they small, probably the result of a forest fire, though nature — incredibly vigorous when civilization has not sucked her dry — had covered all scars with a thick blanket of silvery-green trilobed "grass" and sapphire blossoms. No doubt this was why the area had been set for a rendezvous. Aircraft landed easily. Hundreds of assorted tools must have been stacked here beforehand or stolen from the city, for men were attacking the vehicles like ants. Clang, clatter, hails, cheerful

oaths profaned the night's deathhush.

Otherwise there was great beauty in the scene. Eastward, the first color stole across a leafroof that ran oceanic to the edge of sight, moving and murmuring in the breeze. Westward, the last few stars glistened in a plum-dark sky, above the purity of Windhook's snowpeaks. Everywhere dew sparkled.

Ridenour took out pipe and tobacco and lit up. It made him hic-cough a bit, on an empty stomach, but comforted him in his chilled weariness. And in his dismay. He had not imagined the outbackers were such threats.

Neither had anyone else, apparently. He recalled remarks made about them in Nordyke and (only yesterday?) Domkirk. "Impoverished wretches . . . . Well, yes, I'm told they eat well with little effort. But otherwise, just think, no fixed abodes, no books, no schools, no connection with the human mainstream, hardly any metal, hardly any energy source other than brute muscle. Wouldn't you call that an impoverished existence? Culturally as well as materially?"

"Surly, treacherous, arrogant. I tell you, I've dealt with them. In trading posts on the wilderness fringe. They do bring in furs, wild fruits, that sort of thing, to swap, mostly for steel tools — but only when they feel like taking the trouble, which isn't often, and then they treat you like dirt."

But a much younger man had had another story. "Sure, if one of us looks down on the woodsrunners, they'll look down right back at him. But I was interested and acted friendly, and they invited me to overnight in their camp . . . . Their songs are plain caterwauling, but I've never seen better dancing, not even on Imperial Ballet Corps tapes, and afterward, the girls — ! I think I might get me some trade goods and return some day.

"Swinish. Lazy. Dangerous also, I agree. Look what they've done every time someone tried to start a real outpost of civilization in the mid-wilderness. We'll have to clean them out before we can expand. Once this damned Arulian war is over — No, don't get me wrong, I'm not vindictive. Let's treat them like any other criminal: rehabilitation, re-integration into society. I'll go further; I'll admit this is a case of cultural conflict rather than ordinary lawbreaking. So why not let the irreconcilables live out their lives peacefully on a reservation somewhere? As long as their children get raised civilized — "

"If you ask me, I think heredity comes into the picture. It wasn't easy to establish the Cities, maintain and enlarge them, the first few centuries on an isolated, metal-poor world like this. Those who couldn't stand the gaff opted out. Once the disease and nutrition problems were licked, you could certainly live with less work in the forests — if you didn't mind turning into a savage and didn't feel any obligation toward the civilization that had made your survival possible. Later, through our whole history, the same thing continued. The lazy, the criminal, the mutinous, the eccentric, the lecherous, the irresponsible, sneaking off . . . to this very day. No wonder the outbackers haven't accomplished anything. They never will, either. I'm not hopeful about rehabilitating them, myself, not even any of their brats that we institutionalize at birth. Scrub stock!"

"Well, yes, I did live with them a while. Ran away when I was sixteen. Mainly, I think now, my reason was — you know, girls — and that part was fine, if you don't wonder about finding some girl you can respect when you're ready to get married. And I thought it'd be romantic. Primitive hunter, that sort of thing. Oh, they were kind enough. But they set me to learning endless nonsense — stuff too silly and complicated to retain in my head — rituals, superstitions — and they don't really hunt much, they have some funny kind of herding — and no stereo, no cars, no air-conditioning — hiking for days on end, and have you ever been *out* in a Freehold rainstorm? — and homesickness, after a while; they don't talk or behave or think like us. So I came back. And mighty draggle-tailed, I don't mind admitting. No, they didn't forbid me. One man guided me to the nearest cultivated land."

"Definitely an Arulian influence, Professor Ridenour. I've observed the outbackers at trading posts, visited some of their camps, made multisensory tapes. Unscientific, no doubt. I'm strictly an amateur as an ethnologist. But I felt somebody must try. They are no more numerous, more complicated, more important than Nine Cities generally realize. Here, I'll play some of my recordings for you. Pay special attention to the music and some of the artwork. Furthermore, what little I could find out about their system of reckoning kinship looks as if it's adopted key Arulian notions. And remember, too, the savages — not only on this continent, but on both others, where they seemed to have developed sim-

ilarly. Everywhere on Freehold, the savages have grown more and more hostile in these past years. Not to our Arulian enemies, but to us! When the Arulians were marshalling in various wilderness regions, did they have savage help? I find it hard to believe they did not."

Ridenour drank smoke and shivered.

He grew peripherally aware of an approach and turned. Evagail joined him on panther feet. She hadn't yet bothered to dress, but the wetness and chill didn't seem to inconvenience her. Ridenour scolded himself for being aware of how good she looked. Grow up, he thought; you're a man with a task at hand.

"Figured I'd join you." Her husky voice used the Upwoods dialect, which was said to be more archaic than that of the Cities. The pronounciation was indeed different, slower and softer. But Ridenour had not observed that vocabulary and grammar had suffered much. Maybe not at all. "You look lonesome. Hungry, too, I'll bet. Here." She offered him a large gold-colored sphere.

"What's that?" he asked.

"Steak apple, we call it. Grows everywhere this time of year."

He lay down his pipe and bit. The fruit was delicious, sweet, slightly smoky, but with an underlying taste of solid protein. Ravenous, he bit again. "Thank you," he said around a mouthful. "This should be a meal by itself."

"Well, not quite. It'll do for breakfast, though."

"I, uh, understand the forests bear ample food the year around."

"Yes, if you know what to find and how. Was necessary to introduce plants and animals from offworld, mutated forms that could survive on Freehold, before humans could live here without any synthetics. Especially urgent to get organisms that concentrate what iron the soil has, and other essential trace minerals. Several vitamins were required as well."

Ridenour stopped chewing because his jaw had fallen. Savages weren't supposed to talk like that! Hastily, hoping to keep her in the right mood, he recovered his composure and said: "I believe the first few generations established such species to make it easier to move into the wilderness and exploit its resources. Why didn't they succeed?"

"Lots of reasons," Evagail said. "Including, I think, a pretty deep-rooted fear of ever being alone." She scowled. Her tone grew harsh. "But there was a

practical reason, too. The new organisms upset the ecology. Had no natural enemies here, you see. They destroyed enormous areas of forest. That's how the desert south of Startop originated, did you know? *Our* first generations had a fiend's time restoring balance and fertility."

Again Ridenour gaped, not sure he had heard right.

"Of course, the sun helped," she went on more calmly.

"Beg pardon?"

"The sun." She pointed east. The early light was now like molten steel, and spears of radiance struck upward. Her hair was made copper, her body bronze. "F-type star. Actinic and ionizing radiation gets through in quantity, even with this dense an atmosphere. Biochemistry is founded on highly energetic compounds. Freehold life is more vigorous than Terran, evolves faster, finds more new ways to be what it wants." Her voice rang. "You learn how to become worthy of the forest, or you don't last long."

Ridenour looked away from her. She aroused too much within him.

The work of demolishing the aircraft went apace, despite the often primitive equipment used. He could understand why their metal was often desired. The outbackers were known to have mines of their own, but few and poor; they employed metal only where it was quite unfeasible to substitute stone, wood, glass, leather, bone, shell, fiber, glue . . . . But the vehicles were being stripped with unexpected care. Foremen who obviously knew what they were doing supervised the removal, intact, of articles like transceivers and power cells.

Evagail seemed to follow his thought. "Oh, yes, we'll use those gadgets while they last," she said. "They aren't vital, but they're handy. For certain purposes."

Ridenour finished his apple, picked up his pipe and rekindled it. She wrinkled her nose. Tobacco was not a vice of the woodsfolk, though they were rumored to have many others, including some that would astonish a jaded Terran. "I never anticipated that much knowledgeability." he said. "Including, if I may make bold, your own."

"We're not all provincials," she answered, with a quirk of lips. "Quite a few, like Karlsarm, for instance, have studied offplanet. They'd be chosen, you see, as having the talent for it. Afterward they'd come back and teach others."

"But — how — "

She studied him for a moment,

with disconcertingly steady hazel eyes, before saying: "No harm in telling you, I suppose. I believe you're an honest man, John Ridenour — intellectually honest — and we do need some communicators between us and the Empire.

"Our people took passage on Arulian ships. This was before the rebellion, of course. It began generations ago. The humans of the Nine Cities paid no attention. They'd always held rather aloof from the Arulians: partly from snobbishness, I suppose, and partly from lack of imagination. But the Arulians traded directly with us, too. That wasn't any secret. Nor was it a secret that we saw more of them more intimately, learned more from them, than the City men did. It was only that the City men weren't interested in details of that relationship. They didn't ask what their 'inferiors' were up to. Why should we or the Arulians volunteer lectures about it?"

"And what were you up to?" Ridenour asked softly.

"Nothing, at first, except that we wanted some of our people to have a look at galactic civilization — real civilization, not those smug, ingrown Nine — and the Arulians were willing to sell us berths on their regular cargo ships. In the nature of the case, our visits were mainly to planets outside the Empire, which is why Terra never heard what was going on. At last, though, some, like Karlsarm, did make their way to Imperial worlds, looked around, enrolled in schools and universities . . . By that time, however, relations on Freehold were becoming strained. There was no predicting what might happen. We thought it best to provide our students with cover identities. That wasn't hard. No one inquired closely. No one can remember all the folkways of all the colonies? This is such a big galaxy."

"It is that," Ridenour whispered. The sun climbed aloft, too brilliant for him to look anywhere near.

"What are you going to do now?" he asked.

"Fade into the woods before enemy flyers track us down. Cache our plunder and start for home."

"But what about your prisoners? The men who were forced to pilot and — "

"Why, they can stay here. We'll show them what they can eat and where a spring is. And we'll leave plenty of debris. A searcher's bound to spot them before long. Of course, I hope some will join us. We don't have as many men with civilized training as we could use."

"Join you?" Ridenour choked. "After what you have done?"

Again she regarded him closely and gravely. "What did we do that was unforgiveable? Killed some men, yes — but in honest battle, in the course of war. Then we risked everything to spare the lives of everybody else."

"But what about their livelihoods? Their homes? Their possessions, their — "

"What about ours?" Evagail shrugged. "Never mind. I suspect we will get three or four recruits. Young men who've felt vaguely restless and unfulfilled. I had hopes about you. But maybe I'd better go talk with someone more promising."

She turned, not brusquely or hostilely, and rippled back downhill. Ridenour stared after her.

VII

He stood long alone, thinking, while the sun lifted and the sky filled with birds and the work neared an end below him. It was becoming more and more clear that the outbackers — the Free People, as they seemed to call themselves — were not savages.

Neither Miserable Degraded Savages nor Noble Happy Savages. All their generations, shaped by these boundless shadowy whispering woodlands and by what they learned from beings whose species and mode of life were not human: that alchemy had transmuted them into something so strange that their very compatriots in the Nine Cities had failed to identify it.

But what was it?

Not a civilization, Ridenour felt sure. You could not have a true civilization without . . . libraries, scientific and artistic apparatus, tradition-drenched buildings, reliable transportation and communication . . . the cumbersome necessary impedimenta of high culture. But you could have a barbarism that was subtle, powerful and deathly dangerous. He hearked back to ages of history, forgotten save by a few scholars. Hyksos in Egypt, Dorians in Achaea, Lombards in Italy, Vikings in England, Crusaders in Syria, Mongols in China, Aztecs in Mexico. Barbarians, to whom the malcontents of civilization often deserted — who gained such skills that incomparably more sophisticated societies fell before them.

Granted, in the long run the barbarian was either absorbed by his conquests or was himself overcome. Toward the end of the pre-space travel era, civilization had been the aggressor, crushing and devouring the last pathetic remnants of barbarism. It was hard to see how Karls-

arm's folk could hold out against atomic weapons and earthmoving machinery, let alone prevail over them.

And yet the outbackers had destroyed Domkirk.

And they had no immediate fear of punitive expeditions from Cities or Empire. Why should they? The wilderness was theirs, roadless, townless, mapped only from above and desultorily at that — three-fourths of Freehold's land surface! How could an avenger *find* them?

Well, the entire wilderness could be destroyed. High-altitude multimegaton bursts can set a whole continent ablaze. Or, less messily, disease organisms can be synthesized that attack vegetation and soon create a desert.

But no. Such measures would ruin the Nine Cities too. Though they might be protected from direct effects, the planetary climate would be changed, agriculture become impossible, the economy crumble and the people perforce abandon their world. And the Cities were the sole thing that made Freehold valuable, to Terra or Merseia. They formed a center of population and industry on a disputed frontier. Without them, this was simply one more undeveloped globe: because of its metal poverty, not worth anyone's trouble.

Doubtless Karlsarm and his fellow chiefs understood this. The barbarians could only be obliterated gradually, by the piecemeal conquest, clearing and cultivation of their forests. Doubtless they understood that, too, and were determined to forestall the process. Today there remained just eight Cities, of which two were in the hands of their Arulian friends (?) and two others crippled by the chances of war. Whatever the barbarians planned next, and whether they succeeded or not, they might well bring catastrophe on civilized Freeholder man.

Ridenour's mouth tightened. He started down the hill.

Halfway, he met Uriason coming up. He had heard the mayor some distance off, raving over his shoulder while several listening outbackers grinned:

" — treason! I say the three of you are traitors! Oh, yes, you talk about 'attempted rapprochment' and 'working for a detente.' The fact remains you are going over to the monsters who destroyed your own home! And why! Because you aren't fit to be human. Because you would rather loaf in the sun, and play with unwashed sluts, and pretend that a few superstitious ceremonies are 'autochthonous' than take the trouble to cope with this

universe. It won't last, gentlemen. Believe me, the glamor will soon wear off. You will come skulking back like many other runaways, and expect to be received as indulgently as they were. But I warn you. This is war. You have collaborated with the enemy. If you dare return, I, your mayor, will do my best to see you prosecuted for treason!"

Puffing hard, he stopped Ridenour. "Ah, sir." His voice was abruptly low. "A word, if you please."

The xenologist suppressed a groan and waited.

Uriason looked back. No one was paying attention. "I really am indignant," he said after he had his breath. "Three of them! Saying they had long found their work dull and felt like trying something new. . . . But no matter. My performance was merely in character."

"What?" Ridenour almost dropped his pipe from his jaws.

"Calm, sir, be calm, I beg you." The little eyes were turned up, unblinking, and would not release the Terran's. "I took for granted that you also will accompany the savages from here."

"Why — why — "

"An excellent opportunity to fulfill your mission, really to learn something about them. Eh?"

"But I hadn't — Well, uh, the idea did cross my mind. But I'm no actor. I'd never convince them I was suddenly converted to their cause. They might believe that of a bored young provincial who isn't very bright to begin with. Even in those cases, I'll bet they'll keep a wary eye out for quite some time. But me, a Terran, a scientist, a middle-aged paterfamilias? The outbackers aren't stupid, Mayor."

"I know, I know," Uriason said impatiently. "Nevertheless, if you offer to go with them — telling them quite frankly that your aim is to collect information — they will take you. I am sure of it. I kept my ears open down yonder, sir, as well as my mouth. The savages are anxious to develop a liaison with the Empire. They will let you return whenever you say. Why should they fear you? By the time you, on foot, reach any of the cities, whatever military intelligence you can offer will be obsolete. *Or so they think.*"

Ridenour gulped. The round red face was no longer comical. It pleaded. After a while, it commanded.

"Listen, Professor," Uriason said. "I played the buffoon in order to be discounted and ignored. Your own best role is probably that of the impractical academician. But you may thus

gain a chance for an immortal name. If you have the manhood!

"Listen, I say. I listened, to them. And I weighed in my mind what I overheard. The annihilation of Domkirk was part of some larger scheme. It was advanced ahead of schedule in order to rescue those prisoners we held. What comes next, I do not know. I am only certain that the plan is bold, large-scale and diabolical. It seems reasonable, therefore, that forces must be massed somewhere. Does it not? Likewise, it seems reasonable that these murderers will join that force. Does it not? Perhaps I am wrong. If so, you have lost nothing. You can simply continue to be the absent-minded scientist, until you decide to go home. And that will be of service per se. You will bring useful data.

"However, if I am right, you will accompany this gang to some key point. And when you arrive . . . . Sir, warcraft of the Imperial Navy are in blockading orbit. When I reach Nordyke, I shall speak to Admiral Cruz. I shall urge that he adopt my plan — the plan that came to me when I saw — here." Uriason reached under his cloak. Snake swift, he thrust a small object into Ridenour's hand. "Hide that. If anyone notices and asks you about it, dissemble. Call it a souvenir or something."

"But . . . but what — " Like an automaton, Ridenour pocketed the hemicylinder. He felt a pair of supercontacts on either end and a grille on the flat side and assumed that complex microcircuitry was packed into the plastic case.

"A communication converter. Have you heard of them?"

"I — yes. I've heard."

"Good. I doubt that any of the savages have, although they are surprisingly well informed in certain respects. The device is not new or secret, but with galactic information flow as inadequate as it is, especially here on what was a sleepy backwater. . . . Let me refresh your memory, sir. Substitute this device for the primary modulator in any energy weapon of the third or fourth class. The weapon will thereupon become a maser communicator, projecting the human voice to a considerable distance. I shall ask Admiral Cruz to order at least one of his orbital ships brought low and illuminated for the next several weeks, so that you may have a target to aim at. If you find yourself in an important concentration of the enemy's — where surely stolen energy weapons will be kept — and if you get an opportunity to call down a warcraft . . . . Do you follow me?"

"But," Ridenour stammered. But. How?"

"As mayor, I knew that such devices were included in the last consignment of defensive materials that the Navy sent to Domkirk. I knew that one was carried on every military aircraft of ours. And several military aircraft were among those stolen last night. I watched my chance, I made myself ridiculous, and — " Uriason threw out his chest, thereby also throwing out his belly — "at the appropriate moment, I palmed this one from beneath the noses of the wrecking crew."

Ridenour wet his lips. They felt sandpapery. "I could've guessed that much," he got out. "But me — I — how — "

"It would not be in character for me to accompany the savages into their wilderness," Uriason said.

"They would be entirely too suspicious. Can I, can Freehold, can His Majesty and the entire human species rely upon you, sir?"

The man was short and fat. His words rose like hot-air balloons. Nevertheless, had he dared under possible observation, Ridenour would have bowed most deeply. As matters were, the Terran could just say, "Yes, Citizen Mayor, I'll try to do my best."

VIII

These were the stages of their journey:

Karlsarm walked beside Ridenour, amicably answering questions. But wariness crouched behind. He wasn't altogether convinced that this man's reasons for coming along were purely scientific and diplomatic. At least, he'd better not be, yet. Sometimes he thought that humans from the inner Empire were harder to fathom than most nonhumans. Being of the same species, talking much the same language, they ought to react in the same ways as your own people. And they didn't. The very facial expressions, a frown, a smile, were subtly foreign.

Ridenour, for immediate example, was courteous, helpful, even genial: but entirely on the surface. He showed nothing of his real self. No doubt he loved his family and was loyal to his Emperor and enjoyed his work and was interested in many other aspects of reality. He spoke of such things. But the emotion didn't come through. He made no effort to share his feelings, rather he kept them to himself with an ease too great to be conscious.

Karlsarm had encountered the type before, offplanet. He speculated that reserve was more than

an aristocrat's idea of good manners; it was a defense. Jammed together with billions of others, wired from before birth into a network of communication, coordination, impersonal omnipotent social machinery, the human being could only protect his individuality by making his inner self a fortress. Here, in the outback of Freehold, you had room; neither people nor organizations pressed close upon you; if anything, you grew eager for intimacy. Garlsarm felt sorry for Terrans. But that did not help him understand or trust them.

"You surprise me pleasantly," he remarked. "I didn't expect you'd keep up with us the way you do."

"Well, I try to stay in condition," Ridenour said. "And remember, I'm used to somewhat higher gravity. But to be honest, I expected a far more difficult trip — narrow muddy trails and the like. You have a road here."

"Hm, I don't think a lot of it. We do better elsewhere. But then, this is a distant marchland for us."

Both men glanced around. The path crossed a high hillside, smoothly graded and switchbacked, surface planted in a mossy growth so tough and dense that no weeds could force themselves in. (It was a specially bred variety which, among other traits, required traces of manganese salt. Maintenance gangs supplied this from time to time, and thus automatically kept the moss within proper bounds.) The path was narrow, overarched by forest, a sun-speckled cool corridor where birds whistled and a nearby cataract rang. Because of its twistings, few other people were visible, though the party totalled hundreds.

Most of them were on different courses anyhow. Karlsarm had explained that the Free People laid out as many small, interconnected, more or less parallel ways as the traffic in a given area demanded, rather than a single broad highroad. It was easier to do, less damaging to ecology and scenery, more flexible to changing situations. Also, it was generally undetectable from above. He had not seen fit to mention the other mutant plant types, sown throughout this country, whose exudates masked those of human metabolism and thereby protected his men from airborne chemical sniffers.

"I've heard you use beasts of burden in a limited fashion," Ridenour said.

"Yes, horses and stathas have been naturalized here," Karlsarm said. "And actually, in our central regions, we keep many. City folk see just few, because we don't

often bring them to our thinly populated borderlands. No reason for it. You can go about as fast on foot, when you aren't overloaded with gear. But at home you'll see animals, wagons — boats and rafts, for that matter — in respectable totals."

"Your population must be larger than is guessed, then."

"I don't know what the current guess is in the Cities. And we don't bother with, uh, a census. But I'd estimate twenty million of us on this continent, and about the same for the others. Been stable for a long time. That's the proper human density. We don't crowd each other or press hard on natural resources. And so we've got abundant free food and stuff. No special effort involved in satisfying the basic needs. At the same time, there *are* enough of us for specialization, diversity, large-scale projects like road building. And, I might add, gifted people. You know, only about ten per cent of mankind are born to be leaders or creators in any degree. We'd stagnate if we were too few, same as we'd grow cramped and over-regulated if we became too many."

"How do you maintain a level population? You don't appear to have any strong compulsion mechanism."

"No, we haven't. Tradition, public opinion, the need to help your neighbor so he'll help you, the fact that out-and-out bastards get into quarrels and eventually get killed — such factors will do, when you have elbow room. The population-control device is simple. It wasn't planned, it evolved, but it works. Territory."

"Beg pardon?"

"A man claims a certain territory for his own, to support him and his family and retainers. He passes it on to one son. How he chooses the heir is his business. Anybody who kills the owner, or drives him off, takes over that parcel of land."

Ridenour actually registered a little shock, though he managed a smile. "Your society is less idyllic than some young City people told me," he said.

Karlsarm laughed. "We do all right — most of us. Can any civilization claim more? The landless don't starve, remember. They're taken on as servants, assistants, guards and the like. Or they become itinerant laborers, or entrepreneurs, or something. Let me remind you, we don't practice marriage. Nobody needs to go celibate, It's only that few women care to have children by a landless man." He paused. "Territorial battles aren't common any more, either. The landholders have learned how to organize defenses. Besides, a decent

man can count on help from his neighbors. So not many vagabonds try to reave an estate. Those that do, and succeed — well, haven't they proven they're especially fit to become fathers?"

The paths ranged above timberline. The land became boulder-strewn, chill and stark. Ridenour exclaimed, "But this road's been blasted from the cliffside!"

"Why, of course," said Rowlan. "You didn't think we'd chip it out by hand, did you?"

"But what do you use for such jobs?"

"Organics. Like nitrogylcerine. We compound that — doesn't take much apparatus, you know — and make dynamite from it. Some other explosives, and most fuels, we get from vegetables we've bred." Rowlan tugged his gray beard and regarded the Terran. "If you want to make a side trip," he offered, "I'll show you a hydroelectric plant. You'll call it ridiculously small, but it beams power to several mills and an instrument factory. We are not ignorant, John Ridenour. We adopt from your civilization what we can use. It simply doesn't happen to be a particularly large amount."

Even in this comparatively infertile country, food was plentiful. There were no more fruits for the plucking, but roots and berries were almost as easily gotten in the low bush, and animals — albeit of different species from the lowlands — continued to arrive near camp for slaughter. Ridenour asked scholarly little Noach how that was done, he being a beast operator himself. "Are they domesticated and conditioned?"

"No, I wouldn't call them that, exactly," Noach replied. "Not like horses or dogs. We use the proper stimuli on them. Those vary, depending on what you're after and where you are. For instance, in Brenning Dales you can unstopper a bottle of sex attractant, and every gruntleboar within ten kilometers rushes straight toward your bow. Around the Mare we've bred instincts into certain species to come when a sequence of notes is played on a trumpet. If nothing else, you can always stalk for yourself, any place. Hunting isn't difficult when critters are abundant. We don't want to take the time on this journey, though, so Mistress Jenith has been driving those cragbuck with her fire bees." He shrugged. "There are plenty of other ways. What you don't seem to realize, as yet, is that we're descended from people who applied scientific method to the problem of living in a wilderness."

For once, the night was clear above Foulweather Pass. Snow glistened on surrounding peaks, under Selene, until darkness lay drenched with an unreal brilliance. Not many stars shone through. But Karlsarm scowled at one, which was new and moved visibly, widdershins over his head.

"They've put up another satellite," The words puffed ghost white from his lips; sound was quickly lost, as if it froze and tinkled down onto the hoarfrosted road. "Or moved a big spaceship into near orbit without camouflage. Why?"

"The war?" Evagail shivered beside him and wrapped her fur cloak tighter about her. (It was not her property. Warm outfits were kept for travelers in a shed at the foot of the pass, to be returned on the other side, with a small rental paid to the servant of the landholder.) "What's been happening?"

"The news is obscure, what I get of it on that miniradio we took along," Karlsarm said. "A major fight's developing near Sluicegate. Nuclear weapons, the whole filthy works. By Oneness, if this goes on much longer we won't be left with a planet worth inhabiting!"

"Now don't exaggerate." She touched his hand. "I grant you, territory's that's fought on, or suffers fallout, is laid waste. But not forever; and it isn't any big percentage of the total."

"You wouldn't say that if you were the owner. And what about the ecological consequences? The genetic? Let's not get overconfident about these plant and animal species we've modified to serve our needs while growing wild. They're still new and unstable. A spreading mutation could wipe them out. Or we might have to turn farmers to save them!"

"I know. I know. I do want you to see matters in perspective. But agreed, the sooner the war ends, the better." Evagail turned her gaze from that sinister, crawling spark in the sky. She looked down the slope on which they stood, to the camp. Oilwood fires were strewn along the way, each economically serving a few people. They twinkled like red and orange constellations. A burst of laughter, a drift of song came distantly to her ears.

Karlsarm could practically read her thought. "Very well, what about Ridenour?" he challenged.

"I can't say. I talk with him, but he's so locked into himself, I get no hint of what his real purpose may be. I could almost wish my Skill were of the love kind."

"Why yours?" Karlsarm de-

manded. "Why don't you simply wish, like me, that we had such a Mistress with us?"

Evagail paused before she chuckled. "Shall I admit the truth? He attracts me. He's thoroughly a man, in his quiet way; and he's exotic and mysterious to boot. Must you really sic an aphrodite onto him when we reach Moon Garnet?"

"I'll decide that at the time. Meanwhile, you can help me decide and maybe catch forewarning of any plot against us. He can't hide that he's drawn to you. Use the fact."

"I don't like to. Men and women — of course, I mean women who don't have that special Skill — they should give to each other, not take. I don't even know if I could deceive him."

"You can try. If he realizes and gets angry, what of it?" Beneath the shadowing carnivore headpiece, Karlsarm's features turned glacier stern. "You have your duty."

"Well . . . ." Briefly, her voice was forlorn. "I suppose." Then the wide smooth shoulders straightened. Moonfrost sparkled on a mane lifted high. "It could be fun, too, couldn't it?" She turned and walked from him.

Ridenour sat at one campfire, watching a dance. The steps were as intricate as the music that an improvished orchestra made. He seemed not only glad but relieved when Evagail seated herself beside him.

"Hullo," she greeted. "Are you enjoying the spectacle?"

"Yes," he said, "but largely in my professional capacity. I'm sure its high art, but the conventions are too alien for me."

"Isn't your business to unravel alien symbolisms?"

"In part. Trouble is, what you have here is not merely different from anything I've ever seen before. It's extraordinarily subtle — obviously the product of a long and rigorous tradition. I've discovered, for instance, that your musical scale employs smaller intervals than any other human music I know of. Thus you make and use and appreciate distinctions and combinations that I'm not trained to hear."

"I think you'll find that's typical," Evagail said. "We aren't innocent children of nature, we Free People. I suspect we elaborate our lives more, we're fonder of complication, ingenuity, ceremoniousness, than Terra herself."

"Yes, I've talked to would-be runaways from the Cities."

She laughed. "Well, the custom is that we give recruits a tough apprenticeship. If they can't get through that, we don't

want them. Probably they wouldn't survive long. Not that life's harder among us than in the Cities. In fact, we have more leisure. But life is altogether different here."

"I've scarcely begun to grasp how different," Ridenour said. "The questions are so many, I don't know where to start." A dancer leaped, his feather bonnet streaming in Selene light, flame light, and shadow. A flute twittered, a drum thuttered, a harp trilled, a bell rang, chords intertwining like ripple patterns on water. "What arts do you have besides . . . this?"

"Not architecture, or monumental sculpture, or murals, or multi-sense taping." Evagail smiled. "Nothing that requires awkward masses. But we do have schools of — oh, scrimshaw, jewelry, weaving, painting and carvings, that sort of thing — and they are genuine, serious arts. Then drama, literature, cuisine . . . and things you don't have a name for, like — well, I have to call them contemplation, conversation, integration — but those are poor words."

"What I can't understand is how you can manage without those awkward masses," Ridenour said. "For example, everyone seems to be literate. But what's the use? What is there to read?"

"Why, we probably have more books and periodicals than you do. No electronics competing with them. One of the first things our ancestors did, when they started colonizing the outback in earnest, was develop plants with leaves that dry into paper and juice that makes ink. Many landholders keep a little printing press in the same shed as their other heavy equipment. It doesn't need much metal, and wind or water can power it. Don't forget, each area maintains schools. The demand for reading matter is a source of income — yes, we use iron and copper slugs for currency — and the transporteers carry mail as well as goods."

"How about records, though? Libraries? Computers? Information exchange?"

"I've never met anybody who collects books, the way some do in the Cities. If you want to look at a piece again, copies are cheap." (Ridenour thought that this ruled out something he had always considered essential to a cultivated man — the ability to browse, to re-read on impulse, to be serendipitous among the shelves. However, no doubt these outbackers thought he was uncouth because he didn't know how to dance or to arrange a meteor-watching festival.) "Messages go speedily enough for our purposes. We don't keep records

like you. Our mode of life doesn't require it. Likewise, we have quite a live technology, still developing. Yes, and a pure science. But they concentrate on areas of work that need no elaborate apparatus: the study of animals, for instance, and ways to control them."

Evagail leaned closer to Ridenour. No one else paid attention; they were watching the performance. "But do me a favor tonight, will you?" she asked.

"What? Why, certainly," His gaze drifted across the ruddy lights in her hair, the shadows under her cloak, and hastily away. "If I can."

"It's easy." She laid a hand over his. "Just for tonight, stop being a research machine. Make small talk. Tell me a joke or two. Sing me a Terran song, when they finish here. Or walk with me to look at the moon. Be human, John Ridenour . . . only a man . . . this little while."

IX

West of the pass, the land became a rolling plateau. Again it was forested, but less thickly and with other trees than in the warm eastern valleys. The travelers met folk more often, as population grew denser; and these were apt to be mounted. Karlsarm didn't bother with animals. A human in good condition can log fifty kilometers a day across favorable terrain, without difficulty. Ridenour remarked, highly centralized empires were held together on ancient Terra with communication no faster than this.

Besides, the outbackers possessed them: not merely an occasional aircar for emergency use, but a functioning web. He broke into uncontrollable laughter when Evagail first explained the system to him.

"What's so funny?" She cocked her head. Though they were much together, to the exclusion of others, they still lacked mutual predictability. He might now be wearing outbacker garb and be darkened by Freehold's harsh sunlight and have let his beard grow because he found a diamond-edge razor too much trouble. But he remained a stranger.

"I'm sorry. Old saying." He looked around the glen where they stood. Trees were stately above blossom-starred grasses; leaves murmured in a cool breeze and smelled like spice. He touched a green tendril that curled over one trunk and looped to the next. "Grapevine telegraph!"

"But . . . well, I don't recognize your phrase, John, but that kind of plant does carry signals. Our ancestors went to a vast amount of work to create

the type and sow and train it, over the entire mid-continent. I confess the signals don't go at light speed, only neural speed; and the channel isn't awfully broad — but it suffices for us."

"How do you, uh, activate it?"

"That requires a Skill. To send something, you'd go to the nearest node and pay the woman who lives there. She'd transmit."

Ridenour nodded. "I see. Actually, I've met setups on nonhuman planets that aren't too different from this." He hesitated. "What do you mean by a Skill?"

"A special ability, inborn, cultivated, disciplined. You've watched Skills in action on our route, haven't you?"

"I'm not certain. You see, I'm barely starting to grasp the pattern of your society. Before, everything was a jumble of new impressions. Now I observe meaningful differences between this and that. Take our friend Noach, for one, with his spying quasi-weasels; or Karlsarm and the rest, who use birds for couriers. Do they have Skills?"

"Of course not. I suppose you might say their animals do. That is, the creatures have been bred to semi-intelligence. They have the special abilities and instincts, the *desire,* built into their chromosomes. But as for the men who use them, no, all they have is training in language and handling. Anybody could be taught the same."

Ridenour looked at her, where she stood like a lioness in the filtered green light, stillness and strange odors at her back. "Only women have Skills, then," he said finally.

She nodded. "Yes."

"Why? Were they bred too?"

"No." Astonishingly, she colored. "Whatever we may do with other men, we seldom become pregnant by anyone but a landholder. We want our children to have a claim on him. But somehow, women seem able to do more with hormones and pheromones. A biologist tried to explain why, but I couldn't follow him terribly well. Let's say the female has a more complex biochemistry, more closely involved with her psyche, than a male. Not that any woman can handle any materials. In fact, those who can do something with them are rare. When identified, in girlhood, they're carefully trained to use what substances they can."

"How?"

"It depends. A course of drugs may change the body secretions . . . delicately; you wouldn't perceive any difference; but someone like Mistress Jenith will never be stung by her fire bees. Rather, they'll always live near

her. And she has ways to control them, make them go where she commands and — No, I don't know how. Each skill keeps its secrets. But you must know yourself, a few parts per million in the air will lure insects for kilometers around, to come and mate. Other insects, social ones, use odor signals to coordinate their communities. Man himself lives more by trace chemicals than he realizes. Think how little of some drugs is needed to change his metabolism, even his personality. Think how some smells recall a past scene to you, so vividly you might be there again. Think how it was proven, long ago, that like, dislike, appetite, fear, anger . . . every emotion . . . is conditioned by just such faint cues. Now imagine what can be done, as between a woman who knows precisely how to use those stimuli — some taken from bottles, some created at will by her own glands — between her and an organism bred to respond."

"An Arulian concept?"

"Yes, we learned a lot from the Arulians," Evagail said.

"They call you Mistress, I've heard. What's your Skill?"

She lost gravity. Her grin was impudent. "You may find out one day. Come, let's rejoin the march." She took his hand. "Though we needn't hurry," she added.

As far as could be ascertained, Freehold had never been glaciated. The average climate was milder than Terra's, which was one reason the outbackers didn't need fixed houses. They moved about within their territories, following the game and the fruits of the earth, content with shelters erected here and there, or with bedrolls. By Ridenour's standards, it was an austere life.

Or it had been. He found his canon gradually changing. The million sights, sounds, smells, less definable sensations of the wilderness, made a city apartment seem dead by contrast, no matter how many electronic entertainers you installed.

(Admittedly, the human kinds of fun were limited. A minstrel, a ball game, a chess game, a local legend, a poetry reading, were a little pallid to a man used to living at the heart of Empire. And while the outbackers could apparently do whatever they chose with drugs and hypnotism, so could the Terrans. Lickerish rumor had actually underrated their uninhibited inventiveness in other departments of pleasure. But you had only a finite number of possibilities there too, didn't you? And he wasn't exactly a young man any more, was he? And damn, but he missed Lissa! Also the children,

of course, the tobacco he'd exhausted, friends, tall towers, the gentler daylight of Sol and familiar constellations after dark, the sane joys of scholarship and teaching: everything, everything.)

But life could not be strictly nomadic. Some gear was not portable, or needed protection. Thus, in each territory, at least one true house and several outbuildings had been erected, where the people lived from time to time.

Humans needed protection too. Ridenour found that out when he and Evagail were caught in a storm.

She had led him off the line of march to show him such a center. They had been enroute for an hour or two when she began casting uneasy glances at the sky. Clouds rose in the north, unbelievably high thunderheads with lightning in their blue-black depths. A breeze chilled and stiffened; the forest moaned. "We'd better speed up," she said at length. "Rainstorm headed this way."

"Well?" He no longer minded getting wet.

"I don't mean those showers we've had. I mean the real thing."

Ridenour gulped and matched her trot. He knew what kind of violence a deep, intensely irradiated atmosphere can breed. Karlsarm's folk must be hard at work, racing to chop branches and make rough roofs and walls for themselves. Two alone couldn't do it in time. They'd normally have sought refuge under a windfall or in a hollow trunk or anything else they found. But a house was obviously preferable.

The wind worsened. Being denser than Terra's, air never got to hurricane velocity; but it thrust remorselessly, a quasi-solid, well-nigh unbreathable mass. Torn-off leaves and boughs started to fly overhead, under a galloping black cloud wrack. Darkness thickened, save when lightning split the sky. Thunder, keenings, breakings and crashings resounded through Ridenour's skull.

He had believed himself in good shape, but presently he was staggering. Any man must soon be exhausted, pushing against that horrible wind. Evagail, though, continued, fleet, steady-footed, easy of breath. *How?* he wondered numbly, before he lost all wonder in the cruel combat to keep running.

The first raindrops fell, enormous, driven by the tempest, stinging like gravel when they struck. You could be drowned in a flash flood, if you were not literally flayed by the hail that would soon come. Ridenour reeled toward unconsciousness — no,

he was helped, Evagail upbore him, he leaned on her and —

And they reached the hilltop homestead.

It consisted of low, massive log-and-stone buildings, whose overgrown sod roofs would hardly be visible from above. Everything stood unlighted, empty. But the door to the main house opened at Evagail's touch; no place in the woodlands had a lock. She dragged Ridenour across the threshold and closed the door again. He lay in gloom and gasped his way back to consciousness. As if across light-years, he heard her say, "We didn't arrive any too soon, did we?" There followed the cannonade of the hail.

After a while he was on his feet. She had stimulated the lamps, which were microcultures in glass globes, to their bright phosphorescence and had started a fire on the hearth. The principal heat source, however, was fuel oil, a system antique but adequate. "We might as well figure on spending the night," she said from the kitchen. "This weather will last for hours, and the roads will be rivers for hours after that. Why don't you find yourself a hot bath and some dry clothes? I'll have dinner ready soon."

Ridenour swallowed a sense of inadequacy. He wasn't an outbacker and couldn't be expected to cope with their country. How well would they do on Terra? Exploring, he saw the house to be spacious, many-roomed, beautifully paneled, draped and furnished. Evagail's advice was sound. He returned to her as if reborn.

She had prepared an excellent meal out of what was in the larder, including a heady red wine. White tablecloth, crystal goblets, candlelight were almost a renaissance of a Terra which had been more gracious than today's. (Almost. The utensils were horn, the knifeblades obsidian. The paintings on the walls were of a stylized, unearthly school; looking closely, you could identify Arulian influence. No music lilted from a taper; instead came the muffled brawling of the storm. And the woman who sat across from him wore a natural-fiber kilt, a fringed leather bolero, a dagger and tomahawk.)

They talked in animated and friendly wise, though since they belonged to alien cultures they had little more than question-and-answer conversation. The bottle passed freely back and forth. Being tired and having long abstained, Ridenour was quickly affected by the alcohol. When he noticed that, he thought, what the hell, why not? It glowed with-

in him. "I owe you an apology," he said. "I classed your people as barbarians. I see now you have a true civilization."

"You needed this much time to see that?" she laughed. "Well, I'll forgive you. The Cities haven't realized it yet."

"That's natural. You're altogether strange to them. And, isolated as they are from the galactic mainstream, they . . . haven't the habit of thinking something different . . . can be equal or superior to what they take for granted is the civilized way."

"My, that was a sentence! Do you acknowledge, then, we are superior?"

He shook his head with care. "No. I can't say that. I'm a city boy myself. A lot of what you do shocks me. Your ruthlessness. Your unwillingness to compromise."

She grew grave. "The Cities never tried to compromise with us, John. I don't know if they can. Our wise men, those who've studied history, say an industrial society must keep expanding or go under. We've got to stop them before they grow too strong. The war's given us a chance."

"You can't rebel against the Empire!" he protested.

"Can't we? We're a goodly ways from Terra. And we are rebelling? No one consulted us about incorporation." Evagail shrugged. "Not that we care about that in itself. What difference to us who claims the overlordship of Freehold, if he lets us alone? But the Cities have not let us alone. They cut down our woods, dam our rivers, dig holes in our soil, and get involved in a war that may wreck the whole planet."

"M-m, you could help end the war if you mobolized against the Arulians."

"To whose benefit? The Cities'!"

"But when you attack the Cities, aren't you aiding the Arulians?"

"No. Not in the long run. They belong to the Cities also. We don't want to fight them — our relationship with them was mostly pleasant, and they taught us a great deal — but eventually we want them off this world."

"You can't expect me to agree that's right."

"Certainly not." Her tone softened. "What we want from you is nothing but an honest report to your leaders. You don't know how happy I am that you admit we are civilized. Or post-civilized. At any rate, we aren't degenerate, we are progressing on our own trail. I can hope you'll go between us and the Empire, as

a friend of both, and help work out a settlement. If you do that, you'll live in centuries of ballads: the Peacebringer."

"I'd like that better than anything," he said gladly.

She raised her brows. "Anything?"

"Oh, some things equally, no doubt. I am getting homesick."

"You needn't stay lonely while you're with us," she murmured.

Somehow, their hands joined across the table. The wine sang in Ridenour's veins. "I've wondered why you stood apart from me," she said. "Surely you could see I want to make love with you."

"Y-yes." His heart knocked.

"Why not? You have a . . . a wife, yes. But I can't imagine an Imperial Terran worried about that, two hundred light-years from home. And what harm would be done her?"

"None."

She laughed anew, rose and circled the table to stand beside him and rumple his hair. The odor of her was sweet around him. "All right, then, silly," she said, "what have you been waiting for?"

He remembered. She saw his fists clench and stepped back. He looked at the candle flames, not her, and mumbled: "I'm sorry. It mustn't be."

"Why not?" The wind raved louder, nearly obliterating her words.

"Let's say I do have idiotic medieval scruples."

She regarded him for a space. "Is that the truth?"

"Yes." But not the whole truth, he thought. I am not an observer, not an emissary, I am he who will call down destruction upon you if I can. The thing in my pocket sunders us, dear. You are my enemy, and I will not betray you with a kiss.

"I'm not offended," she said at last, slowly. "Disappointed and puzzled, though."

"We probably don't understand each other as well as we believed," he ventured.

"Might be. Well, let's let the dishes wait and turn in, shall we?" Her tone was less cold than wary.

Next day she was polite but aloof, and after they had rejoined the army she conferred long with Karlsarm.

X

Moon Garnet Lake was the heart of the Upwoods: more than fifty kilometers across, walled on three sides by forest and on the fourth by soaring snowpeaks. At every season it was charged with life, fish in argent swarms, birds rising by thousands when a bulligator bel-

lowed in a white-plumed stand of cockatoo reed, wildkine everywhere among the trees. At full summer, microphytons multiplied until the waters glowed deep red, and the food chain which they started grew past belief in size and diversity. As yet, the year was too new for that. Wavelets sparkled clear to the escarpments, where mountaintops floated dim blue against heaven.

"I see why you reacted violently against the attempt to found a town here," Ridenour said to Karlsarm. They stood on a beach, watching most of the expedition frolic in the lake. Those boisterous shouts and lithe brown bodies did not seem out of place; a cruising flock of fowl overhead was larger and made more clangor. The Terran drew a pure breath. "And it would have been a pity, esthetically speaking. Who owns this region?"

"None," Karlsarm answered. "It's too basic to the whole country. Anyone may use it. The numbers that do aren't great enough to strain the resources, similar things being available all over. So it's a natural site for our periodic head-of-household gatherings." He glanced sideways at the other man and added: "Or for an army to rendezvous."

"You are not disbanding, then?"

"Certainly not. Domkirk was a commencement. We don't intend to stop till we control the planet."

"But you're daydreaming! No other City's as vulnerably located as Domkirk was. Some are on other continents — "

"Where Free People also live. We're in touch."

"What do you plan?"

Karlsarm chuckled. "Do you really expect me to tell you?"

Ridenour made a rueful grin, but his eyes were troubled. "I don't ask for military secrets. In general terms, however, what do you foresee?"

"A war of attrition," Karlsarm said. "We don't like that prospect either. It'll taste especially sour to use biologicals against their damned agriculture. But if we must, we must. We have more land, more resources of the kind that count, more determination. And they can't get at us. We'll outgrind them."

"Are you quite sure? Suppose you provoke them — or the Imperial Navy — into making a real effort. Imagine, say, one atomic bomb dropped into this lake."

Anger laid tight bands around Karlsarm's throat and chest, but he managed to answer levelly: "We have defenses. And means of retaliation. This *is* a keystone area for us. We won't lose it

without exacting a price — which I think they'll find too heavy. Tell them that when you go home!"

"I shall. I don't know if I'll be believed. You appear to have no concept of the power that a single, minor-class spaceship can bring to bear. I beg you to make terms before it's too late."

"Do you aim to convince a thousand leaders like me and the entire society that elected us? I wish you luck, John Ridenour." Karlsarm turned from the pleading gaze. "I'd better get busy. We're still several kilometers short of our campsite."

His brusqueness was caused mainly by doubt of his ability to dissemble much longer. What he, with some experience of Imperialists, sensed in this one's manner, lent strong suport to the intuitive suspicions that Evagail had voiced. Ridenour had more on his mind than the Terran admitted.

It was unwise to try getting the truth out of him with drugs. He might be immunized or counter-conditioned. Or his secret might turn out to be something harmless. In either case, a potentially valuable spokesman would have been antagonized for nothing.

An aphrodite? She'd boil the ice water in his veins, for certain! And, while possessors of that Skill were rare, several were standing by at present in case they should be needed on some intelligence mission.

It might not work, either. But the odds were high that it would. Damned few men cared for anything but the girl — the woman — the hag — whatever her age, whatever her looks — once she had turned her pheromones loose on him. She could ask what she would as the price of her company. But Ridenour might belong to that small percentage who, otherwise normal, were so intensely inner-directed that it didn't matter how far in love they fell; they'd stick by their duty. Should this prove the case he could not be allowed to leave and reveal the existence of that powerful a weapon. He must be killed, which was repugnant, or detained, which was a nuisance.

Karlsarm's brain labored on, while he issued his orders and led the final march. Ridenour probably did not suspect that he was suspected. He likeliest interpreted Evagail's avoidance of him as due to pique, despite what she had claimed. (And in some degree it no doubt is, Karlsarm snickered to himself.) Chances were he attributed the chief's recent gruffness to preoccupation. He had circulated

freely among the other men and women of the force; but not having been told to doubt his good faith, they did not and he must realize it.

Hard to imagine what he might do. He surely did not plan on access to an aircar or a long-range radio transmitter! Doubtless he'd report anything he had seen or heard that might have military significance. But he wouldn't be reporting anything that made any difference. Well before he was conducted to the agrolands, the army would have left Moon Garnet again; and it would not return, because the lake was too precious to use for a permanent base. And all this had been made explicit to Ridenour at the outset.

Well, then, why not give him free rein and see what he did? Karlsarm weighed risks and gains for some time before he nodded to himself.

The encampment was large. A mere fraction of the Upwoods men had gone to Domkirk. Thousands stayed behind, training. They greeted their comrades with envious hilarity. Fires burned high that night, song and dance and clinking goblets alarmed the forest.

At sunset, Karlsarm and Evagail stood atop a rocky bluff, overlooking water and trees and a northward rise to the cliffs. Behind them was a cave, from which projected an Arulian howitzer. Several other heavy-duty weapons were placed about the area, and a rickety old warboat patrolled overhead. Here and there, a man flitted into view, bow or blade on shoulder, and vanished again into the brake. Voices could be heard, muted by leaves, and smoke drifted upward. But the signs of man were few, virtually lost in that enormous landscape. With the enemy hundreds of kilometers off, guns as well as picketposts were untended; trees divided the little groups of men from each other and hid them from shore or sky; the evening was mostly remote bird cries and long golden light.

"I wonder what our Terran thinks of this," Karlsarm said. "We must look pretty sloppy to him."

"He's no fool. He doesn't underrate us much. Maybe not at all." Evagail shivered, though the air was yet warm. Her hand crept into his, her voice grew thin. "Could he be right? Could we really be foredoomed?"

"I don't know," Karlsarm said.

She started. The hazel eyes widened. "Loveling! You always — "

"I can be honest with you," he said. "Ridenour accused me

today of not understanding what power the Imperialists command in a single combat unit. He was wrong. I've seen them and I do understand. We can't force terms on them. If they decide the Cities must prevail, well, we'll give them a hard guerrilla war, but we'll be hunted down in the end. Our aim has to be to convince them it isn't worthwhile — that, at the least, their cheapest course of action is to arrange and enforce a status quo settlement between us and the Cities." He sighed. "Whether or not they'll agree remains to be seen. But we've got to try, don't we?"

"Do we?"

"Either that or stop being the Free People."

She leaned her head on his shoulder. "Let's not spend the night in this hole," she begged. "Not with that big ugly gun looming over us. Let's take our bedrolls into the forest."

"I'm sorry. I must stay here."

"Why?"

"So Noach can find me . . . if his animals report anything."

XI

Karlsarm woke before the fingers had closed on his arm to shake him. He sat up. The cave was a murk, relieved by a faint sheen off the howitzer; but the entrance cut a blue-black starry circle in it. Noach crouched silhouetted. "He lay awake the whole night," the handler breathed. "Now he's sneaked off to one of the blaster cannon. He's fooling around with it."

Karlsarm heard Evegail gasp at his side. He slipped weapon belts and quiver strap over the clothes he had slept in, took his crossbow and glided forth. "We'll see about that," he said. Anger stood bleak within him. "Lead on." Silent though they were, slipping from shadow to shadow, he became aware of the woman at his back.

Selene was down, sunrise not far off, but the world still lay nighted, sky powdered with stars and lake gleaming like a mirror. An uhu wailed, off in the bulk of the forest. The air was cold. Karlsarm glanced aloft. Among the constellations crept that spark which had often haunted his thoughts. The orbit he estimated from angular speed was considerable. Therefore the thing was big. And if the Imperialists had erected some kind of space station, the grapevine would have brought news from the Free People's spies inside the Cities; therefore the thing was a spaceship — huge. Probably the light cruiser *Isis*: largest man-of-war the Terrans admitted keeping in this system. (Quite enough for

their purposes. A heavier craft couldn't land if needed. This one could handle any probable combination of lesser vessels. If Aruli sent something more formidable, the far-flung scoutboats would detect that in time to arrange reinforcements from a Navy base before the enemy arrived. Which was ample reason to expect that Aruli would not "intervene in a civil conflict, though denouncing this injustice visited upon righteously struggling kinfolk.")

Was it coincidence that she took her new station soon after Ridenour joined the raiders? Tonight we find out, Karlsarm vowed.

The blaster cannon stood on a bare ridge, barrel etched gaunt across the Milky Way. His group crouched under the last tree and peered. One of Noach's beasts could go unobserved among the scattered bushes, but not a man. And the beasts weren't able to describe what went on at the controls of a machine.

"Could he — "

Karlsarm chopped off Evagail's whisper with a hiss. The gun was in action. He saw the thing move through a slow arc and heard the purr of its motor. It was tracking. But what was it locked onto? And why had no energy bolt stabbed forth?

"He's not fixing to shoot up the camp," Karlsarm muttered. "That'd be ridiculous. He couldn't get off more than two shots before he was dead. But what else?"

"Should I rush?" Evagail asked.

"I think you'd better," Karlsarm said, "and let's hope the damage hasn't already been done."

He must endure the agony of a minute or two while she gathered the resources of her Skill — not partially, as she often did in everyday life, but totally. He heard a measured intake of breath, sensed rhythmic muscular contractions, smelled sharp adrenalin. Then she exploded.

She was across the open ground in a blur. Ridenour could not react before she was upon him. He cried out and ran. She overhauled him in two giantess bounds. Her hands closed. He struggled, and he was not a weak man. But she picked him up by the wrists and ankles and carried him like a rag doll. Her face was a white mask in the starlight. "Lie still," she said in a voice not her own, "or I will break you."

"Don't. Evagail, please." Noach dared stroke an iron-hard arm. "Do be careful," he said to Ridenour's aghast upside-down stare. "She's dangerous in this

condition. It's akin to hysterical rage, you know — mobilization of the body's ultimate resources, which are quite astounding — but under conscious control. Nevertheless, the personality is affected. Think of her as an angry catavray."

"Amok," rattled in Ridenour's throat. "Berserk." He shivered.

"I don't recognize those words," Noach said, "but I repeat, her Skill consists in voluntary hysteria. At the moment, she could crush your skull between her hands. She might do it, too, if you provoke her."

They reached the gun. Evagail cast the Terran to earth, bone-rattingly hard, and yanked him back on his feet by finger and thumb around his nape. He was taller than she, but she appeared to tower over him, over all three men. Starlight crackled in her coiled hair. Her eyes were bright and blind.

Noach leaned close to Ridenour, read the terror upon him, and said mildly, "Please tell us what you were doing."

In some incredible fashion, Ridenour got the nerve to yell, "Nothing! I couldn't sleep, I c-came here to pass the time—"

Karlsarm turned from his examination of the blaster. "You've got this thing tracking that ship in orbit," he said.

"Yes. I — foolish of me — I apologize — only for fun — "

"You had the trigger locked," Karlsarm said. "Energy was pouring out of the muzzle. But no flash, no light, no ozone smell." "He gestured. "I turned it off. I also notice you've opened the chamber and replaced the primary modulator with this little gadget. Did you hear him talk, Evagail, before you charged?"

Her strange flat tone said: "'— entire strength of the outbacker army on this continent is concentrated here and plans to remain for several days at least. I don't suggest a multi-megatonner. It'd annihilate them, all right, but they *are* subjects of His Majesty and potentially more valuable than most. It'd also do great ecological damage — to Imperial territory — and City hinterlands would get fallout. Not to mention the effect on your humble servant, me. But a ship could land without danger. I suggest the *Isis* herself, loaded with marines, aircraft and auxiliary gear. If the descent is sudden, the guerrillas won't be able to flee far. Using defoliators, sonics, gas, stun-beam sweeps and the rest, you should be able to capture most of them inside a week or two. Repeat, capture, not kill, wherever possible. I'll explain after you land.

Right now, I don't know how long I've got till I'm interrupted, so I'd better describe terrain. We're on the northeast verge of Moon Garnet Lake — ' At that point," Evagail concluded, "I interrupted him." The most chilling thing was that she saw no humor.

"Her Skill heightens perceptions and data storage too," Noach said in a shocked, mechanical fashion.

"Well," Karlsarm sighed, "no real need to interrogate Ridenour, is there? He converted this gun into some kind of maser and called down the enemy on our heads."

"They may not respond, if they heard him cut off the way he was," Noach said with little hope.

"Wasn't much noise," Karlsarm answered. "They probably figure he did see somebody coming and had to stop in a hurry. If anything, they'll arrive as fast as may be, before we can disperse the stockpiles that'll give a scent to their metal detectors."

"We'd better start running," Noach said. Above the bristly beard, his nutcracker face had turned old.

"Maybe not." Excitement rose in Karlsarm.

"I need at least an hour or two to think — and, yes, talk with you, Ridenour."

The Terran straightened. His tone rang. "I didn't betray you, really," he said. "I stayed loyal to my Emperor."

"You'll tell us a few things, though," Karlsarm said. "Like what procedure you expect a landing party to follow. No secrets to that, are there? Just tell us about newscasts you've seen, books you've read, inferences you've made."

"No!"

Roused by the noise, other men were drifting up the hill, lean leather-clad shapes with weapons to hand. But Karlsarm ignored them. "Evagail," he said.

Her cold, cold fingers closed on Ridenour. He shrieked. "Slack off," Karlsarm ordered. "Now — *slack off, woman!* — have you changed your mind? Or does she unscrew your ears, one by one, and other parts? I don't want you hurt, but my whole civilization's at stake, and I haven't much time."

Ridenour broke. Karlsarm did not despise him for that. Few men indeed could have defied Evagail in her present mood, and they would have had to be used to the Mistresses of War.

In fact, Karlsarm needed a lot of courage himself, later on, when he laid arms around her and mouth at her cheek and crooned, "Come back to us, loveling." How slowly softness, warmth and —

in a chill dawnlight — color reentered her skin: until at last she sank down before him and wept.

He raised her and led her to their cave.

XII

At first the ship was a gleam, drowned in sun-glare. Then she was a cloud no bigger than a man's hand. But swiftly and swiftly did she grow. Within minutes, her shadow darkened the land. Men saw her from below as a tower that descended upon them, hundreds of meters in heights, flanks reflecting with a metallic brilliance that blinded. Through light filters might be seen the boat housings, gun turrets and missile tubes that bristled from her. She was not heavily armored, save at a few key points, for she dealt in nuclear energies and nothing could withstand a direct hit. But the perceptors and effectors of her fire-control system could intercept virtually anything that a lesser mechanism might throw. And the full power of her own magazines, vomited forth at once, would have incinerated a continent.

The engines driving that enormous mass were deathly quiet. But where their countergravity fields touched the planet, trees snapped to kindling and the lake roiled white. Her advent was dancer graceful. But it went so fast that cloven air roared behind, one continuous thunderclap between stratosphere and surface. Echoes crashed from mountain to mountain; avalanches broke loose on the heights, throwing ice plumes into the sky; the risen winds smelled scorched.

Emblazoned upon her stood *HMS Isis* and the sunburst of chastising Empire.

Already she had discharged her auxiliaries, aircraft that buzzed across the lakeland in bright quick swarms, probing with instruments, firing random lightning bolts, shouting through amplifiers that turned human voices into an elemental force: "Surrender, surrender!"

At the nexus of the cruiser's multiple complexity, Captain Chang sat in his chair of command. The screens before him flickered with views, data, reports. A score of specialist officers held to their posts behind him. Their work — speech, tap on signal buttons, clickdown of switches — made a muted buzz. From time to time, something was passed up to Chang himself. He listened, decided and returned to studying the screens. Neither his inflection nor his expression varied. Lieutenant-Commander Hunyadi, his executive

officer, punched an appropriate control on the communications board in front of him and relayed the order to the right place. The bridge might have been an engineering center on Terra, save for the uniforms and the straining concentration.

Until Chang scowled. "What's that, Citizen Hunyadi?" He pointed to a screen in which the water surface gleamed, amidst green woods and darkling cliffs. The view was dissolving.

"Fog rising, sir. I think." Hunyadi had already tapped out a query to the meteorological officer in his distant sanctum.

"No doubt, Citizen Hunyadi," Chang said. "I do not believe it was predicted. Nor do I believe it is precedented — such rapid condensation — even on this freak planet."

The M.O.'s voice came on. Yes, the entire target area was fogging at an unheard-of rate. No, it had not been forecast and, frankly, it was not understood. Possibly, at this altitude, given this pressure gradient, high insolation acted synergistically with the colloidogenic effect of countergravity beams on liquid. Should the question be addressed to a computer?

"No, don't tie facilities up on an academic problem," Chang said. "Will the stuff be troublesome?"

"Not very, sir. In fact, aircraft reports indicate it's forming a layer at about five hundred meters. An overcast, should be reasonably clear at ground level. Besides, we have instruments that can see through fog."

"I am aware of that latter fact, Citizen Nazarevsky. What concerns me is that an overcast will hide us from visual observation at satellite distance. You will recall that picket ships are supposed to keep an eye on us." Chang drummed fingers on the arm of his chair for a second before he said: "No matter. We will still have full communication, I trust. And it's necessary to exploit surprise, before the bandits have scattered over half this countryside. Carry on, gentlemen."

"Aye, aye, sir." Hunyadi returned to the subtle, engrossing ballet that was command operations.

After a while, Chang stirred himself and asked, "Has any evidence been reported of enemy willingness to surrender?"

"No, sir," the exec replied. "But they don't appear to be marshalling for resistance, either. I don't mean just that they haven't shot at us. The stockpiles of metallic stuff that we're zeroing in on haven't been moved. Terrain looks deserted. Every

topographical and sonic-probe indication is that it's normal, safe, not booby-trapped."

"I wish Ridenour had been able to transmit more," Chang complained. "Well, no doubt the bandits are simply running in panic. I wonder if they stopped to cut his throat."

Hunyadi understood that no answer was desired from him.

The ship passed through the new-born clouds. Uncompensated viewports showed thick, swirling gray formlessness. Infrared, ultraviolet and microwave scopes projected a peaceful scene beneath. It was true that an unholy number of tiny flying objects were registered in the area. Insects, no doubt, probably disturbed by the ship. Time was short in which to think about them, before *Isis* broke through. Ground was now immediately below: that slope on the forest edge, overlooking the lake and near the enemy weapon depots, which Chang had selected. It would have been a lovely sight, had the sky not been so low and gloomy, the tendrils and banks of fog drifting so many and stealthy among trees. But everyone on *Isis* was too busy to admire, from the master in his chair of command to the marines ranked before the sally locks.

Aircraft that had landed for final checks of the site, flew away like autumn leaves. The cruiser hung until they were gone, extending her landing jacks, which were massive as cathedral buttresses. Then slowly she sank down upon them. For moments the engines loudened, ringing through her metal corridors. Words flew, quiet and tense: " — stability achieved . . . air cover complete . . . weapons crew standing by . . . detectors report negative . . . standing by . . . standing by . . . standing by . . . "

"Proceed with Phase Two," Chang ordered.

"*Now hear this,*" Hunyadi chanted to the all-points intercom. The engines growled into silence. The airlocks opened. Inhuman in helmets, body armor, flying harness, the weapons they clutched, the marine squadrons rushed forth. First they would seize the guerrilla arsenals, and next cast about for human spoor.

The bridge had not really fallen still. Data continued to flow in, commands to flow out; but by comparison, sound was now a mutter, eerie as the bodies of fog that moved out of undertree shadows and across the bouldery hillside. Hunyadi looked into the screens and grimaced. "Sir," he said uneasily, "if the enemy's as skilled in moving about through the woods as I've

heard, someone could come near enough to fire a small nuclear missile at us."

"Have no worries on that score, Citizen Hunyadi," Chang said. "Nothing material, launched from a projector that one or two men might carry, could reach us before it was detected and intercepted. A blaster beam might scorch a hull plate or two. But upper and lower gun turrets would instantly triangulate on the source." His tone was indulgent: like most Navy men serving on capital ships, Hunyadi was quite new to ground operations. "Frankly, I could hope for a show of resistance. The alternative is a long, tedious airborne bushbeating."

Hunyadi winced. "Hunting men like animals. I don't like it."

"Nor I," Chang admitted. The iron came back into him. "But we have our orders."

"Yes, sir."

"Read your history, Citizen Hunyadi. Read your history. No empire which tolerated rebellion ever endured long thereafter. And we are the wall between humanity and Merseian — "

A scream broke through.

And suddenly war was no problem in logistics, search patterns, or games theory. It entered the ship with pain in one hand and blood on the other; and its footfalls thundered.

"Bees, millions of things like bees, out of the woods — oh, God, coming inboard, the boys're doubled over, one sting hurts enough to knock you crazy — Yaaahhhh!"

"Close all locks! Seal all compartments! All hands in spacesuits!"

"Marine Colonel Deschamps to Prime Command. Detachments report small groups of women, unarmed, as they land. Women appear anxious to surrender. Request orders."

"Take them prisoners, of course. Stand around them. You may not be attacked then. But if a unit notes a dense insect swarm, the men are to seal their armor and discharge lethal gas at once."

"Lock Watch Four to bridge! We can't shut the lock here! Some enormous animal — like a, a nightmare crocodile — burst in from the woods —blocking the valves with its body — "

"Energy weapons, sweep the surrounding forest. All aircraft, return to bomb and strafe this same area."

Atomic warheads and poisons could not be used, when the ship would be caught in their blast or the gases pour in through three airlocks jammed open by slain monsters. But some gunners had buttoned up their turrets in

advance of the bees. Their cannon hurled bolt after bolt, trees exploded and burned and fell, rocks fused . . . and fog poured in like an ocean. Simultaneously, the instrumentation and optical aids that should have pierced it failed. The crews must fire at random into horrible wet smoke, knowing they could not cover the whole ground about them.

"Radio dead. Radar dead. Electromagnetic 'scopes dead. Blanketed by interference. Appears to emanate from . . . from everywhere . . . different insects, clouds of them! What scanning stuff we've got that still works, sonics, that kind of thing, gives insufficient definition. We're deaf, dumb, and blind!"

Aircraft began to crash. Their instruments were likewise gone; and they were not meant to collide with entire flocks of birds.

"Marine Colonel Deschamps — reporting — reports received — catastrophe. I don't know what, except . . . those women . . . they turned on our men and — "

Troopers who escaped flew wildly through fog. Birds found them and betrayed them to snipers in treetops. They landed, seeking cover. Arrows whistled from brush, or hellhounds fell upon them.

"Stand by to raise ship."

"Lock Watch Four reporting — they've got in through the fog, under our fire — swarming in, wild men and animals — good-by, Maria, good-by, universe —"

Most aircraft pilots managed to break free. They got above the clouds and ran from that lake. But they were not equipped to evade ground fire of energy weapons with which there was no electronic interference such as continued to plague them. It had been assumed that the marines would take those emplacements. The marines were now dead, or disabled, or fleeing, or captured. The women called their men back to the guns. Stars blossomed and fell through the daylight sky.

This is Wolf, commanding the Free People group assigned to HMS Isis. *A prisoner tells me this thing communicates with the bridge. Better give up, Captain. We're inside. We hold the engine room. We can take your whole ship at our leisure — or plant a nuclear bomb. Your auxiliary forces are rapidly being destroyed. I hope you'll see reason and give up. We don't want to harm you. It's no discredit to you, sir, this defeat. Your intelligence service let you down. You met weapons you didn't know about, uniquely suited to very special circumstances.*

Tell your men to lay down their arms. We'll lift the interference blanket if you agree — not skyward, but on ground level, anyhow, so you can call them. Let's stop spilling lives and begin talking terms."

Chang felt he had no choice.

Soon afterward, he and his principal officers stood outside. The men who guarded them were clad and equipped like savages; but they spoke with courtesy. "I would like you gentlemen to meet some friends," said the one named Karlsarm. From the forest, toward the captured flying tower, walked a number of women. They were more beautiful than could be imagined.

XIII

Ridenour was among the last to go aboard. Not that there were many — a skeleton staff of chosen Imperialist officers, for the aphrodites could not make captives of more in the short time available, those women themselves, whoever of the army possessed abilities even slightly useful in space warship. But perhaps the measure of Karlsarm's audacity was his drafting of an unknown spy.

Whose loyalties had not been altered.

Standing in cold, blowing fogbanks, Ridenour shuddered. The cruiser was dim to his eyes, her upper sections lost. Water soaked the earth and dripped from a thousand unseen trees; the insects that made this weather flitted ceaselessly between lake and air, in such myriads that their wingbeats raised an underlying sussuration; a wild beast bellowed, a wild bird shrilled — tones of the wilderness. But the outback reaches were not untamed nature. Like some great animal, they had been harnessed for man, and in turn, something of theirs had entered the human heart.

A Terran went up a gangway, into the ship. His uniform was still neat blue, emblemmed with insignia and sunburst. He still walked with precision. But his eyes scarcely left the weather-beaten, leather-kilted woman at his side, though she must be twenty years his senior.

"There but for the grace of God," Ridenour whispered.

Evagail, who had appeared mutely a few minutes ago, gave him a serious look. "Is their treatment so dreadful?" she asked.

"What about their people at home? Their home itself? Their own shame and self-hate for weakness—" Ridenour broke off.

"They'll be released . . . against their wills, I'm sure; they'll plead to stay with us. You can make it part of your job to see that

their superiors understand they couldn't help themselves. Afterward, you have reconditioning techniques, don't you? Though I expect most cases will recover naturally. They'll have had just a short exposure."

"And the, the women?"

"Why, what of them? They don't want to be saddled with a bunch of citymen. This is their wartime duty. Otherwise they have their private affairs."

"Their Skills." Ridenour edged away from her.

Her smile was curiously timid. "John," she said, "we're not monsters. We're only the Free People. An aphrodite doesn't use her Skill for unfair gain. It has therapeutic applications. Or I — I don't like raising my strength against fellow humans. I want to use it for their good again."

He fumbled out the tobacco he had begged from a Terran and began to stuff his pipe. It would give some consolation.

Her shoulders slumped. "Well," she said in a tired voice, "I think we'd better go aboard now."

"You're coming too?" he said. "What for? To guard me?"

"No. Perhaps we'll need my reaction speed. Though Karlsarm did hope I'd persuade you — Come along, please."

She led him to the bridge. Terran officers were already posted among the gleaming machines, the glittering dials. Hunyadi sat in the chair of command. But Karlsarm stood beside him, the catavray head gaping across his brow; and other men of the forest darkened that scene.

"Stand by for liftoff." Hunyadi must recite the orders himself. "Close airlocks. All detector stations report."

Evagail padded over to Karlsarm. Ridenour could not help thinking that her ruddy hair, deep curves, bare bronze, were yet more an invasion of this metal-and-plastic cosmos than the men were. A faint odor of woman lingered behind her on the sterile air.

"What's our situation with the enemy?" she asked.

"Fair, as near as we can learn," Karlsarm said. "You haven't followed events since the last fight?"

"No. I was too busy making arrangements for prisoners. Like medical care for the injured, shelter for everyone. They were too wretched, out in this midst."

"Can't say I've enjoyed it either. I'll be glad when we can let it up . . . . Well. We didn't try an aphrodite on old Chang. Instead, we had him call the Terran chief, Admiral Cruz, and report the capture of his ship. Naturally, having no idea we'd be able to raise her, he didn't give that fact away. Supposedly

we'll hold vessel and personnel for bargaining counters. The stratosphere's full of aircraft above us, but they won't do anything as long as they think we're sitting with our hostages. Only one spaceship has moved to anything like immediate striking range of us."

"Are you certain?"

"About as certain as you can be in war, whatever that means. We gave the chief communications officer to an aphrodite, of course. He listened in and decoded orders for the main fleet to stand out to space. That was a logical command for Cruz to issue, once the evacuation notice went out."

"Evacuation — ?"

"Loveling, you didn't think I'd vaporize the Cities *and* their people, did you? The instant I foresaw a chance to grab this boat, I got in touch with the Grand Council — by radio, for the other continents, because time was short, so short that it didn't matter the Terrans would hear. They're good codebreakers, but I think the languages we used must've puzzled them!" Karlsarm grinned. "As soon as we'd made this haul, orders went out to our agents in every City, whether Terran- or Arulian-occupied. They were to serve notice that in one rotation period, the Cities would be erased. But they were to imply the job will be done from space."

Fright touched Evagail. "The people did evacuate, didn't they?" she breathed.

"Yes. We've monitored communications. The threat's convincing, when there's been so much fear of intervention from Aruli or from Merseia herself. An invading fleet can't get past the blockade. But a certain percentage of fast little courier boats can. Likewise a flight of robot craft with nuclear weapons aboard: which wouldn't be guaranteed to distinguish between friendly and unfriendly target areas."

"But has no one thought that we, in this ship, might — "

"I trust not, or we're dead," Karlsarm stated. "Our timing was phased with care. The fog, and interference, and our ground fire, kept the Terrans from finding out what had happened to their cruiser. We informed them immediately that she was disabled, and they doubtless supposed it was logical. How could anyone take an undamaged Imperial warcraft, without equipment they know we don't have? In fact, they probably took for granted we'd had outside technical assistance in rigging a trap. Remember, the City warning was already preoccupying their

thoughts. Chang's call was a precaution against their growing frantic and bombing us in the hope of getting our supposed Merseian or Arulian allies. He made it a few hours ago; and I made certain that he didn't say the ship was captured *intact*."

"They'll know better now," Hunyadi said. His face was white, his voice tormented.

"Correct. Lift as soon as you're able," Karlsarm said. "If we're hit, your woman will die too."

The executive officer jerked his head. "I know! Bridge to all stations. Lift at full power. Be prepared for attack."

Engines growled. The deck quivered with their force. *Isis* climbed, and the sun blazed about her.

"Communications to bridge," said the intercom. "Calls picked up from Imperialists."

"I expected that, Karlsarm said dryly. "Broadcast a warning. We don't want to hurt them, but if they bother us, we'll swat."

Sickly, Ridenour saw the planet recede beneath him.

Flame blossomed a long way off. "Missile barrage from one air squadron stopped," said the intercom. "Shall fire be returned?"

"No," Karlsarm said. "Not unless we absolutely must."

"Thank you, sir! Those are . . . my people yonder." After a moment: "They were my people."

"They will be again," Evagail murmured to Ridenour. "If you help."

"What can I do?" he choked.

She touched him. He winced aside. "You can speak for us," she said. "You're respected. Your loyalty is not in doubt. You proved it afresh, that night when — We don't belong to your civilization. We don't understand how it thinks, what it will compromise on and what it will die for, the nuances, the symbols, the meanings it finds in the universe. And it doesn't understand us. I think you know us a little, though, John. Enough to see that we're no menace."

"Except to the Cities," he said. "And now the Empire."

"No, they threatened us. They wouldn't leave our forests alone. As for the Empire, can't it contain one more way of living? Won't mankind be the richer for that?"

They looked at each other, and a thrumming aloneness enclosed them. A screen showed space and stars on the rim of the world.

"I suppose," he said finally, "no one can compromise on the basics of his culture. They're the larger part of his identity. To give them up is a kind of death. Many people would rather die in

the body. You won't stop fighting until you're utterly crushed."

"And must that be?" Her speech fell gently on his ears. "Don't you Terrans want an end of war?"

An earthquake rumble went through the ship. Reports and orders seethed on the bridge. She was in long-range combat with a destroyer.

Undermanned, *Isis* could not stand off Cruz's whole fleet. But those units were scattered, would not reach Freehold for hours. Meanwhile, a solitary Imperial craft went against her with forlorn galantry. Her fire-control men wept as they lashed back. But they must, to save the women who held them.

"What can I do?" Ridenour said.

"We'll call as soon as we're finished, and ask for a parley," Evagail told him. "We want you to urge that the Terrans agree. Afterward we want you to — no, not help plead our cause. Help explain it."

"Opposition attack parried," said a speaker. "Limited return broadside as per orders appears to have inflicted some damage. Opposition sheering off. Shall she be annihilated?"

"No, let her go," Karlsarm said.

Ridenour nodded at Evagail. "I'll do what I can," he said.

She took his hands, gladness bursting through her own tears, and this time he did not pull away.

Isis swung back into atmosphere. Her turrets cut loose. A doomed, empty City went skyward in flame.

XIV

Admiral Fernando Cruz Manqual stood high in the councils of this imperial frontier; but he was a Terran merely by citizenship and remote ancestry. Military men have gone forth from Nuevo Mexico since that stark planet first was colonized. His manner toward Ridenour was at once curt and courteous.

"And so, Professor, you recommend that we accept their terms?" He puffed hard on a crooked black cigar. "I am afraid that that is quite impossible."

Ridenour made a production of starting his pipe. He needed time to find words. Awareness pressed in on him of his surroundings.

The negotiating commissions (to use a Terran phrase; the Free People called them mind-wrestlers) had met on neutral ground, an island in the Lawrencian Ocean. Though uninhabited thus far, it was beautiful with its tall feathery trees, blossoming vines, deep cane-

brakes, wide white beaches where surf played and roared. But there was little chance to enjoy what the place offered. Perhaps later, if talks were promising and tension relaxed, a young Terran spaceman might encounter a lightfoot outbacker girl in some glen.

But discussion had not yet even begun. It might well never begin. The two camps were armed, separated by three kilometers of forest and, on the Terran side, a wall of guns. Ridenour was the first who crossed from one to another.

Cruz's reception had been so cold that the xenologist half expected arrest. However, the admiral appeared to comprehend why he was there and invited him into his dome for private, unofficial conversation.

The dome was open to a mild, sea-scented breeze, but also to the view of other domes, vehicles, marines on sentry-go, aircraft at hover. Wine stood on the table between the two men, but except for a formal initial toast it had not been poured. Ridenour had stated the facts, and his words had struck unresponding silence.

Now:

"I think it's best, sir," Ridenour ventured. "They can be conquered, if the Empire makes the effort. But that war would be long, costly, tying up forces we need elsewhere, devastating the planet, maybe making it unfit for human habitation. Remember, they won't sit passive under bombardment; they'll retaliate with some pretty horrible biological capabilities. The prisoners they hold will not be returned. Likewise the *Isis*. You'll be compelled to order her knocked out, an operation that won't come cheap."

He looked straight into the hard, mustached face. "And for what? They're quite willing to remain Terran subjects."

"They rebelled," Cruz bit off; "they collaborated with an enemy; they resisted commands given in his Majesty's name; they occasioned loss to His Majesty's Navy; they destroyed nine Imperial communities; thereby they wrecked the economy of an entire Imperial world. If this sort of behavior is let go unpunished, how long before the whole Empire breaks apart? And they aren't satisfied with asking for amnesty. No, they demand the globe be turned over to them!"

He shook his head. "I do not question your honesty, Professor — someone had to be messenger boy, I suppose — but if you believe an official in my position can possibly give a minute's consideration to those woodsrunners' fantasy, I must question your judgment."

"They are not savages, sir," Ridenour said. "I've tried to explain to you something of their level of culture. My eventual written report should convince everyone."

"That is beside the point." His faded, open-throated undress uniform made Cruz look more terrible than any amount of braid and medals. The blaster at his hip had seen much use in its day.

"Not precisely, sir." Ridenour shifted in his chair. Sweat prickled his skin. "I've had a chance to think a lot about these issues, and a death-strong motivation for doing so and a career that's trained me to think in impersonal, long-range terms. What's the real good of the Empire? Isn't it the solidarity of many civilized planets? Isn't it, also, the stimulus of diversity between those planets? Suppose we did crush the Free — the outbackers. How could the Cities be rebuilt, except at enormous cost? They needed centuries to reach their modern level unaided, on this isolated, metal-impoverished world. If we poured in treasure, we could recreate them, more or less, in a few years. But what then would we have? Nine feeble mediocrities, just productive enough to require guarding, because Merseia considers them a potential threat on her Arulian flank. Whereas if we let the *real* Freeholders, the one's who've adapted until they can properly use this environment, if we let them flourish . . . we'll get, at no cost, a strong, self-supporting, self-defending outpost of Empire."

That may not be strictly true, he thought. The outbackers don't mind acknowledging Terran suzerainty, if they can have a charter that lets them run their planet the way they want. They're too sensible to revive the nationalistic fallacy. They'll pay a bit of tribute, conduct a bit of trade. On the whole, however, we will be irrelevant to them.

They may not always be so to us, of course. We may learn much from them. If we ever fall, they'll carry on something of what was ours. But I'd better not emphasize this.

"Even if I wanted to accommodate them," Cruz said, "I have no power. My authority is broad, yes. And I can go well beyond its formal limits, in that a central government with thousands of other worries will accept any reasonable recommendation I make. But do not exaggerate my latitude, I beg you. If I suggested that the City people, loyal subjects of His Majesty, be moved off the world of their ancestors, and that rebels, no matter how cultivated, be rewarded with its sole possession . . . why,

I should be recalled for psychiatric examination, no?"

He sounds regretful, leaped within Ridenour. He doesn't want a butcher's campaign. If I can convince him there is a reasonable and honorable way out —

The xenologist smiled carefully around his pipestem. "True, Admiral," he said. "If the matter were put in those words. But need they be? I'm no lawyer. Still, I know a little about the subject, enough that I can sketch out an acceptable formula."

Cruz raised one eyebrow and puffed harder on his cigar.

"The point is," Ridenour said, "that juridically we have not been at war. Everybody knows Aruli sent arms and troops to aid the original revolt, no doubt at Mersein instigation. But to avoid a direct collision with Aruli and so possibly with Merseia, we haven't taken official cognizance of this. We were content to choke off further influx and reduce the enemy piecemeal. In short, Admiral, your task here has been to quell an internal, civil disturbance."

"Hm."

"The outbackers did not collaborate with an external enemy, because legally there was none."

Cruz flushed. "Treason smells no sweeter by any other name."

"It wasn't treason, sir," Ridenour argued. "The outbackers were not trying to undermine the Empire. They certainly had no wish to become Arulian or Merseian vassals!

"Put it this way: Freehold contained three factions, the human City dwellers, the Arulian City dwellers, and the outbackers. The charter of Imperial incorporation was negotiated by the first of these parties exclusively. Thus it was unfair to the other two. When amendment was refused, social difficulties resulted. The outbackers had some cooperation with the Arulians, as a matter of expediency. But it was sporadic and never affected their own simple wish for justice. Furthermore, and more important, it was not cooperation with outsiders, but rather with some other Imperial subjects.

"Actually," he added, "when one stops to think about it, the Nine Cities have not at all been innocent martyrs. Their discrimination against the Arulians, their territorial aggressions against the outbackers, were what really brought on the trouble. Merseia then exploited the opportunity — but didn't create it in the first place.

"Why then should the heedlessness of the Cities, that proved so costly to the Empire, not be penalized?"

Cruz looked disappointed. "I suppose the Policy Board could adopt some such formula," he said. "But only if it wanted to. And it won't want to. Because what formula can disguise the fact of major physical harm inflicted in sheer contumacy?"

"The formula of over-zealousness to serve His Majesty's interests," Ridenour cast back. He lifted one palm. "Wait! Please! I don't ask you, sir, to propose an official falsehood. The zeal was not greatly misguided. And it did serve Terra's best interest."

"What? How?"

"Don't you see?" Tensely, Ridenour leaned across the table. Here we go, he thought, either we fly or we crash in the fire. *"The outbackers ended the war for us."*

Cruz fell altogether quiet.

"Between you and me alone, I won't insult your intelligence by claiming this outcome was planned in detail," Ridenour hurried on. "But that is the effect. It was Nine Cities, their manufacturing and outworld commerce, their growth potential, that attracted the original Arulian settlers, and that lately made Freehold such a bait. With the Cities gone, what's left to fight about? The enemy has no more bases. I'm sure he'll accept repatriation to Aruli, including those of him who were born here. The alternative is to be milled to atoms between you and the outbackers.

"In return for this service, this removal of a bleeding wound on the Empire, a wound which might have turned into a cancer — surely the outbackers deserve the modest reward they ask. Amnesty for whatever errors they made, in seizing a chance that would never come again; a charter giving them the right to occupy and develop Freehold as they wish, though always as loyal subjects of His Majesty."

Cruz was unmoving for a long time. When he spoke, he was hard to hear under the military noise outside. "What of the City humans?"

"They can be compensated for their losses and resettled elsewhere," Ridenour said. "The cost will be less than for one year of continued war, I imagine; and you might well have gotten more than that. Many will complain, no doubt. But the interest of the Empire demands it. Quite apart from the problems in having two irreconcilable cultures on one planet, there's the wish to keep any frontier peaceful. The outbackers are unprofitably tough to invade; I rather believe their next generation will furnish some of our hardiest marine volun-

teers; but at the same time, they don't support the kind of industrial concentration — spaceships, nuclear devices — that makes our opposition worried or greedy."

"Hm." Cruz streamed smoke from his lips. His eyes half closed. "Hm. This would imply that my command, for one, can be shifted to a region where we might lean more usefully on Merseia . . . yes-s-s."

Ridenour thought in a moment that was desolate: Is that why I'm so anxious to save these people? Because I hope one day they'll find a way out of the blind alley that is power politics? . . .

Cruz slammed a fist on the table. The bottle jumped. "By the Crown, Professor, you might have something here!" he exclaimed. "Let me pour. Let us drink together."

Nothing would happen overnight, of course. Cruz must ponder, and consult, and feel out the other side's representatives. Both groups must haggle, stall, quibble, orate, grow calculatedly angry, grow honestly weary. And from those weeks of monkey chatter would emerge nothing more than a "protocol." This must pass up through a dozen layers of bureaucrats and politicians, each of whom must assert his own immortal importance by some altogether needless and exasperating change. Finally, on Terra, the experts would confer; the computers spin out reels of results that nobody quite understood or very much heeded; the members of the Policy Board and the different interests that had put them there use this issue as one more area in which to jockey for a bit more power; the news media make inane inflammatory statements (but not many — Freehold was remote — the latest orgy given by some nobleman's latest mistress was more interesting) . . . and a document would arrive here, and maybe it would be signed but maybe it would be returned for "further study as recommended . . . ."

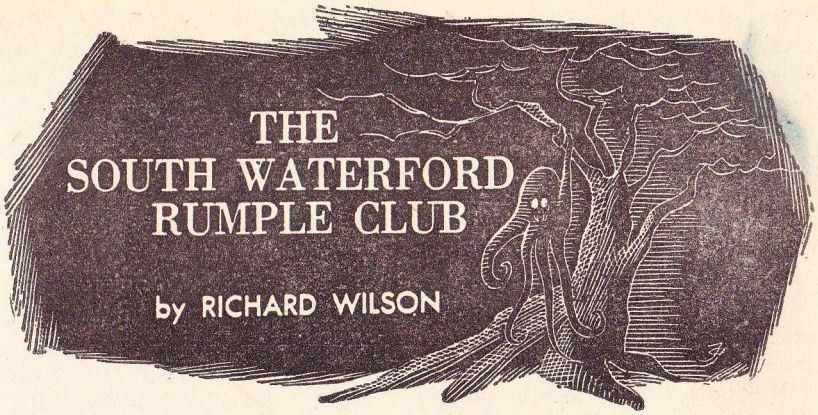
I won't be leaving soon, Ridenour thought. They'll need me for months. Final agreement may not be ratified for a year or worse.

Some hours passed before he left the Terran camp and walked toward the other. He'd doubtless best stay with the outbackers for a while. Evagail had been waiting for him. She ran down the path. "How did it go?"

"Very well, I'd say," he said.

She cast herself into his arms, laughing and weeping. He soothed her, affectionately but just a little impatiently. His prime desire at the moment was to find a place by himself, that he might write a letter home.

—POUL ANDERSON



THE SOUTH WATERFORD RUMPLE CLUB

by RICHARD WILSON

You rumple my money and I'll rumple yours — and the devil take the American economy!

The aliens first came over late on a moonless summer night and emptied contents of their bomb bays on the village of South Waterford. The time was 3 a.m. on a Tuesday. It was probably a test run, a kind of motivational research project.

If it had been an all-out attack on the United States, or on a major city, undoubtedly the government would have reacted sooner and more forthrightly. As it was, word about the South Waterford phenomenon, as the Air Force called it, didn't reach Washington right away. And when it did it was somehow confused with the UFO investigations and relayed out to Colorado for Dr. Condon's attention. This could explain why the Defense Department seemed to lose interest in the matter for a while.

But the Treasury Department got upset. The aliens had not dropped bombs. The cargo that fluttered down on South Waterford like autumn leaves, though paper, was not propaganda. It was United States currency.

The Assistant to the Fiscal Assistant Secretary of the Treasury recalled a kind of precedent as he was being interviewed by a wire-service reporter. Everybody knew, of course, that during World War II the Germans had

counterfeited British banknotes and, among other things, used them to pay spies. But the Nazis had never dropped their phony pounds over London.

Fewer people knew that the United States had considered bombarding Berlin and other German cities with skillfully counterfeited Reichsmarks. The Assistant to the Fiscal Assistant Secretary told the newsmen: "President Roosevelt was half convinced that this would be the thing to do. What German worker was going to spend 10 or 12 hours a day in a factory to earn the same kind of money he could pick up off the street?"

"Sounds like a great idea," the newsman said. "Didn't Roosevelt like it?"

"He was crazy about it. He called in his Secretary of the Treasury — you know, Henry Morgenthau — and said, 'Henry, listen to this great idea somebody thought up,' and then told him. But Morgenthau was horrified."

"Why? Because money was sacred?"

"That must have been part of it. But I also remember that Morgenthau pointed out that maybe the Germans would do the same thing to us. It was like poison gas. Nobody dared use it."

Even after the word about the South Waterford incident was channeled back to Washington, there was delay. The fact that two powerful executive departments, Defense and Treasury, were involved meant that high officials had to consult, advise and compromise before an Executive Order could be drafted for the President's signature.

Then the President refused to to sign it. His thinking apparently was that it would be tantamount to panicking to throw the economy of the entire United States out of kilter because of people in a tiny village in the Northeast might benefit temporarily. A statistical-minded adviser calculated what percentage of the total U. S. population lived in South Waterford. It was infinitesimal. So okay, let it be Christmas in July for that handful. Meanwhile, the doves counseled, let's sit tight and try to out think the alleged aliens instead of playing into their hands.

No one knew then that the aliens didn't have hands. They had pseudopods, not to mention bright organge mandibles. Much later somebody in Interior's Fish and Wildlife Service said they were more like octopi than people. Nobody in Treasury was able to figure out how such creatures had developed the skill to simulate U.S. currency. The Defense Department was more interested in the kind of craft the

aliens flew. But by the time these questions had been answered, by direct observation, they were academic.

In the absence of an Executive Order which might have protected the rest of the United States against South Waterford's windfall, the Federal Reserve Board took the unofficial step of advising its member banks to accept only worn currency. The advice was passed down the line until it reached that village's lone financial institution, the South Waterford Trust & Deposit Company.

This led to the formation of a social organization known as the South Waterford Rumple Club.

A couple would invite a dozen neighbors and friends. Then, for two or three hours, conversation and cocktails would be accompanied by the passing from hand to hand of the fresh, crisp bills until they achieved a well used look.

At one point in the circuit the rumpled bills would be dipped into a mixture of face powder and shredded cigarette stubs. This gave them the aroma of having spent some time in a woman's purse. The next night the same group assembled at another couple's house and aged their money.

The host was expected to stock up on giant economy sizes of a powerful hand cleaner so that at the end of the evening his guests could get the green off.

Jim Vernon's technique was to roll the bill into a ball and work it between his palms. Harold Riehlmann's was to crease it lengthwise as many times as possible; Jane, his wife, creased it the short way.

Lou Aramis was a particularly welcome member of the party. He was the owner of a one-man garage and auto repair shop and came without washing his hands. Lou did more to age a bill authentically than all the rest of them put together.

Lou Aramis parked his car in the lot of the South Waterford Shop 'n' Save Center and started down Main Street with his old army duffel bag over his shoulder. It was 9:01 a.m. Thursday. The sun was warm and he was perspiring.

His first stop was at the Country Drug & Variety Store, Eric Palmer, Ph.C., Prop. It was empty except for Eddie Grimes, who was Eric's partner and assistant pharmacist, and the girl at the soda fountain.

"Hi, there, Lou," Eddie said cheerfully. "You're not back in the army, are you? Fighting the mysterious foe? Old guy like you?" Eddie was older.

Lou dropped the duffel bag to

the floor of the drug counter, where a little square of clear space next to the cash register was surrounded by aspirin, cough medicine, flashlight batteries, key cases, combs, ballpoint pens, photographic supplies, perfume, face cream, razor blades, boxes of chocolates, playing cards, poker chips, paperback books and other drugstore items to tempt the impulse buyer.

"Never fear," Lou said. "I'm here to pay my good old bill. One hundred and fifty-four dollars and seventy-two cents." He opened the duffel bag and pulled out a handful of bills.

Eddie Grimes gave an alarmed little laugh. "Why, there's no hurry, Lou, old friend. You know your credit's good here."

"Sure it is, Eddie, and don't think I'm not grateful for the way you carried me over those rough spots this spring. But I got your bill yesterday, and it was stamped in big red letters 'PLEASE PAY BILLS CURRENTLY,' and I think it's only right to do just that."

"Well, now, Lou, there's absolutely no hurry in your case. We weren't hinting or anything, you know."

"One fifty-five, one seventy-five, two hundred —" Lou was counting out the crumpled, dirty bills on the counter next to a Sominex display.

"Now wait a minute, Lou," Eddie said. He went on counting. "Two-fifty, two-seventy, two-ninety, three hundred and ten, three sixty, three eighty. You carried me, so I want to carry you the next few months, Eddie. There. Four hundred even. Just give me a receipt, will you?"

"Why sure, Lou, but Eric isn't here right now —"

"Your signature's good enough for me, Eddie, old pal. That's fine. Thanks. So long now."

On his way out Lou stopped at the tobacco counter near the soda fountain and bought ten cartons of cigarettes, paying the girl with a battered twenty and a fairly well creased ten. "I'd stock up myself if I were you," he told the girl. "The price is going up, I hear. Just put 'em in the freezer, and they keep forever." He called back to the pharmacist. "So long, Eddie."

"Yeah — so long, Lou. Thanks and come again, I guess."

Lou's next stop was at the South Waterford branch of the giant T. T. Grantberry chain, purveyor of anything from salted nuts and tropical fish to automobile tires, refrigerators, haberdashery and living-room suites, available at nothing down on the revolving charge plan, a small percentage of the balance payable monthly, with 18% interest

mounting up fast at the far end.

Lou went back past the mens' pants, ladies' lingerie, cafe curtain and hooked rug departments to the credit office. It was 9:17 a.m. by the clock that had written across its face PAY ON TIME — PROTECT YOUR CREDIT RATING.

"Good morning, sir," the young lady clerk said.

"Good morning," Lou said. He put the duffel bag on the floor and fished his T. T. Grantberry monthly statement out of his back trouser pocket. "It says here I owe you $457.63, including the service charge, which I guess means interest." There had been that color television set, purchased during his wife's illness when he thought she might be dying.

"Yes, sir," the girl said. "But of course you only have to pay $46 this month under our optional revolving charge plan. Did you wish to pay the $46, sir?"

"No, ma'am; I wish to pay the $457.63 and get out of your revolving charge plan, which is revolving me to death."

Certainly, sir. As you wish. Did you wish to pay by check?"

"No, ma'am. I wish to pay by cash, in the full amount, and then close out the account." He opened the duffel bag and began counting our grimy, well circulated bills. They'd been circulated all around Jim Vernon's living room.

"Oh, sir," the girl said, "I'm not sure I want to take all this money from you. Perhaps you'd like to talk to Mr. Malmster, our assistant credit manager?"

"What's to talk to Mr. Malmser about? It says right here — look — 'You can save on future credit service charges by paying more than your monthly minimum or by paying in full at any time.' This is the time; I'm paying in full." Lou went on counting. ". . . four hundred and forty, four hundred sixty. Now give me my change and receipt, like a good girl. It's been a pleasure doing business with you."

The girl grinned, finally. "It's okay with me. Just between you and me, leaving T. T. Grantberry out of it, how much more you got in that barracks bag, Mr. Aramis?"

"Plenty."

"Me, too. I paid up myself first thing this morning, before the store opened. I didn't age it as good as you did — I put mine in the vacuum cleaner bag with some of that brown stain furniture polish — but it got by." She winked.

"Good girl," Lou said. "Now just put the receipt through your machine there — that's the way. Thanks."

As he started to walk away

she called: "Don't forget your green stamps." He went back and got them.

On his way out Lou ordered a new refrigerator — with an extra-big freezer compartment — and a sofa bed and a dozen pairs of slacks and eight new tires and a year's supply of toothpaste, razor blades, aspirin and another ten cartons of cigarettes, paid cash at the checkout counter, collected his green stamps and got back into his car.

All this had been practice. Now came the real test.

Lou Aramis headed for the South Waterford Trust & Deposit Company, holder of the mortgage of his two-story older house, his personal loan and his two FHA loans ("Your Neighborly Bank Is Your Loan Headquarters").

Mr. William Briese (Breezy Bill to fellow members of Rotary and the Lions), vice president in charge of consumer credit, greeted Mr. Lou Aramis, valued customer, with a cautious smile. "Nice day, Mr. Aramis," he said, standing up at his deck behind the railing to shake hands. "How are you?"

"Couldn't be better. And you?" Lou let his duffel bag plop to the floor.

Mr. Briese looked at it with feigned joviality. "Taking a trip or anything? Fleeing the UFO's?"

"Not really. Just thought I'd make a few payments."

"Oh?" Mr. Briese pulled at his lower lip and sank back into his swivel chair. "Well, come in. Sit down."

Lou went through the swinging wooden gate, trailing the duffel bag behind him, and sat in the customer's chair. He fished in his shirt pocket for a cigarette and found the pack empty. He reached into the duffel bag and took out a carton, from which he took a pack, from which he extracted a cigarette, then two, remembering his manners. He offered one to Mr. Briese. A fifty-dollar bill had fluttered to the floor and the banker went to pick it up and return it to Lou with one hand while accepting the cigarette with the other.

"Yes, thanks," Mr. Briese said. He lit the cigarettes with his desk lighter (LET OUR CASH WORK FOR YOU) and leaned back in his chair, puffing nervously.

Lou, also nervous, had trouble finding the right papers, pulled them out and then put them in Mr. Briese's out basket.

"I owe you some money, Mr. Briese. I mean various amounts for different thinks, like — "

"Well, now, Mr. Aramis — Lou, if I may — there are various amounts due, to be sure, but

if I recall correctly we're just about current on everything except one of the FHA loans where there's a late charge owing. Some nominal amounts — nothing to worry us."

"Frankly, Mr. Briese, it worries me a great deal to be delinquent in any of my obligations, and I'm here to straighten this out before it gets embarrassing to either of us."

He'd rehearsed this part of it very carefully before coming.

"Call me Bill. Nobody's embarrassed, Lou. A person forgets, or there are unavoidable circumstances. This happens. We're not unreasonable. Now, if you care to clear up this little FHA payment of $40.50, plus the late charge of $2.50, there's no problem. Your credit rating is top-drawer with us. We couldn't ask for a better customer. In fact, I personally will recommend to Mr. Dell, our president, that all your delinquencies be wiped off the books — wiped right off, so there's no blot whatsoever on you account."

Lou, more confident, smiled through a cloud of exhaled smoke.

"That sure is fine, Mr. Briese — Bill. That's very generous of you. To show you I appreciate it I'm going to — well, reciprocate. I'm going to pay my account in full."

Breezy Bill sat up straight and put out his cigarette. "Well, of course — if you wish. Certainly there'd be a saving in interest charges. But there's also the consideration that you don't want to leave yourself short of ready cash —" His eyes drifted to the duffel bag. "You mean one of the FHA loans, I suppose?"

"Both of them," Lou said. "The thousand-dollar one for the back bedroom and the twelve-hundred-dollar one for the upstairs bathroom. I'm three-quarters of the way through the five-year one and about halfway through the 30-month one."

"There's absolutely no hurry at all," Bill said, and Lou could tell that he was saying it sincerely.

"Except that I have the money —" Lou gave the duffel bag a friendly kick — "and there is that fat interest rate —"

"We're delighted to carry you, Mr. Aramis — Lou — delighted."

But Lou Aramis said: "I have the cash, Mr. Briese, and I prefer to pay the whole thing. I owe you $487.76 on one and $445.50 on the other. That's $933.26 on both. I'd like to clear those up right now."

He reached into the bag and counted out a thousand dollars in soiled bills. "We'll get it exact later," he said.

Mr. Briese let the money sit

on his desk, not touching it. He looked at it with distaste, then at Lou, belatedly changing his expression to a tentative smile. "May I ask you, without meaning to be overly inquisitive, of course, how you happen to have so much cash?"

"I didn't rob a bank, if that's what you mean."

The expression of distaste returned to Mr. Briese's face.

"I'm sorry," Lou said. "I guess that wasn't funny." It wouldn't do to antagonize Breezy Bill Briese at this stage of the transaction. "What happened is that a lot of my customers came in yesterday to pay up. Some of them had owed me for years."

Mr. Briese looked dubious. "You mean they all paid you on the same day, and all in cash?"

Lou shrugged. "Yeah. I guess you'd call it a coincidence."

"I would." Mr. Briese picked up one of the bills — a fifty — and examined it, then held it to his nose and sniffed at it. "It's certainly worn," he said reluctanly.

"Legal for all debts public and private," Lou said. He was pushing it now. "That's what's printed on it, isn't it?"

"That's what it says, all right."

"And you're open for business? Money's your business, just like cars are mine, and if you don't see anything wrong with the money, why can't I pay my debts with it? I can't eat it."

"True." Mr. Briese appeared to find inspiration. "But you could put it in a safe deposit box which I'd be glad to rent to you for eight dollars a year."

Lou started to object. Then he sat back and said, "Okay."

"Okay?" Mr. Briese wasn't prepared for such affable agreement.

"I'll rent the box." Lou picked some bills from the pile on the desk and handed them to Mr. Briese. "I'll even pay you in advance. Can I have a receipt?"

Mr. Briese took a pad from his drawer and wrote a receipt. He was smiling as he handed it to Lou. "Fine. I'll take you to the vault — "

"Not right now," Lou said. "Maybe I'll put my life insurance policy in it sometime and a few things like that."

"But I thought you wanted it for the money."

"Sure you did. But you took my cash, so it must be good. Now take my $933.26 for the FHA loans. It's exactly the same principle, isn't it?"

Bill Briese surrendered. He chuckled. "You win, Lou. In the absence of any directives not to accept circulated currency, such as you have here, I have no

choice but to stamp your FHA accounts paid in full."

Lou handed over the two payment books. He relaxed as the vice president in charge of consumer credit tore out the perforated pages and stamped PAID on each stub.

"It's a pleasure to do business with you, Bill," he said, putting the receipted books in his pocket. He smiled at the banker. "Now about the mortgage."

"The mortgage?" Bill Briese asked. "What do you mean, the mortgage?"

"My mortgage," Lou said. "I figured out last night that I owe you exactly $12,427. I want to pay it off."

He reached into the duffel bag, drew out a handful of soiled bills and started to count them out on the desk. "Twenty, forty, ninety, one hundred, hundred and ten, hundred and sixty . . . "

The banker sank back in his chair. His eyes became glazed as Lou continued to count.

". . . thousand-fifty, eleven hundred, eleven-twenty — oh, look, here's what you financiers call a C note — twelve-twenty, twelve-forty, twelve-ninety . . ."

After a while Bill Briese began to laugh. He picked up his PAID stamp and thumped it up and down on the ink pad, waiting for Lou Aramis to finish his meticulous counting.

The government acted, finally, after the aliens dropped eight hundred and thirty billion dollars, in beautifully wrought and now pre-rumpled bills no larger than fifties, over New York, Chicago, Los Angeles, New Orleans, Denver, Boston, Detroit, Pittsburgh, Dallas and Miami.

But before that happened Lou Aramis and his fellow members of the South Waterford Rumple Club had paid all their debts. They owned their houses and cars free and clear and had stocked up on everything they could buy. Bill Briese, though not a club member, had taken a long lunch hour, raked his lawn and paid off thirty thousand dollars worth of debts before going out on his own buying spree. He'd had to resign from the bank the same afternoon after an emergency meeting of the board of directors, but he did so with no apparent regret, and by nightfall he'd rented an office down the block in which he set himself up as a currency consultant.

His new business lasted only one day because an Executive Ordered soon outlawed paper money altogether.

The aliens, adapting quickly, flew over and dropped coins. The Kennedy halves did the worst damage because there were more of them than of any other denomination. But there were silver

dollars galore and Washington quarters and Roosevelt dimes. The aliens dropped no nickels or pennies, which became scarce. But by common agreement people gave up making small change; prices were rounded off to the nearest ten cents.

People who were out at 3 a.m. when the coin rain fell were stunned by the din and quite a number of them were knocked unconscious by the coins themselves. Vast numbers of windows were broken.

The government outlawed all money, including checks. Trading was suspended indefinitely on the stock and commodity exchanges. All banks closed. Supermarkets and other chain stores shut their doors for high-level consultations, but enterprising independent shopkeepers stayed in business by switching to barter.

Lou Aramis went out before breakfast to rake the lawn in front of his paid-off house. He gathered the five-, ten-, and twenty-dollar bills into a pile and burned them. He raked the silver out to the driveway where it glittered in the early sunshine, prettier than gravel.

His neighbor, Jim Vernon, was also burning bills. He told Lou he was saving his coins and planned to cover his patio with them. "I'm pouring the concrete Friday night, and I'll set the coins in then. But I'm a little short of silver dollars for the border."

Lou waved to his sparkling driveway. "Help yourself."

"Thanks."

"I've got an extra gross of eggs," Lou said. "Can you use them?" Lou's father-in-law had a poultry farm.

"I sure can," Jim said. "But I don't know what I could trade. You must be all stocked up on clothes by now." Jim ran Vernon's Men's Wear.

"*I* am, but Susie's getting jealous. Too bad you don't carry a women's line."

"I could probably do a swap with Keegan Brothers over in Parrish. What size is Susie?"

Susie had the omelettes on the table when Lou went in. She was studying a new cookbook. "We could have souffle for dinner," she said. "Takes an awful lot of eggs."

"Sounds nourishing," Lou said. "Could you disguise it somehow?"

"I've been saving a piece of cheddar cheese. And then I heard from Mrs. Lucia yesterday that there's a chance of getting some eggplant —"

"Eggplant!" Even the sound of it bothered Lou.

Georgie, their youngest, said: "I want some corn flakes."

"You'll eat eggs," Susie told

him. "I'm keeping the corn flakes for your birthday treat."

"I *hate* eggs," Georgie said.

Lou, who was beginning to feel the same way, started for his car. Susie ran after him. "You forgot your lunch." She handed him six hard-boiled eggs.

In the park, where he went to eat lunch, Lou traded three of the eggs for a loaf of bread. He'd struck up an acquaintance with a baker's helper.

It was getting so that Lou automatically woke up at 3 a.m. He lay in silent darkness for a while, then heard a succession of soft plopping sounds on the roof. He pulled on his bathrobe and went outdoors. The lawn seemed to be covered with ping-pong balls. No, bigger — they were white but each was the size of a kid's high bouncer. When he picked one up it gave in his hand as a rubber ball did. Lou shook his head and went back to bed.

In the morning he was awake before Susie. He went out and threw one of the round white things against the stone steps. Instead of bouncing it smashed. A red and white liquid spilled out. In the few hours since the things had fallen their casings had become brittle, like eggshells.

Lou was dismayed. He felt his egg-based economy beginning to crack wide open.

He bent down to sniff at the thing he had smashed. The liquid had a meaty, nourishing smell.

He gathered up a handful of the spheres and took them to the kitchen. He cracked their shells and fried them in a pan; a delicious aroma filled the air. Cooked, their consistency was that of Welsh rabbit. Tasted, they were reminiscent of lobster. He nibbled cautiously at first, then ate hungrily.

The members of the South Waterford Rumple Club, to whom Lou communicated his discovery, were almost as happy with the rain of lobster meat as they had been with the alien's original money drop, and soon the entire country was enjoying free high-protein meals. Some connoisseurs claimed that the food from the sky tasted like squid.

The connoisseurs turned out to be prophets. The trouble with the alien eggs was that, if kept, they hatched out octopi. The little creatures looked just like the description of the aliens given by the man from the Fish and Wildlife Service. They had pseudopods and bright orange mandibles.

The question of whether they could be eaten after they hatched was academic for two reasons. They didn't wait around to be captured. They moved on their eight legs more swiftly than spi-

ders and were always just out of reach. In the second place, the aliens now flew over every day, punctually at 3 a.m., dropping a new batch. People soon learned how to tell the fresh eggs from the day-old ones. Off-white freckles on them indicated that they were new and edible. When the freckles faded the eggs were ready to hatch.

As the octopi grew — and they grew fast — the federal government sent troops to seal off South Waterford. But this was a futile precaution because South Waterford was now only twenty-four hours ahead of the rest of the country, and all the government got was a preview of the end.

Lou Aramis, after breakfasting heartily on lobsterlike (or squidlike) egg meat, stepped out on his lawn to gather up a few more freckled spheres. He forgot his mission when he saw a fully grown creature hanging by two of its eight tentacles from the lowest branch of his catalpa tree. One of the other six tentacles beckoned Lou closer. The intelligent eyes of the thing were appraising him.

Lou, unable to resist the bidding, went to within arm's length. He felt neither fear nor repugnance as the alien creature reached out a tentacle and laid it on his shoulder. It might have been a caress, or a dubbing to knighthood, or the gesture of a master to a worthy slave.

The alien spoke, and there were overtones which suggested to Lou that similar scenes were taking place all over South Waterford and would be repeated twenty-four hours later throughout the United States.

His particular alien said to him: "I think we can use you."

Lou knew then as surely as if it had been explained to him by the League of Women Voters, or by the President himself, that both pronouns were in the plural.

Lou Aramis felt proud. He said: "Of course we'll do what has to be done, together."

It was only natural. Outwardly he was still Lou Aramis, upright terrestrial biped. But thanks to his recent diet he was starting to think like an orange-mandibled alien squid.

—RICHARD WILSON

KING of the GOLDEN WORLD

by ROBERT SILVERBERG

She was earthly and human. Her husband was an alien — how alien, she never knew!

Toward the late afternoon Elena mounted the higher peak of the double-humped island to watch the first phases of the eruption. A swarm of the children took her there — sleek, yellow-skinned fledglings, gracefully coltish, giddy with delight at the idea of accompanying the woman from Earth. They tumbled and pranced beside her as the procession ascended the mountain road, and as the group came round the spiraling cone to a place where the other peak was in view one of them said, "See the smoke, Elena? Soon there will be fire!"

He was Vondik, one of her favorites, one of the most agile, probably the most intelligent. As Elena moved to the edge of the road for a better view, the boy sidled up beside her. His cool, six-fingered hand casually encircled the bare meat of her left thigh only inches below her hip. He glanced up, and the warm greenish eyes searched her face as though to see if she disapproved of the contact. Well, of course, in the proper context — schoolboy and teacher on Earth, say — any such contact would be outrageously intimate. But this was not Earth, and Vondik

was merely being friendly. He was about nine, a couple of years short of maturity among these people. There was nothing sexual about the innocent embrace, Elena told herself.

The other children chattered and pointed at the far peak. Elena had difficulty understanding their rapid words. The onset of the eruption left them frantically excited. Like monkeys, she thought. Slender yellow monkeys growing tense before a storm.

"The fire will come," said Vondik. "And the stone will melt and pour down on everything. See? See? The fiery stone will fall on the villages and destroy all in its path."

"How soon?" she asked.

His fingers dug into her thigh. "Two sunrises. Three. Ask Haugan. Ask the chief. When you go to sleep with him tonight, make him tell you." Vondik giggled. "See the fire coming now! Do you see it, Elena?"

She stared out over the valley. The view from here was magnificent. She saw the green slopes of the other peak, and two of the three villages that had sprouted below the summit of the volcano since its last eruption, generations ago. The double-humped island was about ten kilometers in diameter, rising steeply from the dark waters of Lake Muuk. The lake was the gigantic basin of some ancient crater, the roofless remnant of what must have been an incredible mountain. No one knew how deep it was. It was thirty kilometers across, and to the east Elena was able to see the zig-zag course of the Golden River, yellow with mountain silt. The river came from the north, slicing down out of the cold loess country to feed this crater lake. The lake had no visible outlet. Elena supposed that underground springs must carry off the daily influx of new water. The daily tons of yellow silt were lost in the depths of Lake Muuk, which remained obstinately dark, obstinately deep, no matter how much debris the Golden River dumped into it. Further out, beyond the rim of the lake, Elena saw the broad tropical savanna. Unfriendly tribes inhabited it. The people of the lake, self-sufficient, never left their swayback-ed island, even though both humps were active volcanoes and the lesser hump was in an evil mood.

Once, ten years ago, Elena had seen Vesuvius: that dark ashy cone, those sinister fumaroles, the coiling wisps of greasy smoke. Touch a cigarette to the ground, and it ignited. She had gone right over the lip of the volcano and had stared into its black heart, looking down on the

death of Pompeii and shivering. Here she did not dare get so close to the crater. It was sacred ground to these people. The villages began in the valley and straggled up the slopes for hundreds of yards. Above the last houses lay a thick green belt of cloud forest, untouched by cultivation, untouchable, holy. Above that lay an ancient cinder zone, leading to the summit. When the first rumbles of the disturbance had sounded, Elena had wanted to climb the peak and evaluate the danger at close range. Haugan had forbidden that. He was not only her lover but the chief of the three villages, the King of the Golden River, and she could not disobey him. So here she was, atop the uninhabited neighboring peak, looking across the valley at the deadly mountain.

"Much dead when it blows up," Vondik said.

"Surely everyone will be a safe place by then," said Elena.

The children laughed: a shrill chorus, rising in pitch, then descending. When she had first come to this world, she had found its style of laughter intolerably strange. Now she was used to it, and it charmed her. But to laugh in the face of a throbbing volcano?

The sky was darkening. Purple, feathery puffs of cloud drifted in from the east, from the sea, heavy with rain. Against this darker background Elena could plainly see the incandescent material shooting high in the air from the funnel of cinders across the island. There were distant hissing and roaring sounds. A fountain of cinders and pumice spurted forth, bright red, cascading down the slopes. Through her spy-lens Elena watched a shower of glowing little particles lose itself and grow dark in the wilderness of ash that bordered the summit. She trembled. How long could it be before the volcano was hurling its matter into the sacred forest on its flanks and then spewing its seed into the huddled villages themselves? How could everyone be so calm about it? The ground seemed to be shaking, even here, kilometers from danger. Elena knew that beneath this entire island, both peaks of it, conduits of liquid fire crossed and recrossed. A mighty beast was stirring far beneath her feet.

Vondik's hand was gone from her thigh, now. She looked for the boy and saw his agile, naked form high in a tree, reaching for a gleaming winefruit. He seized it and jumped; the other children caught him and bore him triumphantly to her side.

"A winefruit for you."

Apple for the teacher. She took it, touched his cheek to thank him and bit into it. The children watched anxiously. She smiled to tell them that it was ripe and delicious. Winefruits were left to ferment on the bough, but if they were left too long they were sickening. Elena felt faintly giddy as the alien alcohols attacked her metabolism. The children gamboled about her. How could they be so cheerful? Their homes would be destroyed. These folk were no simpletons, no backward rustics. In their own way they were shrewd and sensitive. Yet they did not appear troubled.

Markun, one of Vondik's many sisters, capered and pointed. "Now the lightning comes!"

Darkness had fallen with tropical suddenness. The pearly sky had grown ashen, and now the pumice fountain flamed like a giant Roman candle, and above and around it hovered a black cloud of erupting gases. And in the cloud flickered white sheets of forked lightning. At first Elena thought the lightning came from the purple rain cloud she had seen earlier, but no, there was that cloud sitting on the forest like a veil spread out in the treetops, well below the cinder zone. This lightning had something to do with the forces being unleashed within the volcano. It crackled and danced with demonic fury.

"We'd better start back to the village," said Elena nervously. "It's late. It's getting dark."

They did not object. Whooping and leaping, they preceded her down the steep incline, waiting every few moments for her to catch up.

Elena found the downward path more strenuous than the ascent. Gravity here pulled a little less harshly than on Earth, and she was in fine physical shape, thirty years old, tight-fleshed, strong. But the mountain path was cut at a devilish angle. Going up, it asked no more than stamina, which she had in abundance. Going down, it imposed ugly strains on her slender ankles. She managed. Soon they were on level land again, crossing the gentle sway of the valley. The first houses appeared. Dinner fires had been kindled. Instead of the twenty children who had gone with her to the lookout point, Elena now found herself surrounded by fifty, a hundred, a hundred and fifty. They greeted her with piercing cries of pleasure, crowding close, lightly slapping their hands against her bare body.

It had been easy enough to get accustomed to going naked here, but Elena had never conditioned herself to the sight of so many children. On Earth,

where births were so strictly regulated, children were rare sights. Here such regulation was unknown; and, besides, this was a race that bore quintuplets as a matter of course. Elena had never heard of a litter smaller than three. Six and seven births at a time were not uncommon. And the children thrived. The air was warm and gentle, the valley fertile, the lake generous with its yield.

Boisterously the children escorted her to the Parting of the Ways.

These were all one people, one culture; yet the three villages were separated by barriers of custom and caste as high as mighty walls. Largo, the lowland village, was a farming settlement. Hulgo, at the base of the volcano, was a town of artisans and potters. Gilgo, higher on the slopes, produced the laborers who did the heavy work, the fellers of trees, the builders of houses and canoes. Elena saw no necessary reason for this arbitrary division, except that it provided an exogamic structure for these insular folk. A man of Gilgo took his wife from Largo or Hulgo; no one ever married within his home village. That kept the population mixing, at any rate. Except for marriages, there was little contact between one village and its neighbor.

Haugan, the chief of all three villages, lived high up in Gilgo. He ruled the lower two villages through surrogates; there was little real ruling to do, merely the proclamation of festivals and holidays and the occasional imparting of justice. Elena took the Gilgo road, with only Vondik, Markun and a few of the other children following her. Clammy dampness had descended on the island. She was tired now. Her breasts heaved, her skin felt sticky. She leaned more heavily on the climbing-stick Vondik had cut for her. As she entered Gilgo she paused a long moment, a lean, naked, blonde Earthwoman far from home and clad in worries and humidity.

She looked up at the smoking summit, dimly visible between the trees. A gigantic eruption cloud now towered over the peak, laced with lightning in continual flashes. It seemed to her that the subterranean rumbling was louder. She had the illusion that the air was full of minute particles of ash, and she felt grimy and soiled from them, even though a finger drawn across her chest did not produce the expected streak. She hurried onward, to the large hut that she shared with Haugan.

The king came out to greet her. They embraced solemnly.

"What have you seen?"

"Fire and smoke and lightning. Haugan, it's going to erupt!"

"Not yet. Not yet. Dinner is waiting."

He led her inside. He was taller than she — the tallest man in the village, as was fitting — and moved with such grace that she never failed to feel cowlike in his presence. Alien as he was to her, she had always responded in an immediate physical way to him, from the day she had come here, a foolish expatriate looking for illumination in the outworlds. She had not expected to become the bride of an alien.

But of course he was not all that inhuman. He had too many fingers and too many joints; the texture of his skin was strange, his eyes were all pupil, he was without hair or fingernails, and she did not dare to think much about the arrangement of his internal organs. Yet the general pattern of his body was humanoid. Evolution had come to the same conclusions here as on Earth about how a dominant mammalian species should be designed, and Haugan stood upright, had two walking limbs and two grasping limbs, carried his forehead, eyes and teeth in the same flat plane and found it convenient to cover his women with his body in the act of love. Elena had ceased to regard him as bizarre.

They squatted on the mat. Dinner — stewed meat, green wine, starchy vegetables — was served in silence by Haugan's maid Leegar. Her belly swelled with a new litter. She was six months along. Haugan, of course, was the father; it was a chief's prerogative to take concubines. The girl was shy but not at all apologetic about it. She smiled as she set Elena's food before her. Leegar seemed to be saying, "You may be the king's wife, but *I* carry the king's children!"

Elena had never quite grown used to the sight of the women, with their triple rows of breasts reaching from throat to navel. It was a sensible arrangement, considering the habit of multiple births here, but it seemed unutterably alien to her in a way that Haugan's minor aliennesses no longer did. The feeling seemed reciprocal. When they lay together at night, Haugan's hands often came to rest on the flat, taut drum of her chest as though in unending wonder at the absence of the lower four breasts.

Haugan said, "You aren't hungry?"

"The volcano frightens me, Haugan."

"God in his time sends all blessings. We are prepared for what may befall."

"But I saw it clearly," she said.

"It's like a bubbling caldron. At any minute, it might bury us in lava."

"The priests are keeping watch. The lava will not come for several days."

"Several days! But — "

She hesitated. Often, she found herself lecturing or haranguing him, slipping into the role of the educated Earthwomen telling the native chieftain what the universe was all about. But she hated that facet of herself. This was his world, his island, his kingdom; and it was folly to imagine she was superior to him merely because her civilization had interstellar ships and his made pottery from coils of clay.

"What do you suggest?" he asked quietly.

"I don't know. It only seems sensible — "

"Tell me."

" — to start evacuating the three villages. Move everybody across to the other mountain. We're just sitting here under the crater waiting to be killed."

"There is time to evacuate."

"Haugan, there are thousands of people — the domestic animals, the tools, the furniture — "

"We will not leave so quickly."

He poured more wine for her. Elena drank and grew giddy. Haugan remained calm — insanely calm, she told herself. He was like a rock, steady, assured of all he did. In every decision, from judging a paternity dispute to ordering the flight from the eruption zone, Haugan seemed equally unhurried and equally confident, a true king.

When the meat was gone, they went outside and walked through the village, king and consort, hailed by all. From the promontory on the eastern slope they studied the volcano above them. The eruption cloud had grown greater, as had the flaming fountain coming from the heart of the cinder cone. Now it seemed that the angle of that Roman candle had changed, dipping to point to the west. Elena saw the red reflection sprawling like a bridge across dark Lake Muuk. Every few minutes there came small booming explosions from above. Steam and black ejecta spurted high and fell back. The air had a singed smell. Elena looked at her arm and found a coating of fine ash trapped in the golden down on her skin. She showed it to him. Haugan stroked her body and murmured, "You have the soft fur everywhere on you. Not only here and here and here. Except for a few places, your skin has the light strands of fur all over. Wonderful!"

"Haugan, you've noticed that before. I'm showing you the ash, now. The air's full of it."

"Yes. And it will get worse." He did not seem to care.

Later, several old men came to see him. He sent Elena inside and squatted with them before the hut. They talked more than an hour. Elena could not understand their words — the old men spoke in thick mumbles, and Haugan replied in whispers — but now and again she seemed to sense sharp disagreement. Something the oldsters said made Haugan angry, and she heard him snap sarcastically at them. The conclave broke up at last. He came in and lay down beside her on the sleeping-mat.

"What did they want?" she asked.

"To talk about the volcano. To make plans."

She said suddenly, "Haugan, do they blame me for the eruption?"

"You? Why should they blame you?"

"The king has taken a wife from another world. Maybe they think that was sinful and is bringing destruction."

"If they thought it was sinful, they would never have allowed the marriage."

"I know some of your people objected to it."

"Elena, you know we must marry outside our village. It is the rule."

"Outside the village, yes. But to bring in a woman from a different world — "

"You fill your head with wrong ideas," he told her. "Is this some imagining of your own planet, that it is an evil omen for the king to marry a foreign woman? Here it is acceptable. Necessary, even. The more foreign, the better. And you are the most foreign. No one blames you for the fire overhead, Elena. I swear to that."

She was not soothed. Obscurely she believed that the old priests held her guilty for the impending disaster. No one had voiced even a hint of such a feeling to her, but she could not shake the notion away. It was too easy for her to think in glib anthropological terms. The exogamic exchange of women here had signficance for her as the passage of unspoken messages between tribal groups; the women who embodied those silent messages were units of economic, biological and symbolic significance exchanged in a manner which kept the general structure — the meaning — of the island society coherent and dynamic. Haugan had incorporated her into that structure. But what was the unvoiced message that she carried, if not one of doom and destruction? The islanders did not marry mainland

women, despite the rule of exogamy. Was it not a blasphemy for Haugan to have married an alien? Elena could not shed her sense of guilt.

In the morning she saw that the cataclysm had not yet arrived. But it was closer. Now, periodically, the crater belched steam and pumice. A thin steam cloud hovered over the lake. At the summit, the cinder cone seemed to have grown by at least a dozen meters since the previous afternoon. It rose precariously higher on the lakeward side than on the valley side, and about midday some new convulsion split the higher shoulder, breaching it to form a horseshoe-shaped rim. A dribble of clinkers became a talus slide reaching toward the upper margins of the forest. The forest itself was dingy with an overlay of ash, and every gust of wind now brought light drifts of debris into the village.

Among the people of the Golden River villages, life seemed to go on as it always had.

The men felled trees and hewed them into canoes. The women tended their babies. The children played. In the lowlands, the harvest continued. No one acted alarmed. Haugan was away most of the day, conferring with priests and elders in the official huts at the upper end of the village. Elena momentarily expected the evacuation order to come, but it did not.

Darkness was early that evening. The sky was so clotted with ash that it would not let the late sunlight through.

There was feasting after dark. Elena eyed the pillar of fire above the village. It seemed to her that she could feel bursts of hot steam on her nakedness, the exhalations of the monster. Soon would come a vomit of steamy mud, and boulders of pockmarked tuff, and then the devastating river of lava.

That night Haugan occupied himself making lists on sheets of bark. He had no time for Elena. Throughout the night he conducted interviews in low muttered tones. At last he seemed to be showing some sense of an emergency, but only he and his coterie of withered priests appeared at all involved with the gathering force of the eruption, and even they were calm. She was the only one to feel fear.

Now it was the third morning since the rumblings and roarings and hissings had begun. Through the ash-clouded sky the sunlight looked sickly and strained. Small explosions were coming every five minutes. A layer of ash covered the village lightly.

Haugan said, "Come with me to bathe, Elena."

She was glad to get out of Gilgo and put more distance between herself and the growling volcano. Together they journeyed through the lower villages and to the shore of the lake. They both were grimy, though his smooth body had retained less of the ash than hers. The water was serene, but when Elena touched it she drew back, hissing at its warmth.

"It's boiling, Haugan!"

"Not yet. We can still enter it." He waded out, hip-deep, and beckoned to her. She stepped into the shallows again. Once in Japan she had taken a bath that she was certain would scald her; this was at least as hot. Yet she forced herself forward, until the water swirled up about her loins, and knelt to submerge her body to the chin. The mud underfoot was voluptuously warm. She dug her toes into it to hold back the pain. Haugan, beside her, ran his hands over her as if to scrub away the grime. She did the same for him. After perhaps five minutes they rushed from the water, cleansed. Her skin was puckered and unnaturally pink; his appeared unchanged.

Standing by the shore, Elena looked to her left, toward the smoldering volcano, and then to her right, at the quiescent taller peak. Why were there no villages on the other mountain? It was not holy; beasts were tethered there, children roamed it, but no one lived there. The Golden River folk all clustered about the lesser peak, and she had never thought to ask why. Over there, a close-packed jungle covered everything, except for the roads and the grazed places and the ancient coating of cinders at the very summit.

The volcano howled. Elena heard a new, more ominous sound: a high-pitched whistling. The sound of the demon about to break loose, she wondered?

She clutched at Haugan. "Let's go back. You've got to order the people out of the villages!"

"Do I have to?" He sounded amused.

"They'll die when the eruption comes."

"Yes," said Haugan easily. "Some of them will die. Some will not."

Frightened, baffled, she stared at him without comprehension.

It can't be long now," she said. "Perhaps by this afternoon the lava will come."

"Sooner than that," said Haugan. "Within the hour, Elena."

"How do you know?"

"I know."

"And the people — your people — "

"Those who are to be spared are already departing. Look."

She followed his arm, and Elena saw the dark line of the road that led through the valley to the slopes of the far peak. Like ants, at this distance, were the moving villagers, the procession of people laden with belongings and pets. She let out her breath in relief. So the exodus had begun! She watched the thin line for a long moment. But then, turning to glance up at the villages, she saw many people at work still, heedless of the gathering danger. She did not understand.

"If there's only an hour left," she said, "why aren't they leaving too?"

"They stay," said Haugan. "Only a few will go to build the new villages. Our numbers have grown rapidly, as always, and there are too many of us. I have chosen those who will go across the island. This is not the first time."

"Not the first — "

"The Night of Fire comes in each fifth generation. Each mountain must cleanse itself of the villages on its slopes, each in its turn. We build again and go on."

Haugan smiled, and as she quivered in confusion he took his hands in hers and pressed them tight. "I have duties to perform now. You may watch them, Elena."

She followed him along the shoreline to a place where the water lapped up against the shoulder of the volcano itself. The vegetation here was limp from the new heat of the lake. Elena saw a scar in the forest, a huge ditch leading from the beach to the edge of the mountain. She knew that men had come down here to work in recent months, and now she saw what they had been doing. Haugan walked inland a short distance. Elena saw that the ditch terminated in a barricade of logs, securely tethered to form a kind of sluice-gate. The warm water pooled at the gate and did not pass it.

Haugan knelt. He scooped warm mud and rubbed it on his body. He uttered words in a language she had never heard before. He gestured at the distant quiescent peak.

Then to her he said, "Within the mountain is fire. When the water of the lake meets the fire, the molten lava comes forth. This is the gateway of the lake. Now I must open it."

He seized a sharpened stake. Elena said, "You mean the lake water gets access to the volcanic conduit through this opening?"

"Yes."

"And you're going to lift the barricade?"

"Yes," he said, and thrust the

stake into the withes that bound the sluice-gate.

It was cleverly contrived. Haugan slashed in half a dozen places, and the great door of logs swung back on unseen pivets. Stunned, Elena gazed upon darkness within the mountain. She could not see the fires that lurked in the volcano's bowels; she saw only blackness, the blackness of total night, and another blackness of a race that would commit suicide for reasons of rite, and she swayed and nearly toppled. Haugan caught her. She peered down that black tunnel as the rushing waters of the lake sped past her, arrowing to the core of the mountain, there to hurl themselves upon roiling magma and spark the final convulsion of the eruption. Panicky, she struggled to flee, but he held her easily, and in that moment his skin against hers seemed unbearably alien.

He released her when she grew calm.

"Now we go back to the village," he said.

"To join the escaping people?"

"No," he said. "The king remains behind."

They hurried up the slope. Dimly Elena perceived the rhythm of it, the two volcanoes, the alternating village sites, destruction visited upon one while the chosen flee to the other, the new village rising while the old is engulfed, the cyclical rite of purification, perhaps the cure for overbreeding, the ritual sacrifice of the king, the deliberate goading of the volcano. No wonder the other mountain was unsettled; beneath its forested slopes lay the ruins of who knew how many villages of the past, and now a new one would rise. Her mind whirled with interpretations and theories. But she did not understand. This was suicide.

Now they entered the village of Hulgo and hurried through it to the village of Largo. Past them streamed the refugees, unhurried, unafraid. Those whose lot it was to remain smiled and waved to the king. A terrible tremor of agony came from the volcano and shook the island.

They reached the hut that was Haugan's dwelling. The old men were waiting there. They looked pleased.

"You see?" Haugan said. "This has nothing to do with you, Elena. You brought no curse to us. This is a blessing upon our people."

"A blessing? To die like this?"

"It is our way. You may go, Elena. Save yourself. There is still time."

She gaped at him, bewildered. She understood little of this, for she was caught up in something that was not human in its origins,

and Haugan was right: this was not her way, she could never understand. She was of another world. She had tried to become part of this world, but it had all been merely a pose.

Yet she was his wife.

The sunlight was blotted out, though this midday. The island groaned. Elena imagined her naked body entombed by a sudden swift rush of lava. The priests chanted softly.

A plume of flame split the sky.

Vondik and his sisters ran by, exhilarated, ebullient. "Now comes the fiery rock!" he yelled. "We'll see it soon!" They were gone . . . but not to flee.

Elena looked into a darkness beyond her comprehension, and in that darkness she saw only one thing to cling to: that these were her people now, and this must be her way. Was this her ultimate pose? Or was it her first and last true act? She did not know. She did not care.

"Will you go?" Haugan asked.

"How can I leave you?" she responded.

Embracing her husband, Elena waited for the Night of Fire to begin.

— ROBERT SILVERBERG

★ ★ ★ ★ ★

FORECAST

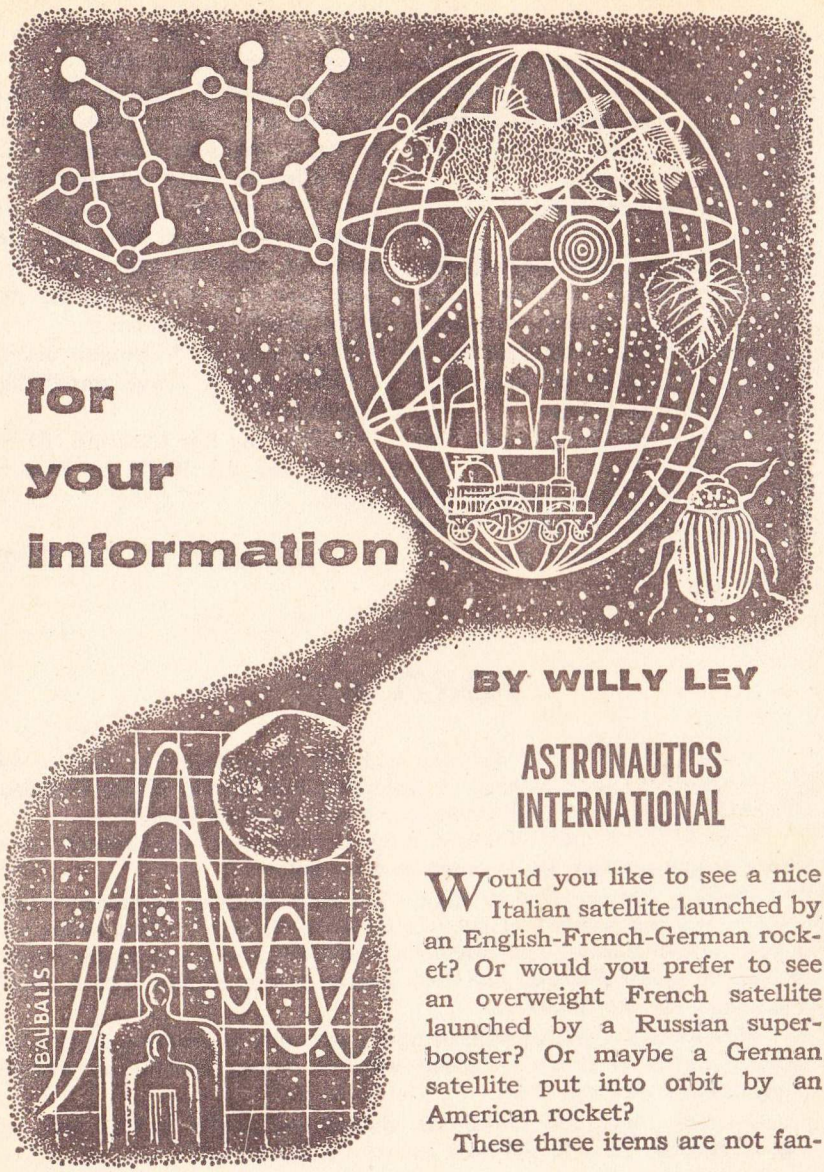
Had a letter the other day that said, "What happened to some of the great writers you used to have in *Galaxy*? I miss Simak, Aldiss, Sheckley, Damon Knight, Laumer and others; can't you get them back?"

Dear lady (we *think* it was a lady; the signature was blurred), as a matter of fact, we can. Try the next issue for instance:

Street of Dreams, Feet of Clay is a Robert Sheckley novelette — and a funny one, we promise. In *Total Environment*, Brian W. Aldiss builds you a world in miniature — and populates it with some of the strangest human societies in recent sf years. And Keith Laumer is also present, with a novelette called *The Big Show*.

Poul Anderson will be with us again, too, with a complete short novel called *Tragedy of Errors* — along with, of course, Budrys, Ley and as many others as we can fit in.

Damon Knight and Clifford D. Simak? Well, with a little luck we expect to have them in the next issue . . . .



BY WILLY LEY

ASTRONAUTICS INTERNATIONAL

Would you like to see a nice Italian satellite launched by an English-French-German rocket? Or would you prefer to see an overweight French satellite launched by a Russian superbooster? Or maybe a German satellite put into orbit by an American rocket?

These three items are not fan-

tasy or wishful thinking. They are not even just possibilities — they are actual *projects!* The first of the three is the *Europa-1* project of ELDO, due around the latter part of 1968 or early in 1969. The second will be the result of an agreement signed by France and the Soviet Union early in 1967; and, unless political developments interfere, it will become reality in 1970. The third one is the result of general NASA policy and is likely to happen in 1968.

Astronautics got under way a dozen years ago by way of American and Russian efforts undertaken in the spirit of a grim (but primly denied) competition, but it has quietly grown international during the last few years, as had been predicted even then. Of course one could only predict that a kind of internationalization would take place; one could not have forseen what form it would take. The first steps toward internationalization came from three different sources: one was an idea harbored by three German space-travel enthusiasts, the second were the needs of the American space program and the third consisted of the very simple fact that the European nations are smaller than either the USA or the USSR and could hope to compete in space only by forming a union of some kind.

Let us begin with the idea of the three Germans. They were leading men of the new German Rocket Society that had been formed after the war. One was its president Heinz Gartmann, an aeronautical engineer (who died of a heart attack about ten years ago), the other two were Dr. Gunter Loeser, aerodynamicist and expert on turbulence (he died in a helicopter crash in the United States while engaged in the investigation of low-level turbulence), and H. H. Koelle, an engineer who then worked in Huntsville for a number of years and is now Professor of Astronautics in West Berlin. The three reasoned as follows: we have here a society devoted to astronautics. There are societies devoted to astronautics in other countries. Why don't we try to get together for international cooperation? It might do something for all of us.

Then still thinking in terms of Europe only, they wrote to the British Interplanetary Society in London and to the Groupement Astronautique Francaise in Paris. The director of the latter, Alexandre Ananoff, became enthusiastic and organized the First International (European only, though) Congress for Astronautics. It took place in Paris in September of 1950 and was attended by representatives of astronautical so-

cieties from Austria, Denmark, France, West Germany, Spain, Sweden and the United Kingdom. A transatlantic note was furnished by the presence of Professor Teofilo M. Tabanera of Argentina.

The first congress just decided that such an international organization was desirable, and it laid the groundwork for the organization. At the second congress in London in September 1951 — organized by the British Interplanetary Society — the International Astronautical Federation (IAF) was established. During the third congress in Stuttgart (1952) the constitution was formally adopted and the IAF was registered in Baden, Switzerland, under Swiss law. It has been going strong ever since, with a congress every year in a different country, usually the capital of that country.

This was one step in the direction of internationalization.

The second step, as has been said, grew out of the needs of NASA. NASA was preparing for the Mercury manned spaceflight program in 1958, and that meant that tracking stations had to be established all around the world, in Africa, in Madagascar, in Australia, India and Japan. At the same time the International Geophysical Year was under way, and one of the goals was the exploration of the upper atmosphere. The United States made an agreement with Canada for firing sounding rockets from Canadian soil. The rockets were American Aerobee rockets and also solid-fuel sounding rockets consisting of a solid-fuel Nike booster and a smaller solid-fuel rocket as an upper stage. Once the idea of firing American upper-atmosphere-sounding rockets from a non-American site had taken hold it could easily be expanded to include other nations. The Canadian firing site was as far to the north as could be conveniently managed — the main reason for the choice of Fort Churchill was that it was the northernmost point in Canada that could be reached by rail. Now a firing site as close to the equator as possible was desired, and India offered the use of a stretch of land near its southern tip which became known as the Thumba range.

The working arrangement was the same with all other countries. The United States, via NASA, furnished the rockets and, if necessary, instruction; the other country furnished the firing site, tracking facilities as required and personnel. No exchange of funds took place. Under such an arrangement sounding rockets were fired from New Zealand and from the Andoya range in northern

Norway. Of course American rockets were also fired from the Chamical range in Argentina, about 150 miles from Cordoba.

But, while there was never an exchange of funds, there soon came to be an exchange of rockets. In February, 1967, Indians from the Thumba range arrived in the United States with an Indian-built instrument package which was launched successfully from Wallops Island on March 16, 1967, using a two-stage Nike-Apache rocket. One year earlier a Japanese group had come to Wallops Island with a Japanese single stage solid fuel called the MT-135, about 10½ feet long and weighing 150 lbs. at launch. The Japanese rockets carried meteorological instruments to a height of 35-38 miles; they were paired with American solid-fuel Arcas rockets that reach about the same altitude. Each time a Japanese MT-135 took to the air, it was followed by an Arcas 15 minutes later.

Since the international arrangements about sounding rockets worked out so well, why not extend it to satellite launchings? The first two countries to take advantage of this possibility were the United Kingdom and Canada. Artificial satellite UK-1 was successfully launched on April 26, 1962, and the first Canadian satellite *Alouette* ("Skylark") followed on September 29, 1962. Since the Canadians wanted a nearly polar orbit the launching was done from the Pacific Missile Range. Both the first British and the first Canadian satellite required a Thor rocket with an extra upper stage, and at that time the Thor was still a military missile that was classified in part. Hence the firings had to be from United States Territory and a certain amount of security complications was inevitable.

But by that time there had been inquiries from other countries whether the United States might not sell them a rocket for scientific purposes. The West Germans even wanted to buy an Atlas rocket with an Agena as the upper stage for an ingenious but heavy satellite they had designed.

Of course, no military missiles could be sold, but meanwhile NASA had developed a rocket that was not classified, the Scout. All four stages use solid fuels. The first stage is an Algol by Aerojet-General, with a thrust of 115,000 lbs. The second stage is a Castor by Thiokol, with 55,000 lbs. thrust. The third stage is an Antares by Hercules Powder with 13,600 lbs. thrust, and the fourth stage is an Altair (also by Hercules) with 3,100 lbs. thrust. Add guidance by Minneapolis-Honeywell, and you have a 72-foot rock-

et with a take-off weight of 36,600 lbs. that can carry a 110-lb. payload to an altitude of 3,500 miles or put a 150-lb. payload into orbit.

This is the rocket that was made available to other powers for launches from U.S. launch areas or that could even be sold for launches elsewhere. But while the English were satisfied to have their satellites launched in the United States — and the West Germans will bring over a satellite of their own for this purpose soon — some other nations had higher ambitions.

The Japanese, in 1955, decided on a program of their own, beginning with a small solid-fuel rocket they called Pencil because it was only 11½ inches long. Pencil was followed by Baby which had two stages but a total propellant weight of only 2.2 lbs. Then followed a 4-foot rocket and then followed a series that had the overall designation of Kappa. With one exception they were two-stage rockets, and all of them were solid-fuel rockets.

Kappa-6, with a take-off weight of 595 lbs., reached a peak altitude of 37 miles in 1958. Kappa-6H, in 1960, had take-off weight of 727 lbs. and reached a peak altitude of 50 miles. Kappa-8L, in 1962, weighed only 50 lbs. more but climbed to 100 miles. Kappa-9M, in 1963, weighed 3,300 lbs. on the pad and carried a payload of 110 lbs. to 217 miles. Of the next set of sounding rockets the two-stage Lambda-2 carried a payload of nearly 400 lbs. to 310 miles in 1963, and the three-stage Lambda-3, in 1964, carried 375 lbs. of payload to 375 miles.

By that time the Japanese were ready to build a satellite launch vehicle — and their whole space program, up to that point, had cost them only 25 million U.S. dollars.

The satellite launcher was called Mu-2, had four stages and carried a 57-lb. satellite. The launch date was September 26, 1966, and the take-off looked fine. But the top stage failed to ignite, and the satellite fell somewhere into the Pacific Ocean. But by the time this column appears in print, the Japanese might have succeeded.

While the Japanese produced a very thrifty space program, the French were after a diversified rocket and space program. Of course they were thrifty, too, in an interesting manner as we'll see soon, but they did not permit the budget to curtail success. After preliminary studies and presumably extended debates, the French created two "families" of rockets, the *Belier* family (*belier* means "ram," the animal as well

as the medieval battering ram) and the so-called "gem family." With the single exception of one of the "gems," the *Emeraude* ("emerald") they are all solid-fuel rockets.

The *Belier* family takes its name from the fact that the *Belier* rocket is the top stage for all rockets of this family. The *Belier* has a length of 13 feet 2 inches, a diameter of 12.0 inches, a launch weight of 694 lbs. and a burning time of 21 seconds. Fired by itself it can reach an altitude of 50 miles. The next bigger rocket of this family is the *Centaure* which carries the *Belier* as its second stage. Overall length (including the second stage) is 19 feet 9 inches; the diameter is an inch less than that of the *Belier* and the overall take-off weight is 1,030 lbs. Fired with a *Centaure* to boost it, the *Belier* reaches an altitude of 80 miles

Next is the *Dragon,* also carrying a *Belier* as its second stage. The overall length (with *Belier*) is 23 feet 3 inches, overall take-off weight is 2,550 lbs., and the peak altitude for the *Belier* when boosted by a *Dragon* is 250 miles. But one can continue with this game, and the French did: they built a lower stage called the *Pegase* (Pegasus) to carry a *Dragon* that carries a *Belier.* The overall length of this three-stage rocket is 33 feet 11 inches, overall take-off weight in 4,512 lbs., and peak altitude for the top stage is 600-630 miles.

In the "gem family" we have the same careful regard for combinations. There are four basic rockets.

In the liquid-fuel *Emeraude,* the oxidizer is nitric acid and the fuel proper a turpentine derivate named terebenthine. None of the figures for the *Emeraude* one can find in French magazines seem to agree among themselves; the reason is that an *Emeraude,* to be testfired, has to carry dummy upper stages and the figures sometimes refer to the rocket with these dummy stages and sometimes they do not. The *Emeraude,* by itself, is 32 feet long with a diameter of 4.4 feet. Weight empty is 4,290 lbs., weight fully fueled is 32,380 lbs. and take-off thrust is 59,700 lbs.

The smallest of the four basic rockets does not seem to have a name, it is always referred to as the "third stage." It is 6½ feet long, has a diameter of 26 inches and an empty weight that is surprisingly low, namely only 150 lbs. But its propelling charge weighs 1,410 lbs.

The two rockets *Agate* and *Topaze* are fairly similar in their dimensions but different in construction. The *Agate* is 28 feet long, the *Topaze* 25¾ feet. Both

have a diameter of 31½ inches. At take-off the *Agate* weighs 7,500 lbs., the *Topaze* 7,500 lbs. But the *Agate* has only one exhaust nozzle and a burning time of 18 seconds, while the *Topaze* has four exhaust nozzles and a burning time of 39 seconds. So these are the basic rockets of the gem family, *Emeraude, Topaze, Agate* and "third stage." What follows should be (but isn't) called "jewelry" — because now the gems are combined.

This is the scheme:

Agate + "third stage" = *Rubis*
Emeraude + *Topaze* = *Saphir*
Emeraude + *Topaze* (= *Saphir*) + "third stage" = *Diamant*.

Diamant is the French satellite launcher with an overall length at take-off (including the satellite) of 62 feet. But the first French satellite was launched in the United States by a Scout rocket, then the French went ahead and put three satellites of their own into orbit (see table).

When the French rocket program began, Algeria was still French, and so the French established a proving ground in the Sahara near a place called Hammaguir. I have read somewhere that this is a native word meaning "javelin thrower", — I find this coincidence (if it is one) a bit too pat, but of course I can't say that Hammaguir does *not* mean javelin thrower. But the French, who then leased Hammaguir for a number of years, had to leave on June 30, 1967, so at the time *Diamant* went into action, Hammaguir was headed for the last countdown.

As a result, the French, during 1966, have been busy constructing two new firing ranges, one for satellites in Guiana and one for missiles with ranges up to 1,200 miles on the French west coast, halfway between Boulogne and Biarritz.

One of the last French rockets fired from Hammaguir was a two-engined single stage rocket called *Cora* which has nothing to do with the *Belier* family and the "gems" but is destined to be the second stage of the *Europa-I* satellite launcher of ELDO. The letters stand for European Launch Development Organization, and ELDO is the result of the third reason for internationalization mentioned at the beginning. ELDO was first proposed in 1960 by the United Kingdom and France and formally organized in 1964 with the following members: Belgium, France Germany, Italy, the Netherlands and the United Kingdom. The seventh member, Australia, does not contribute funds, but makes its Woomera firing range, tracking facilities

THE "INTERNATIONAL" SATELLITES

(All launched from U. S. Firing Ranges except as noted.)

Launch Date	Satellite Designation	Satellite Design	Launch Vehicle	Perigee (miles)	Apogee (miles)	Orbital Period. (minutes)
Apr. 26, 1962	UK-1	British[1]	U.S.	242	754	95
Sept. 29, 1962	Alouette-I	Canadian	U.S.	597	619.4	100.5
Mar. 27, 1964	UK-2	British	U.S.	186.4	825	101.2
Dec. 15, 1964	San Marco I	Italian[2]	U.S.	128	510	95
Nov. 26, 1965	FR-1	French	U.S.	329	1123	108.7
Nov. 28, 1965	Alouette-II	Canadian[3]	U.S.	315	1863	121.4
Feb. 17, 1966	D. 1A	French	French[4]	311	1701	118.7
Feb. 8, 1967	Diadème 1	French	French[4]	354	775	104.3
Feb. 15, 1967	Diadème 2	French	French[4]	367	1168	110.2
Apr. 26, 1967	San Marco II	Italian	U.S.[5]	135	498	95
May 5, 1967	UK-3	British	U.S.	306	373	95.6

1 The three British satellites are also known as *Ariel* 1, 2 and 3.
2 Launched from Wallops Island by an Italian launch crew, San Marco I reentered the atmosphere and burned up on September 13, 1965. All others in this table are still orbiting.
3 The same rocket also launched the American satellite Explorer-XXXI.
4 Fired from Hammaguir, Algeria.
5 Fired from floating platform in Indian Ocean.

and personnel available to the other members.

While ELDO's goal is the development of a launch vehicle, its sister organization ESRO (European Space Research Organization) has a more varied program and has, for that reason, several sub-divisions:

ESDAC: European Space Data Center, located in Darmstadt, West Germany,

ESLAB: European Space Research Laboratory, located in Noordwijk, The Netherlands,

ESRANGE: European Space Range (for sounding rockets) located near Kiruna, Sweden,

ESRIN: European Space Research Institute, located at Frascati, Italy,

ESTEC: European Space Technology Center, located in Noordwijk and Delft, The Netherlands.

ESTRACK: European Space Tracking Network, with stations in Norway, Spitsbergen (Svalbard Archipelago), Port Stanley (Falkland Islands), Redu (Belgium) and Fairbanks, Alaska.

ESRO has three satellites being built, ESRO-1 by a French company, ESRO-2 by Hawker-Siddeley in England and Heos-A by Junkers Aircraft in West Germany. All three will be

launched by American rockets and presumably from American firing ranges, ESRO-1 and ESRO-2 will be orbited by Scout rockets, while Heos-A will need the rocket called TAD, which means "thrust-augmented delta." The schedule calls for launching all three of them during the latter half of 1968. (Though late word from NASA indicates one may launch early — perhaps while you are reading this). The rockets for the ESRO satellites will not be furnished free of charge, but will be purchased by ESRO.

ESRO's membership is exclusively European and is larger than that of ELDO. Ten nations are members, namely Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and the United Kingdom. Norway and Austria are not members but have what is called "observer status."

As has been mentioned ELDO's main goal is the development of a satellite launch vehicle, larger and more powerful than France's *Diamant,* — but in the meantime the French are planning a "super-*Diamant*." The *Europa-1* rocket of ELDO will have an overall length of 104 feet, a maximum diameter of 12 feet and a launch weight of 230,340 lbs. It will be capable of placing a 2,200-lb. payload into a 125-mile orbit, or a 1,900-lb. payload into a 310-mile orbit. The booster stage is the British *Blue Streak* that was originally developed to be a missile with a range of 2,800 miles.

As part of the *Europa-1* the *Blue Streak* has a length of 61½ feet, a diameter (tank section) of 10 feet and an empty weight of 15,425 lbs. Fully fueled (with kerosene and liquid oxygen) it weighs 197,110 lbs., the take-off thrust is 289,400 lbs. but rises near the end of the 156-second burning period to 333,500 lbs. The second stage is the French *Coralie* which is designed for unsymmetrical dimethyl hydrazine as the fuel and nitrogen tetroxide as the oxidizer. *Coralie* is 187 feet long with a diameter of 6.6 feet and an empty weight of 4,627 lbs. Fully fuelled, *Coralie* weighs 26,222 lbs. and develops a thrust of 61,800 lbs.

When the *Coralie* was tested at Hammaguir it had to have all kinds of things added to it that it does not have as part of the ELDO vehicle. It had to carry a dummy upper stage and a dummy satellite. It had to have a nose cone that it normally does not have. And it had to have tail fins. Because of these additions the French called the test vehicle *Cora;* it reached an altitude of 37 miles.

The third stage of the ELDO vehicle is being built in West Germany, designed for the same

fuels as the *Coralie*. It is 10.8 feet long with a diameter of 6.6 feet. Empty weight (but with guidance equipment) is 1,345 lbs., fully fuelled it weighs 7,430 lbs. The thrust of its main engine is 5,070 lbs., but it also has two vernier engines for orbital adjustments and corrections with a thrust of 176 lbs. each.

Nothing is known yet about the satellite to be carried, except that it has been designed by the Italian group in consultation with West German engineers and that it will be manufactured in Italy. The orbit also has not been mentioned, but from the distribution of the tracking stations of ESTRACK it is fairly obvious that a polar orbit has been planned.

Well, this is the story so far, like all stories dealing with rockets and with space research it is an open-end story. Five years from now the story will have another ending, but it will be an open end again.

The Names of the Russian Satellites

This looks like the proper time to answer a query I received some time ago, asking me to name the various types of Russian artificial satellites after Sputnik and to explain their purpose, if possible.

Not counting the devices called "cosmic rockets" (we'll get to them later) the first Russian satellite that bore a name other than Sputnik was *Polyot* in 1963. The word means "flight" and is pronounced pol-YOTT; the purpose of the satellite was to demonstrate that an orbiting satellite can change its orbit. *Polyot* did demonstrate this by raising its apogee from 368 to 892 miles and its orbital period from 94 minutes to 102 minutes. The perigee remained virtually unchanged; it was raised from 210 to 213 miles.

In 1964 there came four satellites called *Elektron*. They were fired in pairs, two on January 31 of that year and two on July 11 of the same year. The first two assumed orbits from 250 miles (perigee) to 4,423 miles (apogee) and 363 miles (perigee) and 42,152 miles (apogee). The Russians just stated that these were "research satellites," but from these orbits it is evident that the *Elektron* satellites were monitoring the extent and intensity of the Van Allen belts. The second pair of these satellites was put into almost identical orbits.

In 1965-6 there came three satellites named *Proton*; the dates were July 10 and Nov. 2 of 1965 and July 6 of 1966. Their orbits were not unusual, the first one had a perigee of 108.7 miles and an apogee of 279.5 miles, but their weights were. Normally

the Soviets do not announce satellite weights, but this time they did: *Proton-1* weighed 26,896 lbs., *Proton-2* 26,840 lbs. and *Proton-3* 26,000 lbs. Purpose was not announced, but from the announced weight western observers drew the conclusion that *Proton-1* must be a prototype of a new manned spacecraft. This conclusion was ruined by the fact that the Russians did not bring *Proton-1* back from orbit to test its re-entry capability and to examine how it had stood up. Instead they left it in orbit until it re-entered on its own (on October 11, 1965) as a result of natural orbital decay. Of course, one could still guess that the retro rockets of this satellite had failed to work. But the performance was repeated with the other two.

Four Russian satellites, so far, were called *Molniya,* which means "lightning," and they were announced to be communications satellites. The first one went into orbit April 23, 1965. The other three followed at intervals of about six months; they were presumably replacements of the preceding *Molniya* satellite after it had stopped working.

So far things are reasonably clear, but then the Russians began to call practically everything *Kosmos*. The first of these satellites was launched March 16, 1962; on May 17, 1967 one rocket launched *Kosmos-159* and *Kosmos-160*. Here one name obviously covers many different things. Some of them were indubitably research satellites, some were equally indubitably prototypes of manned space capsules and some are taken to have been, or to be, what is politely called "surveillance satellites".

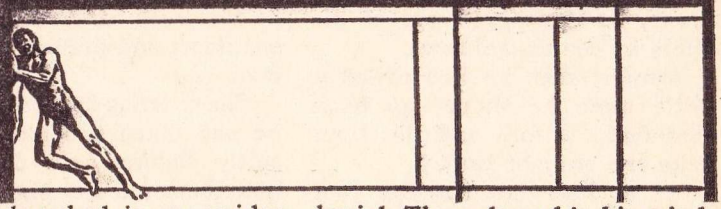
As regards lunar and planetary probes, the names are simplicity itself. A Russian Mars probe (which failed to work) was simply called *Mars-1,* while the Russian Venus probes were called *Venera*, which is the Russian name of the planet. The lunar probes were first called "cosmic rockets." The first (January 2, 1959) was apparently fired for impact on the moon, but missed; the second (Sept. 12, 1959) did strike the moon, the third (October 4, 1959) looped behind the moon and took a number of pictures. But the next one was called *Luna-4* (again, Luna is just the Russian name of the moon) and so were all the ones that followed. *Luna-9* reached the moon on February 3, 1966 and was the first man-made device to accomplish a soft landing. But *Luna-10* was fired to take up an orbit around the moon (orbit achieved April 2, 1966) like our Lunar Orbiters.

—WILLY LEY

BLACK CORRIDOR

by FRITZ LEIBER

He was being tested, that was sure. But for what? By whom? And at what cost to his life?



He sat hunched in a corridor head-high and about two doors wide trying to remember who he was.

He felt very weary in his legs, as if he'd been walking the corridor a long, long time.

The corridor was of a black shimmering metal cool to his skin. He couldn't spot the source of the shimmer, which dimly lit the corridor though leaving the metal black, but he was pretty sure that was a minor problem.

He heard a faint steady whining, but he thought that was minor too.

He was hunched so that his heels pressed his buttocks and his elbows his sides, while his hands and the lower half of his face rested on his knees. Like a big rangy fetus sitting up, or the corpse in an early Egyptian hole-burial. There droned in his mind, "Naked I came into the world and naked I go out."

The corridor was literally two doors wide, for it ended ten yards away in two doors which faced him squarely. Each door had a glowing button on it and below the button a short word he couldn't quite read, though now and then he lifted his face to squint at them.

After a while he might go and read the two words, but now it seemed important to sit hunched all together, as if that helped him concentrate, and try to remember who he was.

Moreover, though he tried to keep it out of his mind, he really shrank from investigating the two doors. There was something about them that daunted and sickened him.

Instead he chased memories in the inner darkness of his mind, but they turned and fled like tiny moonlit fish from a nighttime skin-diver.

He had the feeling that he'd taken a wrong fork somewhere behind him in the corridor, and that as he'd taken that curving turn, his name and all that had ever happened to him had slipped away, as if dragged out of his mind by centrifugal force.

Maybe when he had rested a little more he should go back and find the fork and this time take the straight branch.

As he had that thought, cool metal touched his back.

He threw out his arms, and they struck cool metal, even with his back, to either side.

The movement jerked his torso erect. His head, neck, and shoulders touched cool metal too.

He scrambled to his feet and turned around. Where there had stretched an endless corridor, there was now a wall about a yard away. A black wall with no doors or door in it.

Instead of being in a corridor open-ended one way, he was in a glimmering black box ten yards long.

He realized that the faint steady whining had stopped only when it started up again.

The wall that had touched him began moving toward him very slowly, at about the normal walking speed of an ant.

He stood stiffly erect, facing it. His arms hanging at his sides began to tremble, then his legs. His breath came and went between his teeth in little shuddering gusts. His eyes slowly converged. The wall touched the ends of his big toes, then nudged them. Without stepping back, he threw up his hands beside his shoulders and pressed against the wall.

The whining stopped, but after he had taken two more breaths, softly sighing ones through his nose, he could feel the wall begin to press back. Holding his breath and without changing his stance, he pressed harder. The wall pressed harder still and with a sudden little scream threw him back.

He saved himself from falling and then took another backward jump.

The wall's little scream sank immediately to a whine, but the whine was a little louder now, and the wall came on a little faster, like a cockroach in a hurry.

This time he readied himself carefully for the wall's approach, taking a position somewhat like that of a wrestler but also a fencer. His right leg, bent slightly at the knee, was thrust almost straight behind him, and that foot

pointed back too. His left leg was bent under him, left foot pointing straight forward. The soles of both feet, toes gripping, were planted flat on the floor, which compared to the smooth walls was a trifle gritty, firming his stance.

When the wall reached him, the box he was in being then seven yards long, he met the wall simultaneously with his spread-fingered right hand, his left shoulder and his whole left arm doubled up clench-fisted against his chest, the left side of his head and his left knee.

The wall stopped dead. In fact, it gave back a little, or seemed to. He pressed a little harder, but it gave no more. He did not waste his strength then, but only maintained the same relatively light pressure which had stopped the wall, trying to relax as much as he dared. His teeth were lightly clenched, but through his nostrils he drew and expelled deep breaths, as a climber does before tackling a difficult stretch of rock-face.

After what seemed a long time, the wall began to push at him again. He contented himself with matching its pressure, guessing that if he put out his full strength, the wall would do the same, shortening the contest.

What point there was in prolonging the contest for as long a time as possible, he couldn't define, but he was sure there was one.

Naturally he was pushing at the wall to keep himself from being crushed when the glimmering black box shortened to nothing. Yet surely the sane thing to do would be to inspect the two doors behind him and escape by way of one of them, instead of pouring out his remaining strength here. But no, he had such a deep if undefined horror of the two doors that he was determined to have nothing to do with them unless absolutely forced to. Whether sane or not, the preferable course now was to oppose the wall with all his might.

Slowly his muscles began to bulge and his heartbeat and respiration to speed up, though he made himself take the same deep, even, controlled breaths. A bead of sweat stung the inside corner of his left eye. He had to keep reminding himself not to waste energy grinding his teeth and on no account to yield to the temptation to shove out with sudden violence or begin to shout curses. *I mustn't let the wall trick me,* he thought fiercely.

His muscles began to ache, his breaths were now deep snorts. He became aware of his heartbeat and felt the blood throbbing in his temples and wrists. He

heard little creakings here and there in his body, or thought he did. Despite himself, his teeth began to clench tighter and tighter.

The pain in his muscles increased. There was fire in his joints. He broke wind, and that rattled him and almost threw him off guard. He could feel the sweat trickling down his back and legs. He prayed that it wouldn't make him slip. It was running into his eyes now, so that he blinked constantly. Under his chin it pooled in the tiny cup between the bent thumb and curled forefinger of his clenched left fist.

But he knew the wall still hadn't budged him, chiefly because it was silent — no whine, no scream.

In the midst of his near agony, there flashed up in his mind one sane reason for keeping up his seemingly insane struggle: the hope that a connection might burn out in the engine powering the wall, or something in it break, or its fuel run out, or the creature or creatures pushing the wall from the other side tire before he did. Then he might be able to push the wall back, even as far as the fork in the tunnel, making it unnecessary to investigate the two doors ahead.

His heart and head were pounding now, there was a roaring in his ears, he was breathing in deep, open-mouthed gasps, his body was one flame, through his sweat-smarting eyes the wall seemed dazzling one moment, dead black the next, he felt consciousness ebbing, but still he stuck to his labor.

With a scream like a hunting leopard close by, the wall gave a mighty shove that sent him staggering back. The scream sank to a loud whine, and the wall came on at the speed of ungoaded oxen.

Though his mind was swimming and he could barely stand, and while he was still breathing in great, wide-mouthed, acid gasps, he turned at once and walked in long strides toward the two doors. And though he reeled from side to side, his legs cramping and his arms hanging like fiery bars of lead, he nevertheless went on tiptoe, fearing that any extra sound he made might speed up the wall.

He was burning when he started that five-stride journey. When he finished it he was shivering and the sweat on him was icy and his teeth were chattering.

By the time he was within touching distance of the doors, his mind and body had steadied, but he still had to blink twice before he could read the short words under the two buttons.

The one said WATER, the other AIR.

With the eager whine coming swiftly closer and closer, he lashed himself to think. *Let's see, air could mean emptiness and height, a great fall. He couldn't fly, hell, he could hardly stand.*

But he could swim. Water was necessary to life. Life came originally from the seas.

Yet he could also drown.

Acrophobia versus hydrophobia.

As the well struck his heels and pushed him on, this time with a merciless lack of hesitation, and as he zigged a finger toward the button on the WATER door, an afterthought came to him in a flash.

Air was also necessary to life. He still had enough water in him, even after his sweating, to live at least a day. But he would be dead without air, or his brain would be dead, in about five minutes.

He zagged his finger to the AIR button. That door opened away from him, and he stumbled through it, pushed by the wall, and it slammed shut behind him.

He wasn't falling through emptiness, or standing in the open either, for that matter. He was simply in another section of black corridor.

He staggered forward a few steps and then between relief and exhaustion collapsed to his knees and hands. His roaring head slumped, his eyes staring dully at the faintly gritty metallic floor while he gulped oxygen.

After a short time he looked around him. The corridor wall on the WATER-door side wasn't shimmering black metal as he had taken for granted, but must be heavy glass or some other transparent amorphous substance, for in it were small silvery fish, a few small squid jetting about, and some speeding faintly-phosphorescent veils he couldn't identify, all lodged in dark water which rose at least to the roof of that other corridor.

He congratulated himself that he'd made the right choice, even on a last-minute hunch.

By right (except that the universe doesn't recognize rights) the corridor he was in should have been halved in width, but it was as broad as before. He deduced that it had acquired extra width on the side away from the water.

He looked ahead, and there were two more doors, each with a glowing button and a short word he couldn't make out.

With a feeling of "This is too much," he sprawled full length on the floor, as if to sleep. One of his feet touched the transpar-

ent wall, while the elbow of the arm pillowing his head touched the wall opposite. He closed his eyes.

It was only then he realized that the sound in his ears wasn't the roaring and ringing in his head dying away, but the wail of the oncoming wall.

Such was his weariness and sudden fatalistic disinterest that he didn't tense, let alone jump up. He didn't even open his eyes.

Cool metal struck him along leg and side, gently but inflexibly. He let the wall roll him over twice before he resignedly scrambled to his feet. There was no sign in the advancing wall of the doorway by which he had entered. Stepping backward evenly, he swept a fingernail across the wall without hearing or feeling the faintest tick. Then he turned and trotted on to the next two doors.

They were marked FIRE and EARTH, and he punched the button of the second almost without physical hesitation, though there was the flash of a wondering whether EARTH might not be the name of a star or moon.

The main course of his nearly instantaneous reasoning had been: *Fire will kill me — and don't give me any tricky plays on meaning that there is a slow "fire" in my flesh and in all life. While earth — hell, even if it packed the next corridor to the top, I could scramble my way in to it before the wall caught up.*

Tucked into that flash of reasoning there had even been the crafty though qualified deduction: *If this door opens inward like the first, there's bound to be some space behind it. Though who says doors have to obey rules? This one might slide sideways.*

The door did open inward, and he trotted through almost without a break in his step, and it slammed shut behind him.

For a moment he thought he had been cruelly tricked. The whole corridor ahead glared with an irregularly pulsing red like a forest fire.

Then he realized he couldn't smell a speck of burning or feel any radiant heat. All the flaring red was coming through the transparent wall on the FIRE-door side. There, great flames writhed crowdedly from ceiling to floor. Here, it was cool, while the floor had changed from slightly gritty metal to even cooler packed earth, the dry and faintly sour smell of which now came to him. He reached out and gingerly brushed the transperent wall. It was barely warm, but he supposed it could be double, with insulating vacuum between.

Why radiant heat didn't still come through, he didn't know.

It did not surprise him to discover that his corridor was as broad as ever and ended in two more labeled doors. Without hesitation he trotted toward them. This time he read the labels by the red glare of the flames. They were DEMONS and TIGERS.

At each word he felt a different quiver of fear. Easy enough to laugh at the concept of demons when in the midst of a wise and scientifically sophisticated civilization. Or to smile warily at tigers, for that matter, when cradling in your arms some potent energy weapon. But alone down here in this labyrinth, naked and unarmed, it was another matter.

Also the change in pace of the choice he had to make rattled him. This one had almost a fairy-tale quality. But there had been nothing of light fantasy, so far, in his experiences down here. Everything had been implacably real, especially the wall. Even demons would be real down here, probably. It occurred to him, too, that he had been lucky until now and had survived by playing hunches. The AIR door could have plunged him into emptiness. EARTH might have smothered or instantly blocked him, while he seemed to recall creatures who could walk through fire, at least for ten yards. This time he must really analyze.

But how? His mind felt useless. He even thought of digging a hole for himself in the dirt, so the wall would pass over him. But the earth was hard as adobe.

A mounting hungry snarl made him glance hurriedly back. The wall was coming on at a speed greater than that to which he had provoked it by his all-out attempt to hold it back, and it was barely five yards away, the same distance as when he had made his split-second EARTH-choice in the last section of the corridor. It had more than canceled the time-advantage that quick decision had gained him; it had given him no credit for it at all. The wall wasn't fair!

The thoughts started as he whirled around. *Demons don't exist, are superstitious. Everywhere? Outside this red-lit tightening tomb is a universe incomprehensively vast. Somewhere there may be demons, and the mere word symbolizes a power greater than that of creatures.*

Tigers are real. But I remember someone killing a tiger barehanded. A leopard, anyhow. But tigers, plural?

The wall struck him. With the thought that *demons may exist and be able to kill me, but only*

an idiot takes on tigers, plural, where there's an alternative, he jabbed the DEMONS button and was through that door and in turn locked in by it before he could think again.

Again he believed he'd been cruelly tricked. Facing him a few yards away in the glimmering black corridor were two huge felines with silky black fur and green eyes glinting with evil intelligence. They lashed their great tails. They writhed their powerful shoulders. Their claws scraped the gritty metal floor like chalk rasping on slate. They carried their white-fanged heads low, their green eyes glaring up at him. While from their throats issued snarls louder and more menacing that that of the wall.

But at that moment the wall once more struck him. Almost before he knew it, he was running toward the magnified black panthers, his eyes squinted, his shoulders hunched.

They reared up, unsheathing their scimitar claws, fully baring their fangs, and screaming like black trumpets in a satanic symphony. To keep himself from stopping he had to remind himself: *They're not black panthers bigger than tigers, they're only demons.*

As he ran between them, he felt their hot breaths, their bristly fur, but nothing more. Through eyes squinting sideways toward the TIGERS-door wall, he glimpsed glassed-in moonlit jungle and gliding through it, palely and darkly striped, flat-sided felines a little smaller than his demons.

Then he was facing doors glow-labeled REAL and UNREAL, while the wall, not demons, snarled at his heels.

Last time I picked the unreal and won, he thought. *Maybe I should again. But demons are only a tiny sub-branch of the small branch of the unreal labeled "supernatural beings." In the realm of the unreal is also insanity, psychosis, the innumerable delusions of locked-up minds completely out of touch with reality and lacking even internal organization, a sea of locked-in microcosms adrift and lost, never to know each other, even the nearest. While the realm of the real holds a hell of a lot besides tigers.*

He was pressing the REAL button as the wall slammed him. Then he was through the REAL door and this time running fast as he could down the black corridor toward the next pair. He kept his eyes averted from the UNREAL side of the corridor, for through its transparency he glimpsed a psychedelic churning of colors and forms, constantly

patterning and unpatterning, which he sensed might derange any mind behind eyes which stared very long.

The next two doors were labeled INSTANT PAINLESS DEATH and TORTURE.

Now they've quit playing around with me, he thought. They're slamming it at me, but good. Something's reached down deep, deep inside me and brought up the slimiest black noggin of them all.

Let's see, they say even torture comes to an end. Yes, in death. Why not pick painless death to start with? Makes sense. But back there I picked the real. Torture is a part of the real. While death is unreality squared, cubed and to the nth power. With torture, there's a chance of survival, with death no chance at all. Tautology.

As the wall came screaming up behind him and he pushed the TORTURE button, he thought, *Well, at least I'm not strapped down yet, and to stop that I'll fight as hard as I pushed against the wall.*

He was in another section of corridor, all glimmering black this time, no transparent wall, and coming toward him was an anthropoid being or machine, the shape and size of a gorilla, except it had no head. It kept swinging apart its long arms and then bringing them together, as if to embrace someone tightly, while its stubby legs planted and replanted themselves firmly.

It was made of metal and covered with sharp spikes that were stubby except for five long, curving talons ending each arm. An iron maiden turned inside out.

Choosing a moment when its arms were swinging apart, he punched it with all his might high in the center of its chest.

It slowly toppled over backwards, landed with a sharp crash, and lay there on its back with its stubby legs planting and replanting themselves in air and its long arms swinging apart and closing together, clashing the floor of the corridor each time they were parted widest.

The screaming wall struck him from behind. Choosing the next time the metal arms swung inward, he darted past the thing and sprinted to the next pair of doors, noting there was more lettering below one button than he'd ever seen before.

That door was labeled PERPETUAL SOLITARY CONFINEMENT IN HAPPY COMFORT. The other said only DEATH OR LIFE.

He thought, *Last time I opted against death. Shouldn't I do so again?*

Behind him, a scraping and clashing mixed with the scream of the wall. Of course, it was the wall pushing the spiked automaton before it.

He thought, solitary confinement in happy comfort. That sounds like being drunk forever, without hangovers. All alone with an infinity of glorious, glowing thoughts and unending wonderful dreams.

But all alone.

An even chance at life is better than that. Any chance of life is better than that.

With the screaming and scraping and clashing just behind him, he frantically jabbed the DEATH OR LIFE button and plunged out into a wide, long patio roofed by a fabric through which violet light filtered onto a smoothly tiled floor, and he stood there gasping and shaking. Behind a table nearby, a woman in the professional whites of a nurse was working quietly at some charts. When his breathing had evened out, she looked up at him and, lifting a gray looseleaf folder, said, "Hello. Here are your name and personal history, to read when you wish." After a faintly smiling pause she added, "Do you have any immediate questions?"

After a while he said, frowning, "I think I get it about the last four pairs of buttons. But about the first two, would I have died if I'd picked water or fire?"

She replied, "I am not at liberty to answer that. There are many branchings in the corridors."

He still frowned as he moved slowly toward the table.

"Is something else bothering you?" she asked.

He nodded somewhat surlily and said, "When I punched the Torture button, I didn't really get any. There was only that witless robot."

"You are difficult to please," she replied. "Wasn't it torture enough, what happened to your hand?"

He lifted it, still balled in a fist, and studied the eight circular wounds, from which blood slowly dripped, and felt the dull pain. Then he reached for the gray folder in her hand, noting that her other was a gleaming gray metal prosthetic with eight slim many-jointed fingers like a spider's legs.

As he touched the folder he felt a surge of frantic curiosity and started to flip it open but caught himself and instead, carrying it half rolled, began to walk slowly down the patio, then more rapidly as he neared the ballustrade of gray metal marking its end.

Resting his hands on the warm

smooth rail, he looked out at the prospect dropping gently away.

In a pale yellow sky, a violet sun was sinking behind rounded hills ten miles away. Its purpling beams shone on a valley half filled with cultivated reddish fields and scarlet trees and half with evenly ranked transparent tubes, through which rushed fluids shading from pink to crimson of some sort of algae farming. Midway to the hills, beside a meandering river, was a town with irregularly spaced round pastel roofs, mostly low. Here and there he made out the figures of two-legged beasts and six-legged ones, the latter carrying their foremost limbs high, like centaurs. From somewhere came a faint piping and a fainter, complexly rhythmic drumming. It looked like a good planet.

After a while he could learn its name and all about it, just as after a while he could learn from the folder, reassuringly bulked between his fingers, his own name and what he'd feared and flinched away from into the black inner corridor which had become the black therapeutic corridor from which he'd now emerged. And after a while he could go back to the nurse and have her fix his hand, the dull pain of which was oddly reassuring.

For the moment it was enough to know he was alive and a man. —FRITZ LEIBER

The Red Euphoric Bands

by PHILIP LATHAM

The comet threatened to destroy the Earth. But what possible difference did that make to us?

After some hesitation I've decided to present this material pretty much as I originally wrote it, instead of recasting it in the formal type suitable for scientific publication. The trouble with scientific papers today is that they all sound as if they were written by the same person, an omnipotent individual who proceeds step by step, never faltering, to the logical outcome of his researches. But scientists are human beings; they make mistakes, act on impulses, and play their hunches, even as you and I. Certainly in my own case it would be downright dishonest to pretend otherwise, as the record will show. So without further apology here is the story of Paul Finch. (From his soup-stained diary of 1975.)

1794, Dec. 19

I feel terrible. Thoroughly depressed and tired of life.

The regular end-of-the-year letter from the bursar arrived this morning. According to the disembodied personality who writes these missives ". . . Van Buren University is happy to inform you of your reappointment as Associate Professor of Astronomy at the same honorarium as in the previous year."

What makes this annual insult especially irritating is the cosy language in which it is couched. Why should they be "happy" to inform me of my reappointment?

When I know only perfectly well they'd be only too glad to get rid of me. Why an "Associate" Professor? I don't "associate" with anybody, not if I can help it at least. Why do they persist in referring my miserable little salary as an "honorarium"? Where does the "honor" come in?

Oh, well, I didn't expect a raise anyhow. I suppose I should be grateful for the privilege of being allowed to continue withering on the vine till my enforced retirement at 65. Only six more years to go now. To go *where*? With another world war practically here.

I'll bet Peabody and Wadstrom both got healthy raises. I can tell from the smug look on their homely faces. Furthermore, *I* know that *they* know that I didn't get a raise.

I might as well admit it — I'm in a rut. God! If I could only uncover something big again. Not much chance working on parallaxes and proper motions. Had all my luck right at the start.

I'm the discoverer of Finch 17, the nearest star to the Earth. Nobody can take that away from me. Stumbled on it by pure dumb luck. Red dwarf about 2 ly's away, half the distance of Alpha Centauri.* Created a sensation at the time. *Fortune* magazine voted me one of America's ten scientists under thirty most likely to succeed. And I believed it! Never done much of anything since. Tried hard though. Still my proper motion catalogue will be out soon, a good solid piece of work. Better than that theoretical stuff Wadstrom keeps turning out by the bale.

Jan. 11

Situation has deteriorated till war looks inevitable now. Experts predict it'll be all over in about thirty minutes. Curious thing is nobody wants war, nobody's mad at anybody else. Everybody's for love and peace. Yet we go right ahead getting ready for war.

You might expect speeches denouncing the warmongers, draft-card burning parties, protest marches, etc., like back in the 60's. Nothing like that today. Instead hoplessness and apathy prevail. People go around as if they're in a trance. I think Peabody's cracking up. He came in yesterday looking completely shattered.

"Finch, do me a favor, will

* Finch 17, p = 1".670, corresponding to distance of 0.599 parsecs or 1.953 ly's. Second nearest star is Alpha Centauri, a binary, distant 4.3 ly's, with 3rd member of system, *Proxima*, believed slightly nearer.

you? Take my Astronomy 1 class this afternoon."

Since his lecture schedule is lighter than mine this semester I wasn't too enthusiastic.

"Something wrong?" I inquired.

"It's the students."

"What's the matter with 'em?"

"Haven't you noticed? They're so quiet lately. Sit there all through the hour . . . not moving . . . staring straight ahead — "

"Is that bad?"

" — with that bewildered wide-eyed expression you see on the faces of those dummies they use for crash-testing buses and airplanes."

"Probably on some new kind of dope. Watermelon rind or pumpkin seeds."

"Finch, you're way behind the times. All that psychedelic stuff went out long ago. Never really helped. Kids had to find it out the hard way. I think that's where the trouble comes."

"Afraid I don't follow."

"If war comes they're sure to be killed. They know they'll be killed. There's no escape. They can't even escape for a little while in their minds any more."

Peabody bent closer.

"You know what I call them?"

"Haven't the foggiest notion."

"Reverse zombies," he said, in a hoarse whisper. "They're live people who think they're dead."

"Well, all right," I told him, "if it's that bad I'll take over these zombies of yours."

I thought he was going to fall on my neck.

"Thanks a million, Finch, old boy. Do the same for you some time."

He was off like a shot but I caught him at the door.

"By the way, what are you on right now?"

His face went blank.

"Let's see . . . what *are* we on now? Can't remember. Give 'em the moon . . . Kepler's laws . . . *anything*."

A neurotic personality if I ever saw one.

Feb. 18

You can avoid this mass somnambulism if you keep yourself busy.

Just started a program on this new Comet Ikegawa. The orbit people have appealed for observations so I thought I'd lend a hand. Remarkable object. Discovered out around the orbit of Saturn at 10 au. Can't recall any comet being picked up so far from perihelion before.

The astronomy department's a shambles. Peabody is home enjoying a nervous breakdown. Had to cancel all his classes. Wadstrom's always running around with a letter and a grim

expression. How could Van Buren U survive without him?

June 19

Working at the telescope on Comet Ikegawa has brought back old times, when I was still fairly young and the world comparatively peaceful. Although the war was shaping up even then if we'd had the sense to see it.

Been giving the comet 90 minutes on these new 113pan-Q plates. Had to catch it in the early morning sky. So calm and peaceful nights. Looking up through the dome it's hard to believe a bomb might come hurtling out of those stars.

Ninety minutes seem forever when you're working alone. You think of all sort of things: your first date . . . the difference between a moth and butterfly . . . how the eggplant is allied to the potato. One thing especially my mind keeps going back to again and again is that report of the American Biological Society last year in Chicago. The biologists' committee on extraterrestrial life issued a report you could really understand, a rare event in scientific annals. The words stick in my memory.

". . . the development of a brain and central nervous system of such enormous complexity as ours was an event of fantastic improbability. It could not happen twice. In our opinion the Earth is the only place in the universe where life exists."

Think of it! Our miserable little Earth — *the only place in the universe where life exists.*

June 23

Comet Ikegawa is brightening so fast, got a look at it in the dawn sky this morning. You can make it out even after sunrise if you know exactly where to look. Although much closer to us the increase in luminosity is due principally to the sun. We'd better do all the looking while we can, for this comet will never be back. It's a retrograde object moving in a parabolic or possibly slightly hyperbolic orbit. A "sun grazer" similar to 1965f (Ikeya-Seki), but definitely not a member of that comet group. Comet Ikegawa will encounter the Earth twice, early in September and again on November 7. It'll miss by 21 million miles in September, but the one on Nov. 7 will be real close, although just how close is hard to say. Orbit isn't too reliable. Still got some residuals exceeding a minute of arc.

July 7

Comet Ikegawa is a splendid naked-eye object now. Head shines up there in full daylight

twice the size of the moon and you can follow the tail out more than 3°, if you block off the sun with the tower on the library building.

A bright comet is an impressive sight all right. No wonder ignorant people in the middle ages were filled with superstitious fear. Looking at Comet Ikegawa I feel kind of awestruck myself.

August 1

If I had my way all comets would be below naked-eye visibility. Since the comet flared up so bright everybody is out gawking at it now. Some of their thinking is positively medieval! In fact, I'm beginning to wonder if we ever got out of the Dark Ages. One thing the comet has done which I would never have believed possible. It's snapped us out of our trance.

Under the constant threat of instant annihilation our lives had ceased to have any meaning. Only the present had any reality. Things happened to us. But they happened as in a dream, we moved from one event to another without purpose or conscious volition on our part.

But the comet is for real. You can see it. You can watch it move from hour to hour. It *must* mean *something*. Otherwise why is it there? First we were going to be smashed to bits. Then it was death by suffocation from poison gas. Result is we're pestered all day by phone calls from hysterical old dames wanting to know when they're going to be asphyxiated.

August 3

Wadstrom has honored me with his presence. He had a yellow slip in his hand.

"Seen this telegram about the comet?" he said.

I shook my head. "I was working on the comet late last night. Didn't get here till after lunch."

His face assumed a disapproving expression as if sitting up all night with a telescope was no excuse for not being on the job bright and early next morning.

"The Poulkovo Observatory reports presence of cyanogen and carbon monoxide in the spectrum of the head and tail," he said. "Also, unidentified bands in the red and infrared."

Wadstrom always attaches tremendous importance to the spectrum of anything, probably because it's a subject he doesn't know anything about. He's an authority on tidal evolution and wouldn't know the G band from a gonorrhea smear.

"You understand this information must remain strictly confidential," he said, replacing the telegram in his coat pocket.

"Why is that the case, hmm?"

"If word leaked out about poison gas in the comet all hell would break loose."

"How awful!"

"Remember — not a word."

"My lips are sealed."

With this burden off his mind he was able to relax a little.

"There's been a press conference on the comet scheduled for this afternoon," he said. "Public's invited too. I hope we can scotch some of these wild rumors flying around."

"Good luck."

"Finch, it would be a big help if you could put a diagram on the board showing the relative positions of Earth and comet."

"When's this meeting scheduled?"

"Four sharp in Hildegarde Hall."

"All right," I told him. "I guess I can manage it."

"I'd appreciate it if you could." He glanced at his watch. "Don't forget, that's four sharp."

The diagram turned out to be kind of fun. So far I'd been interested chiefly in the comet's position relative to the Earth and sun and hadn't paid much attention to its orbital elements. Now for the first time I had to give the elements a good hard look. I copied them down on the same card along with the orbit.

It was ten till four when I reached Hildegarde Hall. Wadstrom or somebody had badly underestimated our drawing power. The auditorium was jampacked, with hundreds more clamoring for admission. By the time they'd set up some loudspeakers out on the lawn and got a few other things under control, it was nearly five. After a few introductory remarks by the president, the meeting was thrown open to questions.

"Is this a big comet?"

Wadstrom took this one.

"Yes, I think we are justified in describing Comet Ikegawa as a 'big one,'" he replied. "Comets seldom are bright enough to be discovered until within the orbit of Jupiter. This one was discovered slightly beyond the orbit of Saturn."

"Where do comets come from?"

Wadstrom shook his head regretfully.

"There is an old theory that comets are born of volcanic eruptions from Jupiter or possibly its giant satellites. Another has them originating in a vast comet cloud surrounding the solar system. It was once thought that comets reached us from the realm of the stars, but that idea is now generally rejected. The truth of the matter is we don't know where comets come from."

"How close is Comet Ikegawa coming to the Earth?"

"Within only about twenty million miles at the first encounter this month on the 23rd. The second encounter on November 7, however, will be very close."

One of the newspaper men had a question. "How close is 'very close'?"

Wadstrom looked grave.

"Unfortunately no definite answer is possible yet. The orbit still requires improvement. Let us say . . . within the distance of the moon."

"How does it happen the comet makes *two* close approaches to the Earth?"

"An interesting question," was Waldstrom's comment. "I believe that my colleague, Dr. Finch, can enlighten us on that point."

I went to the blackboard and began fumbling for my card. To my consternation I couldn't find it. I located it finally, but it gave me a bad scare.

"This represents the orbit of the Earth," I said, drawing a wobbly circle on the board. "This line here points to the vernal equinox, from which we measure directions in space. When the sun reaches the vernal equinox about March 21, then spring is here." This was meant to be funny, but nobody laughed.

"To draw in the comet we first have to know how its orbit is oriented in space. We do this from the longitude of perihelion, the point on the orbit nearest the sun."

Ordinarily I would have had the sense to skip such technicalities; but I was nervous, and talking out loud to myself helped steady me.

"Starting at the vernal equinox, we measure off the longitude of the ascending node around this way," I informed my uncomprehending audience. "And then since this is a retrograde comet, we set off the argument of perihelion the other way. Which fixes perihelion for us here, in longitude 186°."

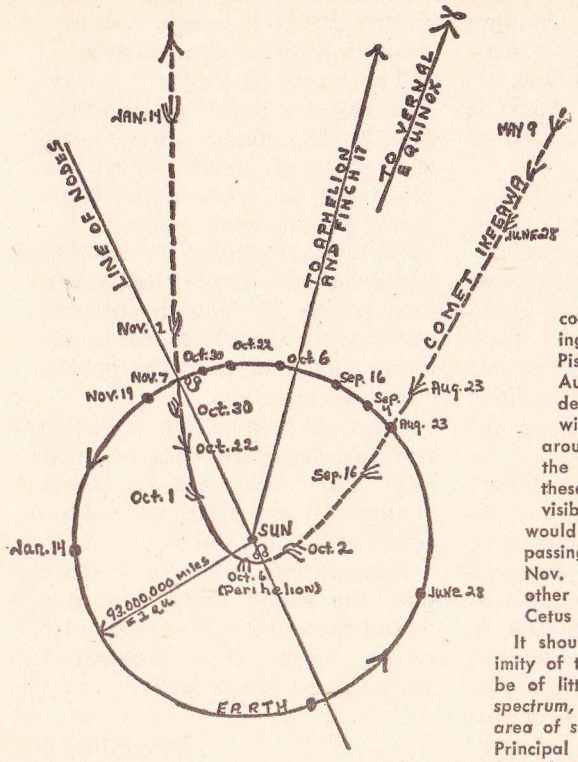
I remained mute staring at the number. There was something familiar about it I should know. Now what was it? It was right here on the tip of my tongue. . . . Got it! Of course!

I'm not very clear about the rest of the meeting. My mind was too busy elsewhere. It seems to me the reporters worked us around into a corner with their questions. After a while we were answering them all the same way, "Nobody knows."

Sept. 12

Life for me has become intensely interesting.

It happened when I blanked out at the blackboard trying to



Orbits of Earth and Comet Ikegawa showing their encounter on Nov. 7, 1975. The comet approaches Earth along broken line to ascending node, ☊. Comet is above plane of Earth's orbit briefly, along continuous line to descending node, ☋. Afterward below plane of Earth's orbit along broken line again.

Notice motion of Comet Ikegawa is clockwise or retrograde.

During May and June the comet would be an early morning object nearly stationary in Pisces and Cetus. Toward end of August the comet would suddenly start moving apparently with terrific speed, switching around to the opposite part of the sky in Virgo. The stars of these constellations would not be visible, of course, since comet would be in daylight sky. After passing its descending node ☋ on Nov. 7, the comet would do another lightning switcharound into Cetus again.

It should be noticed that the proximity of the comet to the *Earth* would be of little help in photographing its *spectrum*, since its brightness *per unit area of surface* would not be affected. Principal changes in spectrum would depend upon varying distance from sun.

locate that comet's perihelion. Only it wasn't perihelion that interested me. It was the direction of the point opposite that caught my attention. For is it this point that tells us the direction in space from which the comet came. I was sure I recognized it. The direction was the same as Finch 17, in Cetus.

Now comets approach the sun from all directions in space. Comet Ikewaga could have come in from Cetus as well as any other old constellation. Cetus occupies quite a bit of territory. If it had merely been the same constellation I'd never have given it a moment's thought. Just a coincidence. But was it a coincidence when this direction fell within 5 minutes of my star?

Could star and comet be associated in some way?

I've done a lot of thinking about it since then. It is a very tempting hypothesis. Without independent evidence to back it up, however, I am compelled to reject it.

Oct. 2

The story about finding carbon monoxide and cyanogen in Comet Ikegawa was all over the front page this morning. Wish I could have seen Wadstrom's face. Nothing secret about CO+ and CN being in a comet anyhow. It's something we've known for about a hundred years.

Actually the spectrum hasn't been too exciting so far, the usual bright bands on a solar type background. Interest is centered chiefly in the weak emission features in the red around 6400 A, which don't seem to match with anything in the ARCS.* But identification is next to impossible on the low dispersion spectra they've got now, 100A/mm. Maybe the bands will pep up after perihelion on Oct. 6.

Oct. 21

It seems to me it was about a million years ago that I wrote, "Nobody wants war. Nobody's mad at anybody."

Not true any more. War fever's got us.

** Atlas of Representative Cometary Spectrum.*

You can blame it on the comet. Sounds crazy to say that, doesn't it? It *is* crazy. Yet in a a way the comet's responsible.

The comet blazing in the daylight sky was hailed enthusiastically by the lunatic fringe as a sure sign of death. With the country in an acute state of war jitters people were ready to believe most anything. To avert a panic the government had scientists go on TV issuing soothing statements, there's no cause for alarm, don't listen to the prophets of doom, etc.

Then just when the situation was calming down what happened? The confounded comet changed from white to red — blood red. That did it.

Astronomers tried to explain how the blood color was due to red rays emitted by molecules of the coma. What molecules? Well . . . we don't know.

November 3

Mass hysteria is always hard to resist.

Comet Ikegawa still shows puzzling deviations from prediction. With so many observations available the orbit should be nailed down tight. Yet perihelion occurred about 30 minutes ahead of schedule.

How close is the comet coming on Nov. 7? You can take your choice. Forecasts range from

0.00091 au (Poulkovo) to 0.0171 an (UC at Berkeley.)*

Nov. 7, 10:10 P.M.

This is the night. I'm here in my office writing this in a last effort to hold onto my sanity. The campus is dark. Everybody else has taken cover, I guess.

Poor comet! Supposed to reach its descending node in about an hour. It'll be all around us while we're passing through the coma.

If I could only do something noble for science on this historic occasion! Something great that would be retold in ages to come. Like Galois penning his theory of groups in frantic haste on the night of his fatal duel.

Nov. 7, 10:37 P.M.

Mob's awfully close. Once on campus they'll smash the observatory sure. Nothing I can do.

All right. I'm ready to die. I'm tired of this world. Glad to be leaving it. In this final hour I think of those words from *Inconscious.*

Out of the night that
covers me,
Black as the pit from
pole to pole. . . .

1:20 A.M.

Dammit! I've changed my mind. I don't want to die now.

*85,000 miles to 1,600,000 miles.

Got an idea for a possible check on at tie-in between the comet and Finch 17. Good old subconscious.

Got so absorbed in this idea forgot about everything else. Suddenly struck me after about an hour I was still alive and the world was still intact. Kind of disappointing. . . .

But no doubt SOMETHING had happened. It was so quiet. Not a sound anywhere. Maybe I was dead and didn't know it!

I unlocked the door and stole outside. (Somehow it didn't seem right just to "walk" outside.) The moon, a few days past full, was just rising. Never saw the campus when it looked so serene and peaceful. So still! Not a leaf stirring. The trees against the horizon might have been cut out of cardboard.

After my eyes got dark-adapted I could see the whole sky was filled with a fine mist, forming lunar haloes of radii about 29° and 53°, their inner edges red shading off to pale blue. The sky had a distinct cherry red tint in directions at right angles to the moon, as if the light was partially polarized. Evidently the mist had loaded the atmosphere, damping convection currents. Jupiter on the meridian was the only star easily visible.

The air, unseasonably warm earlier, now was cool and fresh.

odor as if charged with ozone. I filled my lungs with it. I couldn't get enough. With every breath I Stimulating, too, with an acrid felt my worries and anxieties slipping away, dissolving into the mist. Never had I seen everything so clearly before. My problems were resolving themselves. (They really didn't amount to much.) All the tangled pieces were falling into place. . . .

Dec. 19

Here it is almost Christmas. Examinations are over, thank goodness. Time to bring the old diary up to date.

So much has happened since the last entry, it's a good thing I don't have to rely on my memory. What follows is a composite of excerpts from several tape recordings, which I have transcribed into one in the form of narration. As I recall, these TV interviews occurred in the weeks immediately following the transcendent events of November 7.

"Dr. Finch, how do people generally react when a bright comet suddenly looms in their sky?"

"Well, I would say their reaction is generally one of fear and dread. As we have just seen, people are prone to regard a spectacular bright comet as an omen of evil, a portent of wars and other disasters."

"Is there any scientific basis you know of for this belief?"

"Absolutely none whatever."

"Yet from the dawn of history to our supposedly enlightened times this dread of comets has persisted. Can you account for this irrational attitude on the part of the public?"

"Well, yes, I think I can. Let me emphasize, however, that I am not a psychologist and hence cannot speak with authority on such matters."

"Go right ahead, Dr. Finch. I am sure that any light you can shed on this question will be received with the greatest interest."

"Well, my feeling is that a spectacular comet provides us with a convenient object on which to project our own failings. All of us, I dare say, harbor sins and evil impulses which we would like to rid ourselves by transferring them to others. But this is not easy to do. For other people, instead of accepting them, are more likely to turn around and blame *us* for *their* sins. Thus as time goes on we become filled with a sense of guilt and frustration.

"Along comes this strange apparition in the sky, this comet. What is it? We don't know. But our natural tendency is to look upon anything outside our daily range of experience with dark suspicion. Thus in medieval

times the mandrake plant because of its forked root was considered the work of the devil. The tomato won slow acceptance in the United States; as late as 1900 many feared to eat tomatoes, believing them poisonous. Is it surprising that we regard this ghostly intruder from outerspace with dread and ascribe all sorts of evil to it? The comet can't defend itself. It's the perfect scapegoat!"

"Then there's no reason *a priori* for regarding a comet as an omen of evil?"

"Neither evil *nor* good. Or an omen of anything at all, for that matter."

"But wouldn't you agree, Dr. Finch, that Comet Ikegawa was distinctly an influence for good?"

"No doubt about it. The history of the world was changed during the period of scarcely one hour that the Earth was passing through its coma. The gases of the coma induced in us an euphoric state of a type hitherto unknown in the annals of medicine. Thoughts of war and hate disappeared. They are nothing but dim memories now. We are like a woman after childbirth who is unable to recall the pains she suffered during labor."

"Have they succeded in identifying the structure of the molecule that gave rise to this euphoric condition?"

"Well, I understand there's a lot of work being done on that. They may get a clue from analysis of those bands in the red. So far there's nothing been established yet."

"Do you have any explanation yourself for the presence of those red euphoric bands in the spectrum of Comet Ikegawa?"

"I think that Comet Ikegawa was something very special."

"In what way, very special?"

"I am convinced in my own mind at least that the close approach of Comet Ikegawa was no accident. I think it was sent here for the very special purpose of saving us from self-destruction. Man is an organism of enormous complexity. The development of intelligent life was an event of fantastic improbability. The biologists declare it could not happen twice. That the Earth is the only place in the universe where life exists."

Dr. Finch paused for a moment. Upon resuming he spoke slowly, choosing his words with the greatest care.

"I am afraid the biologists were wrong. I think it *did* happen twice. I think there *is* another world where beings exist probably exceeding ourselves in intelligence. In some way — don't ask me how — they foresaw years ago that a world war was inevitable. And so, lest they

be the *only* world remaining where intelligent life exists, they sent this cometlike body across space to save us."

"But could they from so great a distance — "

"Not *all* the way necessarily from their world to ours. I suspect they possess a technique for assembling molecules of Euphorium from atoms readily available within the solar system. Doubtless only atoms of common elements were required . . . carbon . . . hydrogen . . . oxygen and the like. Some such molecular assemblage technique was postulated as early as the 1960's."*

"Well, Dr. Finch, that's pretty tremendous. Can you offer any proof?"

"Not real proof, I'm afraid. Certainly not proof that everyone would be willing to accept."

"And now I see our time is almost up. Dr. Finch, is there any last message you would like to leave with our audience?"

"Only this. That we owe a debt to the inhabitants of a certain planet, a debt that we never will be able to repay."

A summary of my results will appear in an early issue of the *Astronomical Journal.* This new orbit of Comet Ikegawa 1975g is based upon images which appear on plates of Finch 17 taken some ten years ago for proper motion. Extending the ephemeris back ten years I found, as anticipated, a moving object whose motion corresponded in direction and amount with that calculated for the comet.

These pre-discovery positions yielded an arc much longer than hitherto available, enabling me to determine new elements of exceptional accuracy. After allowing for the perturbations of the major planets, it appeared that Comet Ikegawa was moving neither in an hyperbola nor parabola, but in an orbit definitely elliptical in character. Notice that *both* the longitude of aphelion and the aphelion distance agree closely with the position and distance, respectively, of Finch 17. We call attention to this circumstance without wishing to emphasize it.

Just opened my end-of-the-year letter from the bursar. I see they've promoted me to full professorship now. Also upped my honorarium by $1,700. Wonder how Wadstrom and Peabody made out? Not that it makes any difference. . . .

—PHILIP LATHAM

*Verhandl. Deut. Physik Ges., Berlin, Vol. 71, p. 217, 1963.

★ ★ ★ ★ ★

GALACTIC CONSUMER REPORT NO. 3

MEMBERSHIP SURVEY

by JOHN BRUNNER

Good readers, here are the results of our Consumer Testing survey — which thoroughly tested all of us!

(Extract from GOOD BUY, the journal of the Consolidated Galactic Federation of Consumers' Associations, February 2300 ESY)

Elsewhere in this issue you will find the complete results of our questionnaire intended to discover exactly who (or what) are our current members, why they joined, whether they are satisfied with our service and what products you whom we are here to serve want us to test in the immediate future. Owing to circumstances beyond our control, some of which are set out below in the most temperate language of which we are at present capable, much of the data is primarily of academic or historical interest now. But we can at least pride ourselves on the fact that no similar undertaking has ever before been attempted, even though we could not in honesty advise anyone else to try it again.

When we first circulated the questionnaire, eight years ago, we promised that its findings would appear in one of the regular issues of this journal. We have managed to keep that promise. The information is condensed in microdot form as the last full stop on the last page

of the comparative study of high-precision microdot decipherers, and both the items nominated as "Best Buys" will enable you to read it, the magnification required being only of the order of x 1,000,000.

Subscribers to the deluxe edition, apart from the two members on Alpheratz IX who withheld Cr. 17 from their dues on the grounds that they are anyway capable of distinguishing individual molecules with the naked eye, will eventually be sent the book version of the report. However, we must warn them that since it runs to 23 fat volumes occupying a meter and a half of shelf space, under current Galactic mailing regulations it can only be shipped by uncrewed ion-rocket; consequently only members belonging to species of exceptional longevity can expect to receive their copies personally. The rest will have to be satisfied with bequeathing them to their grandchildren.

Doubtless by now you're asking: "How did this delay arise?" Well, to start with, the level of response exceeded not only our wildest expectations but also those of the computer we hired to assess the likely return. It advised us that not more than one per million of the membership would be bothered to fill out such a complex form.

What we *in fact* got back was more like a 67% response. As, relying on the computer's assessment, we had done no more by way of preparation than rent a small room in downtown Buenos Aires and hire an elderly female clerk with a hand-operated punch-card analyser, the sudden arrival of 2,619,312,003 questionnaires caused a minor technical hitch.

By the way, in a future issue we propose to conduct a survey of commercial computer advice services. Meantime, we must caution you against employing the Buckingham and Ketshwayo Service for Honest Oracular Pronouncements, which our staff is now accustomed to referring to as the Bucket Shop. They are not, on present evidence, a Good Buy.

We are also, incidentally, anxious to recruit volunteers to help us in a survey of planetside postal services. We feel it is high time to establish a Galactic Postal Convention to assure the private correspondence of any intelligent organism all proper protection in transit and reasonable speed of delivery. The treatment we have been accorded by the Earthside authorities beggars belief, and it is highly probable that some of the questionnaires which members

on outlying planets went to a lot of trouble to complete and forward have never reached us.

For example, we regard it as inexcusable that merely because the only type of stationery available to a citizen of Shalimar happens to be fresh water-lily leaves and pale green bog-slime instead of paper and ink, some jumped-up jack-in-office at the Galactic Mail Center in Lhasa should be allowed to class his envelope as "perishable foodstuffs improperly packaged" and decline responsibility for its delivery.

Furthermore, it's mere common civility on Toothanclaw to wrap any missive to a person one wishes to flatter or defer to in the hide of one's latest kill. The more ambitious the kill (and there are creatures on that planet none of our staff would care to handle without battle armor and a lase-gun!), the greater the respect which the writer expresses towards the recipient.

One of our members there, obviously extremely appreciative of the services of ConGalFedCon-Ass, chose to employ the hide of a mugglebuck in which to return his questionnaire. That this hide continues to secrete pure hydrofluoric acid for nine years after being flayed, we submit, is as nothing beside the basic requirement that it should be delivered to the address inscribed on the outside. The fact that mugglebuck skin remains dangerous to handle after the animal is killed is essentially a symbolic equivalent of the customary salutation "Your humble and obedient servant," but no postal authority would decline to accept mail because it included that phrase!

It was only by chance that we received the questionnaire sent us by a member on Caligula, moreover. She had gone to enormous trouble to address her package, because the yoggoth worms there customarily employed for the purpose have been selectively bred to adopt the forms of the Devanagari alphabet rather than the Terrestrial Roman system; it must have required several months of patient labor to train them to display an Earthside address-code.

All this nearly went for nothing when the Health Department sterilized the worms with insecticide — whereupon, of course, they reverted to the post-mortem straight position. Had it not been for an observant staff-member who was visiting the post office on another errand altogether, that questionnaire would doubtless have gone into the Dead Letter file.

But the last straw was the authorities' refusal to allow

one of our members on Hydatia to answer our questionnaire at all — a flagrant example of bureaucratic censorship at its worst. Much as we dislike expending our funds on litigation, we felt that in this case there was an important point of principle at stake and have instituted proceedings in the cause of interplanetary tolerance.

Hydations do possess a written language, but they reserve it entirely for public inscriptions, advertising puffs and other works of fiction. The only form of private communication expressed in writing is an invitation to a duel to the death, so great an insult is it not to convey your message in person.

Wishing to reply to our questionnaire, our member there adopted the normal course and put himself into suspended animation after attaching address labels and sufficient postage to his left ear. On arrival at our office, he would have delivered the information he had imprinted on his mind, and relapsed into his comatose state until restored to his home swamp.

However, despite being properly stamped for both the outward and return journeys, our member was forbidden admission to Earth — first by the Customs and Excise, who proposed to classify him as a museum exhibit subject to arbitrary valuation and 500% duty; then, when we'd sorted that out, by the Immigration Service, who argued that he lacked a visa.

Without being delivered, of course, the poor fellow will never wake up from his trance, so merely shipping him home doesn't solve the problem. A test case is now in progress before the Appellate Tribunal of the Pan-Galactic Court, and we will keep you apprised of developments.

Meantime, if anyone can offer us storage space for one inert male Hydatian approx. 37 meters by 11 by 4, capable of being maintained at a pressure of 325 kg./sk. cm. at -120° C., we shall be obliged. At present we are having to pay rent on a bonded warehouse at a rate which promises that we shall go bankrupt around the second week of August.

We had hoped that one of the things this questionnaire would enable us to do would be to revolutionize our method of selecting products to be tested by insuring that the items we chose were all goods that the members were eager to know about.

We have no wish to appear unappreciative of all the trouble you went to, but the sad truth is that after processing, cata-

loguing and analyzing the various products suggested by a substantial number of our members (arbitrarily, one million or more) we have decided to keep right on the way we were going before.

You see, the largest single batch of requests for tests on a single type of product which we received came from Triskelion. We had 8,623,517 of them. (Curiously enough, this was exactly the book-strength of the Hawk party in the Archduchy of Axenheim at the time our questionnaires arrived there.)

But we simply haven't got the facilities to evaluate the comparative merits of the various brands of planet-busting bomb at present on the market! We feel that if the Hawk party wish to substantiate their election slogan, "More Cash for a Credit!", they should institute their own testing program, preferably well away from Galactic trade routes.

We moreover feel very strongly that the two-million-odd inquirers from Phagia who asked us to test them for edibility ought to set up their own planetary chapter of ConGalFedConAss. We cannot possibly hope to determine which of them will prove tastiest at his or her funeral feast — a matter of fierce rivalry among that species, in case you didn't know. Our entire permanent staff is human, and sampling creatures who live in an atmosphere of hydrogen sulphide at the boiling point of water would give us acute food-poisoning, thus hopelessly biasing the results.

By the way, we have exercised our discretionary right to terminate membership in the case of the young lady from Hippodamia who asked us to test the thirty-seven men who were suing for her hand in marriage. Frivolity of this kind is not in keeping with the high ideals of our organization. And we would have done the same to the member on Gyges who complained that his voyeur suit had gone wrong, and because it was stuck at the invisible setting he couldn't read the brand name on the label — would we test all makes on the market and tell him which kind has the switch under the left arm? But during his enforced imperceptibility he was run down by a rocket-sled. *De mortuis*. . . .

Having had this rather gloomy picture of the outcome of our survey painted for you, you may now be asking, "Was there any point in mounting it, anyway?"

We are delighted to say that the answer is a resounding yes!

If it did nothing else, the sur-

vey showed us that we have been unforgivably neglectful of the true requirements of a very large proportion of our subscribers. We can only apologize for this and plead that one of the lessons we hoped to derive from the survey was to discover the nature of our median member.

Obviously, our *average* subscriber would be a nonsensical compound creature — to be exact, one-and-two-thirds of a married female with an annual income of 2800 credits, a batch of hoopoe eggs and seven-eighths of a hectare of reed matting, chiefly interested in the Zagnabovian question, potlatch, and the superior merits of strychnine over prussic acid as a seasoning for beef Bourguignon.

Our statisticians did, however, advise us that we could hope to determine a typical person who corresponded to the largest possible number of the membership. Somewhat to our surprise, when we punched the computer for this information, we discovered that our median was a citizen of Luxor, Lonestar or Eldorado, with an income of Cr. 27,000,000, taking the deluxe calf-bound vellum edition of this journal with handtooled gilt lettering on the spine and built-in pentasensory commentator — in quintuplicate or sextuplicate so that there would be a copy of each month's issue for every member of the family, often including the dog! Very nearly one in three of the entire membership, reported the computer, fitted this general description.

Frankly, we were astounded. The level of affluence on those planets is so high that palladium-plated spaceboats are marketed by Neiman - Marcus - Harrods-Wojcecenski not in pairs but in groups of three labelled *His, Hers* and *Its,* so that the odd one can be thrown in the garbage on delivery.

Why, we asked ourselves, should GOOD BUY — dedicated to helping people secure maximum return for minimum outlay — be so popular on worlds where it doesn't make any difference at all whether what people buy is fit for use or not? (Except insofar as there is a risk of overloading garbage clearance facilities — but even that didn't seem especially significant. Most people there own robotic disposers which automatically shunt refuse into the local sun.)

And then we received a note, along with a copy of our questionnaire picked out in individual diamonds on inch-thick lead plates and expressed to us by Class Triple A* galactic mail (which costs Cr. 3000 per gram), from which we discovered the explanation.

We have had to edit the letter slightly, but the gist of it was as follows.

"Why the (deleted) don't you (deleted) Earthside (deleted) get your heads out of that heap of (deleted) and catch on to what (deleted) like us really want? If my three-year-old daughter hadn't started to try and eat her copy of your last issue, it would have gone straight in the chute as it usually does, and I wouldn't have seen your questionnaire!

"*I* don't want to be told how to economize! I subscribe to your publication purely because I can always do with having expensive things shipped to me from distant worlds like Earth. (By the way, do you know where I could order a live blue whale not less than twenty meters long? Or a pair of Indian elephants would do, at a pinch.)

"Sorry. I'm being too hard on you. At least you take the trouble to quote exhorbitant terms.

"Look, the problem here is this. According to our tax laws, every Midsummer Day the government takes away all the money you haven't managed to spend since last time. It's a great way of minimizing bureaucratic interference with the daily lives of our citizens, not having sales tax and income taxes and all that other (deleted). But think what happens if we don't spend enough!

"Lord, it's hard to find things one can buy as it is. If the government, armed with all the surplus revenue it collects from the citizens as I explained before, were to start bidding against private individuals, there wouldn't be anything left for us at all!

"Sure, charity donations are tax-deductible — in theory. But the last planetary census showed that the lowest income anyone had filed was four and a half million credits, and that wasn't even for a human being, but a canary! How the blazes do you operate a charity under those conditions?

"And gifts are tax-deductible, too. You find me someone who's willing to take a present from me, though! If anybody offered to give me a few million credits, I'd *run*. I don't think I'd even stop to get in a rocket, in spite of having a fleet of thirty of them. (Or possibly forty — I think I ordered some more the other day.)

"I'm going out of my skull, believe me! Right now I have the builders in — they're doing over the east wing in neo-rococo. But it's the third time I've had to rebuild the house this financial year, and I kind of liked the Moorish style we had before the pseudobrutalist installed last

month. Only I couldn't afford to keep on with it! As a result, here I am with rain streaming in through the cracked marble ceiling, trying to stop my daughter from breaking her neck on the floor of the sub-basement (sixty meters deep and due to be enlarged tomorrow) while they stick up all kinds of hideous gold and red fretwork in place of the black and white bricks they're scrapping. I have to do a lot of travelling — it's a good way of getting rid of extra credits — but once in a while I'd like to recognize my home when I come back to it!

"To cap the lot, I see on the morning news where the unions are threatening to strike for lower pay, and this blasted socialist government of ours always assesses tax-deductions at the current union scale. If they stay on strike until the tax year ends, moreover, I can't legally pay them anything! Help! HELP! ! !

Yours faithfully (signed):

Getty C. Midas XXXIII"

In face of a heartfelt cry like that, what decent being could refrain from coming to the rescue? As an interim measure we have quadrupled the subscription rates for the deluxe edition, and expressions of gratitude are already coming in. But we don't propose to stop there. Plans are afoot to produce an ultra-de-luxe edition on hygroscopic paper with soluble ink, guaranteed to become illegible within fifteen minutes of leaving the presses, so that indefinite repeat orders can be filed with not prospect of ever actually receiving a legible copy. And as of next month we shall start to issue a special supplement to GOOD BUY, entitled EXTRAVAGANZA, printed in thirty-six-point type on platinum sheets, and dedicated to the new, ringing, clarian call of our slogan: "The more you spend, the less you get!"

Getty C. Midas, do not despair; The Consolidated Galactic Federation of Consumer's Associations is on your side!

—JOHN BRUNNER

HANDICAP

by LARRY NIVEN

Illustrated by GAUGHAN

Pity the physically deprived.
How nice it is to help them
— and how very profitable!

I

We flew on skycycles over a red desert, under the soft red sun of Down. I let Jilson stay ahead. He was my guide, and I hadn't been flying a skycycle long. I'm a flatlander. I had spent most of my life in the cities of Earth, where any flying vehicle is illegal unless fully automated.

I liked flying. I wasn't good at it yet, but there was plenty of room for mistakes with the desert so far below.

"There," said Jilson, pointing.

"Where?"

"Down there. Follow me." His skycycle swung easily to the left and began to slow and drop. I followed more clumsily, overcorrecting and dropping behind. Eventually I spotted something.

"That little cone?"

"That's it."

From up here the desert looked lifeless. It wasn't, any more than the deserts of most inhabited worlds are lifeless. Down there, invisible at this height, were

spiky dry plants with water stored in their cores; flowers which bloomed after a rain and left their seeds to wait a year or ten years for the next rainfall; insect-things with four legs, unjointed; skinny, warm-blooded quadrupeds from the size of a fox on down, who were always hungry.

There was a five-foot hairy cone with a bald, rounded top. Only its shadow made it visible as we dropped toward it. Its lank hair was the exact color of the reddish sand.

We landed next to it and got off.

I was beginning to think I'd been played for a fool. The thing didn't look like an animal. It looked like a big cactus. Sometimes a cactus had hair just like that.

"We're behind it," said Jilson. He was dark and massive and taciturn. On Down there was no such animal as the professional guide. I'd talked Jilson into taking me out into the desert, for a fair fee, but it hadn't bought his friendship. I think he was trying to make that clear. "Come around in front," he said.

We circled the hairy cone, and I started to laugh.

The Grog showed just five features.

Where it touched flat rock, the base of the cone was some four feet across. Long, straight hair brushed the rock like a floor-length skirt. A few inches up, two small, widely separated paws poked through the curtain of hair. They were the size and shape of a Great Dane's forepaws, but naked and pink. A yard higher two more paws poked through, but on these the toes were extended to curving, useless fingers. Finally, above the forepaws was a yard-long lipless gash of a mouth, half-hidden by hair, curved very slightly upward at the corners. No eyes. The cone looked like some stone-age carved idol, or like a cruel cartoon of a feudal monk.

Jilson waited patiently for me to stop laughing. "It's funny," he admitted, with reluctance. "But it's intelligent. There's a brain under that bald top, bigger than yours and mine combined."

"It's never tried to communicate with you?"

"Not with me nor with anyone else."

"Does it make tools?"

"With what? Look at its hands!" He regarded me with amusement. "This is what you wanted to see, isn't it?"

"Yes. I came a long way for nothing."

"Anyway, now you've seen it."

I laughed again. Eyeless, motionless, my potential customer sat like a fat lap dog in begging

position. "Come on," I said, "let's go back."

II

A fool's errand. I'd spent two weeks in hyperspace to get here. The fare would come out of business expenses, but ultimately I'd pay for it; I was going to own the business one day.

Jilson took his check without comment, folded it twice and stuck it in his lighter pocket. He said, "Buy you a drink?"

"Sure."

We left our rented skycycles at the Downtown city limits and boarded a pedwalk. Jilson led the way from crossing to crossing until we were sliding past a great silver cube with a wriggling blue sign: *Cziller's House of Irish Coffee*. Inside, the place was still a cube, a one-story building forty meters high. Padded horse-shoe-shaped sofas covered the entire floor, so close you could hardly squeeze between them, each with its little disk of a table nestling in the center. From the floor a tinsel abstraction rose like a great tree, spreading its wide glittering arms protectively over the customers, rising forty meters to touch the ceiling. The bartending machinery was halfway up the tree.

"Interesting place," said Jilson. "These booths were built to float." He waited for me to express surprise. When I didn't he went on: "It didn't work out. Lovely idea though. The chairs would swoop through the air, and if the people at two tables wanted to meet they'd slide their booths together and lock them magnetically."

"Sounds like fun."

"It was fun. The guy who thought it up must have forgot that people come to a bar to get drunk. They'd crash the booths together like bumper cars. They'd go as high as they could and then pour out their drinks. The people underneath didn't like that, and maybe there'd be a fight. I remember seeing a guy get thrown out of a booth. He'd have been dead if that tinsel centerpiece hadn't caught him. I hear another guy did die. He missed the branches."

"So they grounded the booths?"

"No. First they tried to make the course automatic. But you could still pour drinks on the people below, and there was more skill in it. It got to be a game. Then one night some idiot figured out how to short the autopilot. But he forgot the manual controls had been disconnected. His booth landed on another and injured three important people. *Then* they grounded the booths."

A floating tray served us two chilled glasses and a bottle of Blue Fire 2728. The bar was two-thirds empty, this early, and quiet. When the freeze-distilled wine was half gone I explained why they call Blue Fire the Crashlander's Peacemaker: the shape of the flexible plastic bottle, narrow-necked with a flaring mouth, plus the weight of the fluid inside, makes it a dandy bludgeon.

Jilson was turning almost garrulous, now that I was no longer his employer. I was talking a lot, too. Not that I felt like it. It was just — well, hell, here I was, light-years from Earth and business and the good people I knew, way out at the edge of human space. On Down — a former kzinti world, mostly empty, with a few scattered dots of civilization and a few great scars of old war, a world where the farmers had to use ultraviolet lamps to grow crops because of that red dwarf sun. Here I was. I was going to enjoy it.

I *was* enjoying it. Jilson was good company, and the Blue Fire didn't hurt at all. We ordered another bottle. The noise level rose as cocktail hour drew near.

"Something I've been wondering," said Jilson. "Mind if we talk business?"

"No. Whose business?"

"Yours."

"Not at all. Why do you even ask?"

"It's traditional, to us. Some people don't like giving away their tricks of the trade. Others like to forget work completely after hours."

"That makes sense. What's the question?"

"Why do you pronounce Handicapped with a capital H?"

"Oh. Well, if I said it with a small h you'd think I meant humans, wouldn't you? Potential paranoids, albino crashlanders, boosterspice allergics, people with missing limbs and resistance to transplants — handicapped like that."

"Yah."

"Whereas what I deal with is sentient beings who evolved with minds but with nothing that would serve as hands."

"O-oh. Like dolphins?"

"Right. Are there dolphins on Down?"

"Hell, yes. What else would run our fishing industry?"

"You know those things you pay them off in? They look like a squirt-jet motorboat motor with two padded metal hands attached."

"The Dolphin's Hands. Sure. We sell 'em other stuff, tools and sonic things to move fish around, but Dolphin's Hands are what they mainly need."

"I make them."

Jilson's eyes jerked up. Then . . . I could feel him withdrawing, backing off as he realized that the man across from him could probably buy Down. Damn! But the best I could do now was ignore the fact.

"I should have said my father's company makes them. One day I'll direct Garvey Limited, but my great grandfather will have to die first. I doubt he ever will."

Jilson smiled, with little strain. "I know people like that."

"Yah. Some people seem to dry out as they get older. They get dryer and tougher instead of getting fat, until you think they'll never change again, and they seem to get more and more energetic, like there's a thermonuclear source inside them. Gee-Squared is like that. A great old man. I don't see enough of him."

"You sound proud of him. Why does he have to die?"

"It's like a custom. Dad's running the company now. If he gets in trouble he can go to *his* father, who ran the company before him. If Gee-Prime can't handle it they both go to Gee-Squared."

"Funny names."

"Not to me. That's like a tradition too."

"Sorry. What are you doing on Down?"

"We don't deal only with dolphins." The Blue Fire made me want to lecture. "Look, Jilson. We know of three sentient beings without hands. Right?"

"More than that. Puppeteers us their mouths. Outsiders — "

"But they build their own tools, dammit. I'm talking about beasts who can't even crack themselves a fist-ax, or hold a lighter. Dolphins, bandersnatchi . . . and that thing we saw today."

"The Grog. Well?"

"Well, don't you see that there must be Handicapped species all over the galaxy? Minds but no hands. I tell you, Jilson, it gives me the shivers. For as long as we expand to other stars we're going to meet more and more handless, toolless, helpless civilizations. Sometimes we won't even recognize them. What are we going to do about them?"

"Build Dolphin's Hands for them."

"Well, yes, but we can't just *give* them away. Once one species start depending on another, they become parasites."

"How about bandersnatchi? Do you build hands for bandersnatchi?"

"Yes. Lots bigger, of course." A bandersnatchi is twice the size of a brontosaur. Its skeleton is flexible, but has no joints; the only breaks in its smooth white skin are the tufts of sensory bristles on either side of its tapering blank head. It moves on

a rippling belly foot. They live in the lowlands of Jinx, browsing off the gray yeast along the shorelines. You'd think they were the most helpless things in known space . . . until you saw one bearing down on you like a charging mountain. Once I saw an ancient armored car crushed flat across a lowlands rock, straddled by the broken bones of the beast that ran it down.

"Okay. How do they pay for their machines?"

"Hunting privileges. Hunting *them*."

Jilson looked horrified. "I don't believe you."

"I hardly believed it myself. But it's true." I hunched forward across the tiny table. "Here's how it works. The bandersnatchi have to control their population; there's only so much shoreline to feed on in the lowlands. They also have to control boredom. Can you imagine how bored they must have been before men came to Jinx? So what they've done is, they've made a treaty with the Jinx government. Now, say a man wants a bandersnatch skeleton; he's going to build a trophy room under it. He goes to the Jinx government and gets a license. The license tells him what equipment he can take down to the lowlands, which is inhabited only by bandersnatchi, because the atmospheric pressure is enough to crush a man's lungs and the temperature is enough to cook him. If he gets caught taking extra weapons he goes to prison for a long time.

"Maybe he makes it back with a body, maybe he doesn't come back. His equipment gives him odds of about sixty-forty. But either way, the bandersnatchi get eighty per cent of the license fee, which is a thousand stars flat. With that, they buy things."

"Like Hands."

"Right. Oh, one more thing. A dolphin can control his Hands with his tongue, but a bandersnatchi can't. We have to build the control setup directly into the nerves, by surgery. It's not difficult.

Jilson shook his head and dialed for another bottle.

"They do other things," I said. "The Institute of Knowledge has instruments in the lowlands. Laboratories and such. There are things the Institute wants to know about what happens under lowland pressure and temperatures. The bandersnatchi run all the experiments, using the Hands."

"So you came here for a new market."

"I was told there was a new sentient life form on Down, one that doesn't use tools."

"You've changed your minds?"

"Just about. Jilson, what makes you think they're sentient?"

"The brains. They're huge."

"Nothing else?"

"No."

"Their brains might not work like ours. The nerve cells might be different."

"Look, we're about to get technical. Let's drop it for tonight." And with that, Jilson pushed the bottles and glasses to one side and stood up on the table. He peered around Cziller's House of Irish Coffee, swinging his head in a slow arc. "Hah. Garvey, I've spotted a cousin and one of her friends. Let's join 'em. It's almost dinnertime."

I thought we'd be taking them to dinner. Not at all. Sharon and Lois built our dinner, handmade, starting with raw materials we picked up in a special store. Seeing raw food for the first time, practically in the state in which it had emerged from the ground or been cut from a dead beast, made me a little queasy. I hope I didn't show it. But dinner tasted fine.

After dinner and some polite drinking and talk, back to the hotel. I went to sleep planning to hop a ship the next morning.

I woke in total darkness around oh four hundred, staring at the invisible ceiling and seeing a round-topped cone with reddish lank hair and a faintly smiling mouth. Smiling at me in gentle derision. The cone had secrets. I'd come *that* close to guessing one of those secrets this afternoon; I'd seen something without noticing it . . . .

Don't ask me how I knew. With a crystalline certainty which I could not doubt, I *knew*.

But I couldn't remember what I'd seen.

I got up and dialed the kitchen for some hot chocolate and a tuna sandwich.

Why should they be intelligent? Why would sedentary cones evolve a brain?

I wondered how they reproduced. Not bisexually; they couldn't get to each other. Unless — but of course there must be a motile stage. Those leftover paws . . . .

What would they eat? They couldn't find food; they'd have to wait for it to come to them, like any sessile animal: clams, sea anemones, or the Gummidgy "orchid" I keep in my living room so I can shock hell out of guests.

They *had* a brain. Why? What did they do with it, sit and think about all they were missing?

. . . I need data. Tomorrow I'd contact Jilson.

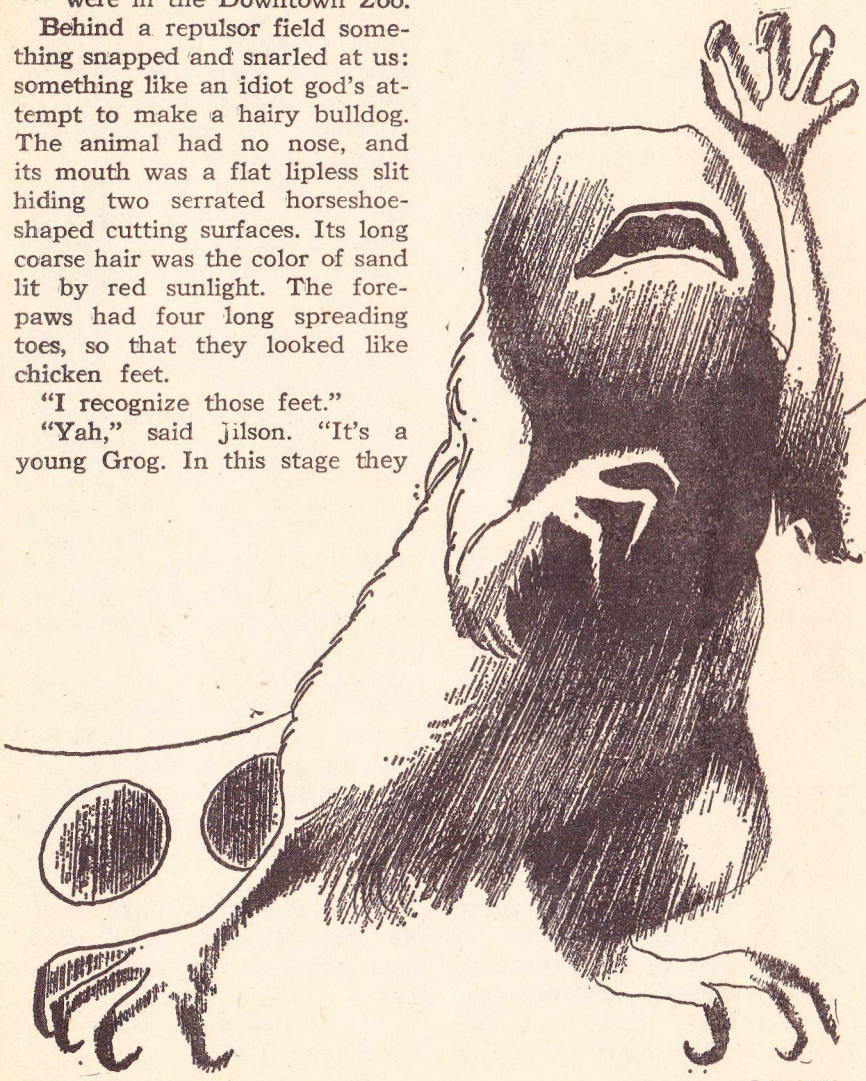
III

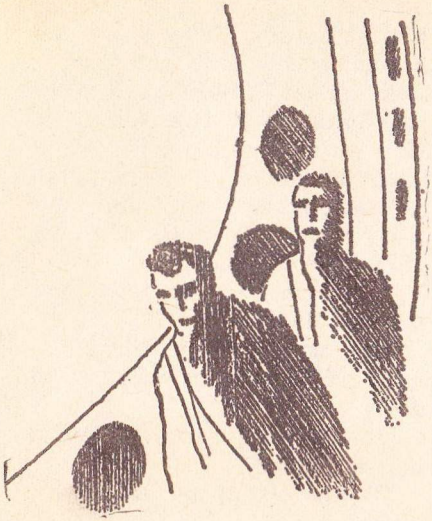
At eleven the next morning we were in the Downtown Zoo.

Behind a repulsor field something snapped and snarled at us: something like an idiot god's attempt to make a hairy bulldog. The animal had no nose, and its mouth was a flat lipless slit hiding two serrated horseshoe-shaped cutting surfaces. Its long coarse hair was the color of sand lit by red sunlight. The forepaws had four long spreading toes, so that they looked like chicken feet.

"I recognize those feet."

"Yah," said Jilson. "It's a young Grog. In this stage they





mate. Then the female finds a rock and settles down. When she's big enough she starts having children. That's the theory, anyway. They won't do it in captivity."

"What about the males?"

"In the next cage."

The males, two of them, were the size of chihauhaus, with about the same temperament. But they had the serrated horseshoe teeth and the coarse reddish hair.

"Jilson, if they're intelligent, why are they in cages?"

"If you think that's bad, wait'll you see the lab. Look, Garvey, what you've got to keep in mind is that nobody's proven they're intelligent. Until somebody does, they're experimental animals."

They have an odd, almost pleasant odor, faint enough so that you stopped noticing it in two or three seconds. I peered in t the snapping motile-stage female. "What happens then? Does everyone suddenly get ashamed of themselves?"

"I doubt it. Do you happen to know what Lilly and his associates did to dolphins while trying to prove they were intelligent?"

"Brain probes and imprisonment. But that was a long time ago."

"Lilly was trying to prove dolphins were intelligent, but he treated them like experimental animals. Why not? It makes sense. If he's right, he's done the species a service. If he's wrong, he's only wasted time on animals. And it gave the dolphins a hell of an incentive to prove he was right."

We reached the lab shortly after noon. It was the Laboratory for Xenobiological Research, a rectangular building beyond the outskirts of the city, surrounded by brown fields marked with rectangular arrays of ultraviolet lamps on tall poles. In the distance we could see the Ho River, with flocks of water skiers skimming across its mud-

dy surface behind puller units.

A Dr. Fuller showed us through the lab. He was an obvious crashlander: a towering albino, seven feet tall, with a slender torso and tapering, almost skeletal limbs. "You're interested in the Grogs? I don't blame you. They're very difficult to study you know. Their behavior tells nothing. They sit. When something comes by they eat. And they bear young."

He had several pre-sessile cones, the bulldog-sized quadrupeds, in cages. There was another cage containing two of the little males. They didn't bark at him, and he treated them with tenderness and something like love. It seemed to me that he was a happy man. I could sympathize with him. Down must look like paradise to an albino from We Made It. You can walk around outside all year, the soil grows things, and you don't need tannin pills under the red sun.

"They learn fast," he said earnestly. "That is, they do well in mazes. But they certainly aren't intelligent. About as intelligent as a dog. They grow fast, and they eat horrendously. Look at this one." He picked up a very fat, round-bottomed female. "In a few days she'll be looking for a place to anchor."

"What will you do then? Turn her loose?"

"We're going to raise her just outside the lab. We've picked her a good anchor rock and built a cage around it. She'll go into the cage until she changes form, and then we remove the cage. We've tried this before," he added, "but it hasn't worked out. They die. They won't eat, even when we offer them live meat."

"What makes you think this one will live?"

"We have to keep trying. Perhaps we'll find out what we're doing wrong."

"Has a Grog ever attacked a human being?"

"To the best of my knowledge, never."

To me, that was as good an answer as No. Because I was trying to find out if they were intelligent.

Consider the days when it was first suspected that the cetaceans were Earth's second sentient order of life. It was known, then, that dolphins had many times helped swimmers out of difficulty — and that no dolphin had ever been known to attack a human being. Well, what difference did it make whether they had *not* attacked humans, or whether they had done so only when there was no risk of being caught at it? Either statement was proof of intelligence.

"Of course, a man may simply be too big for a Grog to eat.

Look at this," said Dr. Fuller, turning on a microscope screen. The screen showed a section of a nerve cell. "From a Grog's brain. We've done some work on the Grog's nervous system. The nerves transmit impulses more slowly than human nerves, but not much more. We've found that a strongly stimulated nerve can fire off the nerve next to it, just as in terrestrial chordates."

"Are the cones intelligent, in your opinion?"

Dr. Fuller didn't know. He took a long time saying it, but that's what it boiled down to. It distressed him; his ears turned red beneath the transparent skin. He wanted to know. Perhaps he felt he had a right to know.

"Then tell me this. Is there any evolutionary reason for them to have developed intelligence?"

"That's a much better question." But he hesitated over the answer. "I'll tell you this. There is a terrestrial marine animal which starts life as a free-swimming worm with a notochord. It later settles down as a sessile animal, and it gives up the notochord at the same time."

"Amazing! What's a notochord?"

He laughed. "Like your spinal cord. A notochord is a rope of nervous connection which branches into the trunk nerves of the body. More primitive forms have sensory connections, but arranged without order. More advanced forms wrap a spine around the notochord and become vertebrates."

"And this beast gives up its notochord."

"Yes. It's retrograde development."

"But the Grogs are different."

"That's right. They don't develop their large brains until after they settle down. And, no, I can't imagine an evolutionary reason. They shouldn't need a brain. They shouldn't have a brain. All they do in life is sit and wait for morsels of food to hop by."

"You speak almost poetically when you turn your mind to it."

"Thank you. I think. Mr. Garvey, will you come this way? You too, Jil. I want to show you a Grog central nervous system. Then you'll be as confused as I am."

The brain was big, as advertised, and globular, and a strange color — almost the gray of human gray matter, but with a yellow tinge. It might have been the preservative. The hindbrain was almost unnoticeable, and the spinal cord was a limp white string, uselessly thin, tapering almost to a thread before it ended in a multiple branching. What could that monstrous brain control before with practically no

spinal cord to carry its messages?

"I gather most of the nerves to the body don't go through the spinal cord."

"I believe you're wrong, Mr. Garvey. I've tried without success to find supplementary nerves." He was smiling slightly. Now I had a piece of the problem. We could *both* stay awake nights.

"Is the nervous material any different from the motile form's brain?"

"No. The motile form has a smaller brain and a thicker spinal cord. As I said, its intelligence is about that of a dog. Its brain is somewhat larger, which is to be expected when you consider the slower rate of propagation of the nerve impulse."

"Right. Does it help you to know that you've ruined my day?"

"It does, yes." He smiled down at me. We were friends. He was flattered to know that I understood what he was talking about. Otherwise I wouldn't have looked so puzzled.

The big soft sun was halfway down the sky when we got out. We stopped to look at the anchor pen Dr. Fuller had set up outside. One big flat rock with sand heaped around it, all enclosed in a wide fence with a gate. A smaller pen against the fence housed a colony of white rabbits.

"One last question, Doctor. How do they eat? They can't just sit and wait for the food to pop into their mouths."

"No, they have a very long, slender tongue. I wish I could see it in use sometime. They won't eat in captivity; they won't eat when a human being is anywhere near."

We said our good-byes and took our skycycles up.

"It's only fifteen ten," said Jilson. "Do you want another look at a wild Grog, before you leave Down?"

"I think so, yes."

"We could get out into the desert and back before sunset."

And so we turned west. The Ho River slipped beneath us, and then a long stretch of cultivated fields.

IV

They can't be intelligent, I was thinking. *They can't.*

"What?"

"Sorry, Jilson. Was I talking out loud?"

"Yah. You saw that brain, didn't you?"

"I did."

"Then how can you say they're not intelligent?"

"They've got no *use* for intelligence."

"Does a dolphin? Or a sperm whale, or a bandersnatch?"

"Yes, yes, no. Think it through. A dolphin has to hunt down its food. It has to outwit hungry killer whales. A sperm whale also has the killer whale problem, or used to. Then there were whaling ships. The smarter they were, the longer they could live.

"Remember, cetaceans are mammals. They developed some brains on land. When they went back to the sea they grew, and their brains grew too. The better their brains were, the better they could control their muscles, and the more agile they were in water. They needed brains, and they had a head start."

"What about bandersnatchi?"

"You know perfectly well that evolution didn't produce the bandersnatchi."

A moment of silence. Then, "*What?*"

"You really don't know?"

"I've never heard of a life form being produced without evolution. How did it happen?"

I told him.

Once upon a time, a billion and a half years ago, there was an intelligent biped species. Intelligent — but not very. But they had a natural ability to control the minds of any sentient race they came across. Today we call them Slavers. At its peak the Slaver Empire included most of the galaxy.

One of their slave races had been the tnuctip, a highly advanced, highly intelligent species already practicing biological engineering when the Slavers found them. The Slavers gave them limited freedom, after they found the worth of those freethinking brains. In return the tnuctipun had built them biological tools. Ani plants for their spacecraft, stage trees with shaped solid-fuel rocket cores, racing animals, bandersnatchi. The bandersnatchi was a meat animal. It would eat anything, and everything but its skeleton was edible.

There had come a day, a billion and a half years ago, when the Slavers found that most of the tnuctip gifts were traps. The rebellion had been a long time building, and the Slavers had underestimated their slaves. To win that war they had been forced to use a weapon which exterminated not only the tnuctipun, but every other sentient species then in the galaxy. Then, without slaves, the Slavers too had died.

Scattered through known space, on odd worlds and between stars, were the relics of the Slaver Empire. Some were Slaver artifacts, protected against time by stasis fields. Others were more or less mutated tnuctip creations: sunflowers, stage trees, ships' air plants floating naked in space in bubbles and bander-snatchi.

The bandersnatchi had been one of the tnuctip traps. It had been built sentient, so that it could be used as a spy. Somehow the tnuctipun had made it immune to the Slaver power. Thus it had lived through the revolution . . . .

For what?

The Jinxian bandersnatchi spent their lives in a soupy, pressurized fog, browsing off the ancient food yeast which still covered the ocean a foot deep in cheesy gray scum. No data reached their senses but for the taste of yeast and the everlasting gray mist. They had brains to think with but nothing to think about . . . until the coming of man.

"And it can't mutate," I concluded. "So you can forget the bandersnatch. He's the exception that proves the rule. All other known Handicapped needed brains before their brains developed."

"And they're all cetaceans, from Earth's oceans."

"Well —"

Jilson made a razzing noise. Hell, he was right. They *were* all cetaceans.

We'd left the plowed lands far behind. Gradually the plains became a desert. I was beginning to feel more comfortable with the beast under me, this platform with a saddle and an oversized lift-belt motor and an air pump and a forcefield generator to stop the wind. Feeling less likely to make a mistake, I could fly lower, with less room to correct before I hit sand. From this close the desert was alive. There, rolling before the wind, was a wild cousin to the tumbleweeds I'd seen in the Zoo of Earth. There, a straight stalk with orange leaves around the base, fleshy leaves with knife-sharp edges to discourage herbivores. There, another, and a fox-sized herbivore cleverly eating out the center of a leaf. It looked up, saw us and disappeared into motion. There, a vivid flash of scarlet, some desert plant which had picked an odd time to bloom.

The soft red sun made everything look like the decor in a night club I know. It's decorated like Mars ought to be, like Mars "was" before space flight. A distance illusion: red sand, straight canals running with improbably clear, pure water, crystal towers reaching high, high, toward big fat crescent moons. Suddenly I wanted a drink.

I dug in my saddlebags, hoping to find a flask. It was there, and it was heavy with fluid. I pinched the top open, tilted it to my lips — and almost choked. Martini! A half-pint martini, a little too sweet, but far colder than ice cold. I sipped at it,

twice, and put it away. "I like Downers," I said.

"Good. Why?"

"No flatlander would think to put a martini in a rental skycycle unless he was asked to."

"Harry's a nice guy. Woop, there's a cone."

I looked down and right, searching for sand-colored hair against sand. The cone was in its own shadow; it practically jumped at me. And, equally suddenly, I knew what had awakened me in the dark morning.

"What's wrong?" asked Jilson. I realized that I'd gasped.

"Nothing. Jilson, I don't know all I should about Downer animals. Do they excrete solids?"

"Do they — ? Hey, that was nicely put. Yes, they do." He tilted his vehicle toward the cone.

It sat firmly on a tilted flat rock which lifted one edge out of the sand. The rock was absolutely clean.

"Then Grogs do too."

"Right." Jilson landed.

I drifted in beside him, dropped the skycycle joltingly hard. The Grog sat facing us, smiling.

"Well, where's the evidence? Who cleans after this thing?"

Jilson scratched his head. He walked around the base of the Grog and came back, looking puzzled. "Funny, I never thought of that. Scavengers?"

"Maybe."

"Would that be very important?"

"Maybe. Most sessile animals live in water. The water carries everything away."

"There's a sessile thing from Gummidgy that doesn't."

"I've got one. But the orchid-thing lives in trees. It attaches itself to a nice thick horizontal tree branch, with its tail hanging over the edge."

"Mmm." He seemed uninterested. No doubt he was right; some scavenger cleaned up after the Grog. But it didn't sound right. Why would the parasite animal do such a good job?

The Grog and I faced each other.

As a rule the Handicapped seemed to suffer from sensory deprivation. Cetaceans live underwater; bandsnatchi live in heated, pressurized fog. Maybe it's too early to make such rules, but it's for sure that a Handicapped will have trouble experimenting with his environment. Experiments generally require tools.

But the Grog had real troubles. Blind, numb in all its extermities due to the nearly useless spinal cord, unable even to move to a different location — what could be its picture of the universe?

Somehow I found myself staring at its hands.

Hands. Useless, of course, but still — hands. Four fingers with tiny claws, set around the tiny palm like the fingers of a mechanical grab.

"It didn't evolve at all. It devolved!"

Jilson looked up. He was using his skycycle as the only convenient thing to sit on for miles around. "What are you talking about?"

"The Grog. It's got vestigal hands. Once it must have been a higher form of life."

"Or a climbing animal, like a monkey."

"I don't think so. I think it had a brain and hands and mobility. Then something happened, and it lost its civilization. Now it's lost its mobility and its hands — "

"Why would it stop moving?"

"Maybe there was a shortage of food. Not moving conserved energy." And because that was the sheerest guesswork, I added, "Or maybe it got in the habit of watching too much tridee. I know people who don't move for weeks."

"During the Interworld Playoffs my cousin Ernie — Hell with it. You think that's the answer, do you?"

"Yes. It's in a trap. No eyes, no sensory input, no way to do anything with what it does think about. It's like a blind, deaf and dumb baby with glove anesthesia all over."

"It's still got the brain."

"Like our appendix. It'll lose that too."

"You're the one who was worried about the Handicapped. Can't you do anything for it?"

"Euthanasia, maybe. No, not even that. Let's go back to Downtown." I walked through sand toward my cycle, sick with discouragement. Bandersnatchi had needed men to tell them about the stars. But what could you tell a hairy cone?

No, it was back to Downtown for me, and then back to Earth. There are people no doctor and no psychiatrist can help; and there are species equally beyond aid. With the Grogs there was no place to start.

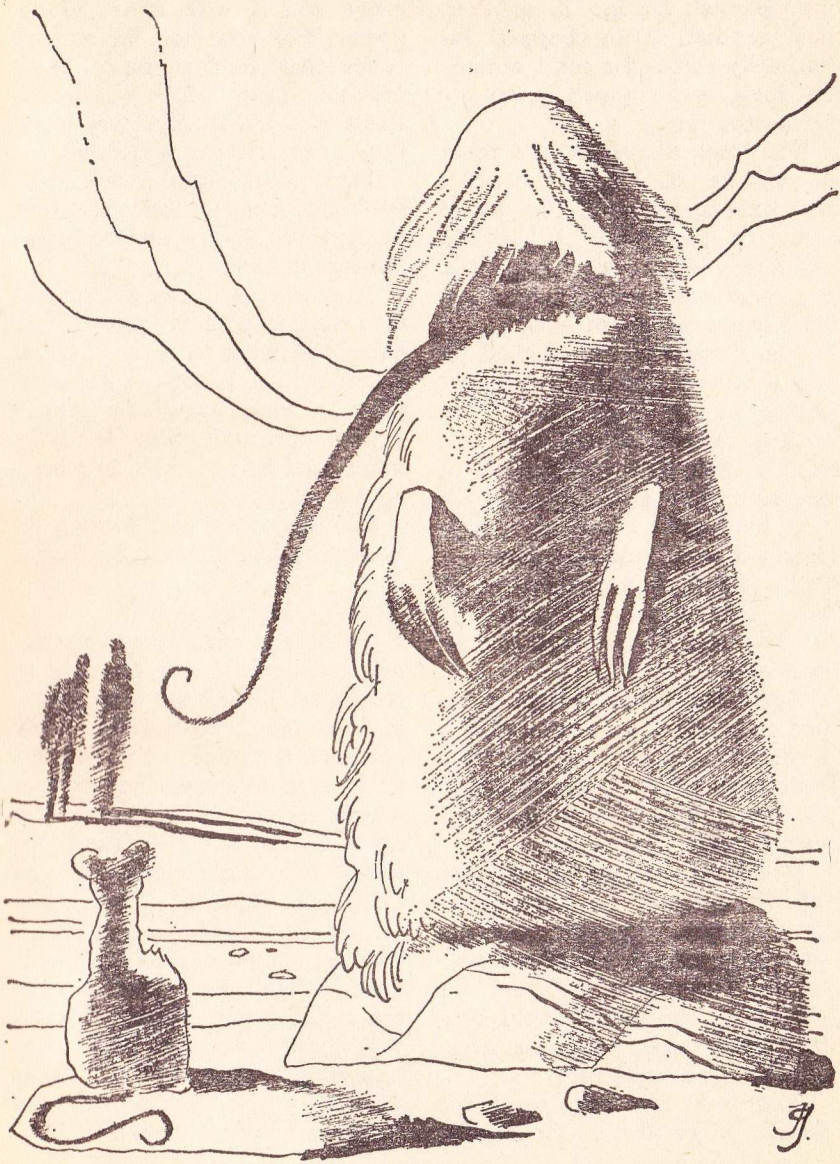
A few feet from the cycle I sat down cross-legged in the sand. Jilson got down beside me. We faced the Grog, waiting.

By and by Jilson said, "What are we waiting for?"

I shrugged. I didn't know. But Jilson didn't move, and neither did I. I knew with a crystalline certainty that we were doing the right thing.

Simultaneously, we turned from the Grog to look into the desert.

Something the size of a rat came hopping toward us, kick-



ing up dust. Behind it, another, and another. They hopped laboriously across the sand, springing high, and stopped in an arc facing the Grog.

The Grog turned toward them — not like you'd turn your neck, but turning all over, like you'd wring a dishcloth. It looked sightlessly at the sand rats, and the sand rats perched on their hind legs and looked back.

The Grog's mouth opened. It was a cavern, and the tongue was coiled on its pink floor. The tongue moved like a flash, invisibly fast, flick, flick. Two of the rats were gone. The mouth (*not* too small to swallow a man) dropped shut, smiling gently.

The third rat was there on its hind legs. None of them had tried to run. They might just as well have.

Again the Grog's mouth dropped open. The last sand rat took a running leap and landed on the coiled tongue. The mouth closed for the last time, and the cone turned back to face us.

I had the answers, all at once, intuitively, with the same force of conviction that now had me sitting cross-legged on the sand.

The Grog was psychic. Or something similar. It could control minds, even minds as insignificant as a sand rat's.

That was the purpose of the Grog's large brain. Its intelligence was a side effect of its power. For eons the Grogs had called their food to them. They did not hunt after childhood. After the brain had developed they need never move again.

They didn't need eyes; they had little need of other sensory perceptions. They used the senses of other animals.

They directed the scavengers who cleaned their rocks, and their pelts, too, when necessary. Their mind control brought meat animals to their pre-sessile female young, directed their breeding habits and guided them to proper anchor rocks.

And they were now feeding information directly into my brain.

I said, "But why me?"

I knew, with that "crystalline certainty" I was learning to recognize. The Grogs were aware of what they were missing. They had read the minds of passersby: first kzinti warriors, then human miners, explorers, sightseers. And my business was the Handicapped. They had learned of the Dolphin's Hands. They had primed Jilson and others to *know*, without evidence, that the Grogs were sentient, and to say so when the right person should appear.

Without evidence. That was important. They had to know what they were getting into before committing themselves.

Men like Dr. Fuller could investigate if they liked; it would look suspicious if they were prevented. But *something* kept them from noticing the handlike appearance of those tiny forepaws, the lack of biological wastes around a wild Grog.

Could I help them?

The question was suddenly an obsession. I shook my head to fight it off. "I don't know. Why did you wait so long to show yourselves?"

Fear.

"Why? Are we that terrifying?"

I waited for an answer. None came. There was no sudden, utterly convincing bit of data in my brain.

Then they feared even me. Me, helpless before a flickering tongue and an iron mind. I wondered why?

I was sure that the Grogs had developed from some higher, bipedal form of life. The tiny hands, like mechanical grabs, were characteristic. As was that eerie mental control . . . .

I tried to stand up, to run. My legs wouldn't lift me. I tried to blank my thoughts, to hide what I'd guessed, but that was useless. They could read my mind. They knew.

"It's the Slaver power. Your ancestors were Slavers." And here I sat, with my mind wide open and helpless . . . .

Soothingly, with characteristic crystal certainty, I realized: That the Grogs knew nothing of Slavers. That, as far as they knew, they had been there forever.

That the Grogs *couldn't* be idiot enough to try for a takeover bid. They were sessile. They couldn't move. Their leftover Slaver power could reach less than halfway around the world, with all the Grog individuals working together. How could they dream of attacking a species which controlled all space in a thirty-light-year-diameter sphere? Fear alone had kept them from letting mankind know what they were. Fear of extermination.

"You could be lying about how far you can reach. I'd never know."

Nothing. Nothing touched my mind. I stood up. Jilson watched me, then got up and mechanically brushed himself off. He looked at the Grog, opened his mouth, closed it, gulped and said, "Garvey! What did it do to us?"

"Didn't it tell you?" In the same moment I was certain it hadn't.

"It made me sit down, it put on a show with sand rats . . . . you saw it too, didn't you?"

"Yes."

"Then it left us sitting awhile. You talked to it. Then

suddenly we were able to get up."

"That's right. But it talked to me, too."

"I *told* you it was intelligent!"

"Jilson, can you find your way back here in the morning?"

"Absolutely not. But I'll set your skycycle to record your course, so you can get back. If you're sure you want to."

"I'm not. But I want the choice."

The sun was a smoky red glow in the west, fading over a blue-black horizon.

I'*d laughed.*

The hotel rooms didn't have sleeping plates. If you slept at all, you slept on a flat, cushiony surface and liked it. I'd slept all right last night, until the Grog's call came to wake me in the small hours. But how could I sleep now?

Unbeknownst to yours truly, Sharon and Lois had been expecting us for dinner. Jilson had phoned them before we set out for the zoo. Tonight we'd eaten some kind of small bird, one each. Delicious. You didn't dare touch anything afterward, not until you'd wiped your hands on hot towels.

And we'd talked about the Grogs. The cone had left Jilson's mind practically untouched, so that he'd have something like an unbiased opinion. His unbiased opinion was that he wasn't going back there for anything, and I shouldn't either. The girls agreed.

I'd laughed at the Grog. Who wouldn't?

Dolphins, bandersnatchi, Grogs — you laugh at them, the Handicapped. You laugh with a dolphin, really; he's the greatest clown in known space. You laugh the first time you see a bandersnatch. He looks like something God forgot to finish; there's no detail, just that white shape. But you're laughing partly out of nervousness, because that moving white mound would no more notice you than a land tank would notice a snail under its treads. And you laugh at a Grog. No nervousness there. A Grog is a cartoon.

Like a doctor using a stomach pump in reverse, the Grog had shoved its information down my throat. I could feel the bits of cold certainty floating in my mind like icebergs in dark water.

I could doubt what I had been told. I could doubt, for instance, that all the Grogs on Down could not reach out to twist the minds of humans on, say, Jinx. I could doubt their terror, their utter helplessness, their need for my help. But I had to keep remembering to doubt. Otherwise the doubt would go, and the cold bits of certainty remained.

Not funny.

We ought to exterminate them. Now. Get all men off Down, then do something to the sun. Or bring in an old STL ramscoop-fusion ship and land it somewhere, leave the ramscoop running, twist every vertebrate on the planet inside out.

But:

They had come to me. To me.

They were so secretive, so mortally afraid of being treated like savage, resurrected Slavers. Dr. Fuller could have been told half the truth, and he would have stopped his experimenting; or he could have been stopped in his tracks by the reaching Grog minds. But no. They preferred to starve, to keep their secrets.

Yet they'd come to me at the first opportunity.

The Grogs were eager. Man, what a chance they'd taken! But they needed — something. Something only mankind could provide. I wasn't sure what, but of one thing I was sure:

It was a seller's market. They wanted to do business. It was no guarantee of their good faith; but if I could think of such guarantees, I could force them through.

Then I felt those crystalline certainties again, floating in my mind. I didn't want any more of those.

I got up and ordered a peanut butter, bacon, tomato, lettuce sandwich. It arrived without mayonnaisse. I tried to order mayonnaise, but the kitchen dispenser had never heard of it.

A good thing the Grogs hadn't revealed themselves to the kzinti, back when Kzin owned the planet. The kzinti would have wiped them out, or, worse, used them as allies against human space. Had the kzinti used Grogs for food? If they had, then — But no. The Grogs would make poor prey. They couldn't run.

My eyes were still seeing red light, so that the stars beyond the porch seemed blue and bright above a black plain. I thought of going down to the port and renting a room on some grounded ship, so that at least I could float between sleeping plates. Nuts.

I could not face a Grog. Not when it had to talk to me by —

That was at least part of the answer. I phoned the desk computer and told it what I wanted.

By and by other parts of the answer came. There was a mutated alfalfa grass which would grow under red sunlight; the seeds had been in the cargo hold of the ship that brought me. It was part of Down's agricultural program. Well . . . .

VI

I flew back to the desert the next morning, alone. The guy

who owned the skycycles had set mine aside, with the course record intact so I could find my way back.

The Grog was there. Or I'd found another by accident. I couldn't tell, and it didn't matter. I grounded the skycycle and got off, tensing for the feel of little tendrils probing at my mind. There was nothing. I was sure it was reading my mind, but I couldn't feel it.

With crystalline certainty there came the knowledge that I was welcome. I said, "Get out of there. Get out and stay out."

The Grog did nothing. Like the knowledge I'd gained yesterday afternoon, the conviction stayed: I was welcome, *welcome*. Great.

I dug in my saddlebags and pulled out a heavy oblong. "I had a lot of trouble finding this," I told the Grog. "It's a museum piece. If Downers weren't so hell bent on doing everything with their hands I'd never have found one at all."

I opened it a few feet from the Grog's mouth, inserted a piece of paper in the rollers, plugged the cord into a hand battery. "My mind will tell you how to work this. Let's see how good your tongue is." I looked for a good seat, finally settled my back against the Grog, under its mouth. I could read the print from here. There was no feeling of lese majeste. If the Grog wanted me for dinner I was doomed, period.

The tongue lashed out, invisibly fast. PLEASE KEEP YOUR EYES ON THE TYPEWRITER, it printed. OTHERWISE I CANNOT SEE IT. WOULD YOU MOVE THE MACHINE FURTHER AWAY?

I did. "How's that?"

GOOD ENOUGH. YOU ARE OVERCONCERNED WITH PRIVACY.

"Maybe. This seems to work. Now, before we begin, would you read my mind about ramscoop motors?"

I SEE. CONSIDER THE POINT MADE.

"Then I will. What can you offer us in trade?"

JUST WHAT YOU THINK WE WILL HERD YOUR CATTLE. IN TIME THERE MAY BE OTHER THINGS WE CAN DO. WE COULD MONITOR THE HEALTH OF ZOO ANIMALS AND BE EXHIBITS AT THE SAME TIME. WE CAN DO POLICE WORK WE WILL GUARD DOWN. AN ENEMY COULD DESTROY DOWN, BUT NO ENEMY COULD INVADE DOWN. Despite the speed of its flicking tongue, the Grog typed as slowly as a one-finger typist.

"Okay. You wouldn't object to

our seeding your property with mutated grass?"

NO, NOR TO YOUR MOVING CATTLE INTO OUR TERRITORY. WE WILL NEED SOME OF THE CATTLE FOR FOOD, AND WE WOULD PREFER THAT THE PRESENT DESERT ANIMALS REMAIN. WE DO NOT WISH TO LOSE ANY OF OUR PRESENT TERRITORY.

"Will you need new land?"

NO. PLANNED PARENTHOOD IS EASY FOR US. WE NEED ONLY RESTRICT THE PRE-SESSILES.

"We don't trust you, you know. We'll be taking steps to see that you don't control human minds. I'm going to get myself checked over very carefully when I go home."

NATURALLY. YOU WILL BE HAPPY TO KNOW THAT WE CANNOT LEAVE THIS WORLD WITHOUT SPECIAL PROTECTION. ULTRAVIOLET WOULD KILL US. IF YOU WISH A GROG IN THE ZOO OF EARTH —

"We can take care of that. It's a good idea, too. Now, what can we do for you? How about some modified Dolphin's Hands?"

NO THANK YOU. A DESERT ANIMAL WITH SOMETHING LIKE HANDS WOULD BE BETTER. WHAT WE REQUIRE IS KNOWLEDGE. A TAPE ENCYCLOPEDIA, ACCESS TO HUMAN LIBRARIES. BETTER YET, HUMAN GUEST LECTURERS WHO DO NOT MIND HAVING THEIR MINDS READ.

"Guest lecturers. That'll be expensive."

HOW EXPENSIVE? HOW MUCH ARE OUR SERVICES WORTH AS HERDERS?

"Good point." I settled myself more comfortably against the Grog's hairy side. "Okay. Let's talk business."

It was a year before I touched Down again. By then, Garvey Limited was almost ready to show a profit.

I'd driven through the roughest deal I could think of. As far as the planet Down was concerned, Garvey Limited had a monopoly on Grogs. They couldn't have bought a pack of tabac sticks except through us. We paid fat taxes to the Downer human government, but that expense was almost minor.

We'd had major expenses.

The worst was publicity. I hadn't tried to keep the secret of the Grog power. That would have been futile. And that power was scary. Our only defense against a panic that could have covered human space like a blanket was the Grog's themselves.

Grogs were funny.

I'd kept pushing, pushing, pushing pictures. Grogs operating typewriters, Grogs guiding Down's expanding herds of cattle, Grogs in a spacecraft cabin, a Grog standing by during a tricky operation on a sick Kodiak bear. The Grog always looked just about the same. To see one was to laugh, and never to fear . . . unless there were unnatural crystalline certainties poking into the crevices of your brain.

The really important jobs for Grogs were just coming into existence. Already Wunderland had changed its laws to allow Grogs to testify in a courtroom, as expert lie detectors. A Grog would be present at the next summit meeting between human and kzinti space. Ships venturing into unknown space would probably carry Grogs, in case they met aliens and needed a translator.

Fuzzy Grog dolls were being sold in the toy stores. We didn't make a dime on that. But I was building for the future.

I took a day to rest up after landing, to say hi to Jilson and Sharon and Lois. Next morning I flew out into the desert. Now there was grass covering a lot of what had been barren land. I found a circle of white far below, and on a hunch I dropped.

The white was a flock of sheep. In the center nestled a Grog.

"Welcome, Garvey."

"Thanks," I said, not trying to shout. She would be reading my mind and answering through the nerve-implanted vocal equipment we'd started manufacturing in quantity two months ago. That had been another major expense, but a necessary one.

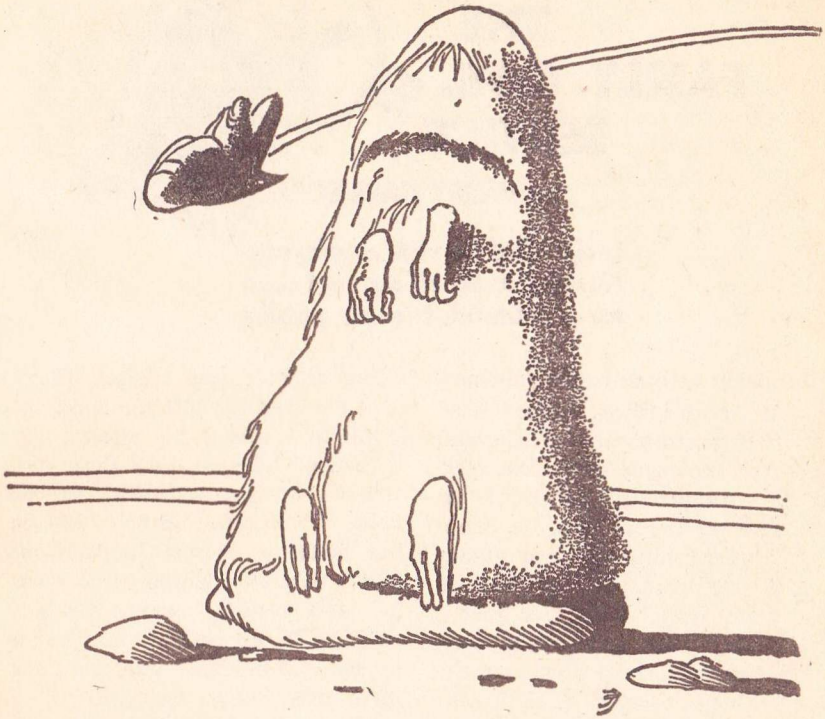
"What's all this about dolls?"

"We can't make any money on that. It's not as if there was a copyright on the Grog form." I circled the skycycle, landed and got off.

We talked things other than business. She wanted a Grog doll, for instance, and I promised her "lecturers," arranging them in order of priority. Getting them here would involve nothing more than paying their way and paying them for their time. None of them would have to make any kind of speech.

Neither one of us mentioned the ramscoop.

It was not on Down. Put a weapon on Down and the Grogs could simply have made it their own; it would be no defense. We'd put it in close orbit around the Downer sun, closer than Mercury would have been. If the Grogs ever became a threat, the electromagnetic ramscoop field would go on. And Down's sun would begin behaving very strangly.



Neither of us mentioned it. What for? She knew my reasons.

It was not that I feared the Grogs. I feared myself. The ramscoop was there to prove that I had been allowed to act against the Grogs' best interests. That I was my own man.

And I *still* wasn't sure. Could the last man aboard have sabotaged the motor? Could the Grogs reach that far? There was no way to find out. If it was true, then anyone who boarded the old ship would report that it was A-okay, ready to fire, don't worry about it, Garvey. Forget it. Sleep easy.

Maybe I will. It's easy enough to believe that the Grogs are innocuous, helpful, desperate for friendship.

I wonder what we'll meet next.

— LARRY NIVEN

THE FAIRLY CIVIL SERVICE

by HARRY HARRISON

Lucky Civil Service employees! Nothing to do all day but care for a grateful, friendly public!

Precisely at nine in the morning the post office opened and the first customers were allowed to enter. Howards knew this. Yet, as he straightened his Book on the counter before him, he could not prevent himself from glancing worriedly at the big clock on the wall. Why? This was just a work day like any other day. God, the fear, deep down, as the long black pointer clicked another notch towards the vertical!

Just another day, why should he be so concerned? He tittered nervously and turned his key in the lock of the multifrank before him, just as two people appeared on the other side of the counter.

"I wish to post this letter to Sierra Leone," the man said.

"A two-credit insurance stamp," the woman said.

They began to instantly squabble as to which of them had been there first, their voices crescendoing shriller and higher. Howards slapped his left hand on the Book and raised his right.

"Stop," he said, and they did, struck by the authority in his voice. "Reference B-86Y/254 in the Book of Postal Regulations states that all differences of opinion and priority are to be settled by the serving clerk. That is myself. Ladies first. Here is your insurance stamp, madam."

His fingers were snapping over the complex controls of the multifrank even as he spoke, and he was secretly proud of the assured way that he said it. The man stepped aside, the woman timidly proffered her insurance book as he stood with his finger over the *activate* button. With his free hand he flipped the book open, dropped it into the slot and pressed the button.

"That will be 22 credits 80, madam." The bills went into the

cash receptacle and her change rattled into the delivery cup. "Next," he said, not without a certain amount of condescension.

The man said nothing, he knew better than to argue. He certainly did. What was in the Book was correct. The man stepped away, and Howards thought that this day had certainly begun busily enough: but why the little shivering knot of fear, Howards?, he wondered to himself, and rubbed at the spot in his midriff with his knuckles.

A large, dark man with a full black beard filled the space outside the counter. "Do you know what this is?" he bellowed.

"I certainly do," Howards said. (Did his voice crack a little?) "That is a needle gun."

"You are correct," the man hissed in a voice like the breaking of poison waves. "It fires soundlessly a needle with such great speed that contact with the human body produces a hydrostatic wave that utterly destroys the nervous system. Would you like that?" White teeth appeared in the tangle of black beard.

"I would not like my nervous system utterly destroyed."

"You will then pay me the sum of 4,999 credits."

"I have no till or money. Cash is centrally supplied . . . ."

"Fool! I know all that. I also know that the payment of any sum over 5,000 credits must be specially authorized for any position. Therefore — 4,999 credits. At once."

"At once," Howards said crisply, and spoke aloud as he hit the keys. "Four, nine, nine, nine. . . ."

"Now activate."

Howards hesitated for a mere fraction of an instant, sucked in his breath, then snapped his finger down on the *activate* button.

There was the rattle of small change from the delivery cup, and the man glanced down at it just as a gush of white vapor shot out into his face. He screamed and writhed and fell as the full force of the regurgitants, irritants and vesicants hit him at once.

"Foolish man," Howards said into the handkerchief he raised to his face, stepping back away from the gas. "Security was onto him as soon as I rang up 499,900,000 credits. Just a simple decimal shift. . . ."

It was almost nine, and the first customers would be in soon. A day like any other day — then why was he feeling this way? What way? As if he were imprisoned in the back of his own brain and screaming. Foolishness, this was not a proper thought for a public servant to have.

"Help me," the old woman said

just as the black hand touched the hour.

"Of course, madam." Where had she come from, like that, so quickly?

"It is my pension — " pushing a battered and torn payment book across the counter with her scaling, shivering hand. "They will not pay me my money."

"Money due is always paid," Howards said, flipping open the rusty book while trying to touch it only with the tips of his fingers. He pointed to a torn fragment of paper. "Here is the reason. The page is missing. To authorize payment you must get form 925/1k(43) and have it filled out."

"I have it," the woman told him, and pushed over — almost threw, in fact — an even more creased and soiled piece of paper. Howards hoped that none of his feelings were revealed on his face as he turned and read it.

"This is the correct form, madam, but it is not completely filled out. In this blank here you must enter your deceased husband's insurance number."

"I do not know his number," the woman shrilled and clutched tightly to the counter's edge. "He is dead and his papers, they were all destroyed, you see."

"In that case you must obtain form 276/po(67) which is an application to the proper authorities for the required information." He pushed the papers with, what he hoped was, a smile. "You can obtain an application for this form. . . ."

"I will die first," the old woman screamed and threw all her papers into the air so that they fluttered down around her like filthy confetti. "I have not eaten for a week. I demand justice. I must have money for food!"

It was all quite distasteful. "I wish I could oblige, madam, but I have no authority. You should apply for the form of application to see the Emergency Officer. . . ."

"I will be dead first!" she shouted hoarsely and thrust her face towards his. He could smell her sour breath and quickly withdrew. "Have you no pity on someone my age? I could be your mother."

"Thankfully, madam, you are not. My mother has the proper forms."

"Forms!" Her voice screeched higher and higher until it cracked. "You are more for forms than for human life. I swore I would kill myself unless I obtained money for food today. Save me!"

"Please do not threaten. I have done what I can." Had he? Was there some authority he should summon? Was he correct. . . .

"Better a quick death than one of slow starvation. Money — or I die!"

She had a large bread knife now and was waving it before him. Was this a threat? Did it call for the guards?

"I cannot," Howard gasped, and his fingers hovered over the keys in an agony of indecision. Guards? Doctor? Police?

"Then I die, and it is a world I do not regret losing."

She held one hand on the counter, palm up, and with a savage slash of the knife almost severed the hand from the wrist. Thick blood spurted high.

"What have you done?" he shouted and reached for the keys. But she began to scream and wave her arm and blood spattered him and gushed over the counter.

"The Book!" he gasped, "you're getting blood on the Book. You cannot." He pulled it away and began to dab at it with his handkerchief, then remembered that he had not yet summoned help. He hesitated, torn, then put the Book in the farthest corner and rushed back to his position. There was blood everywhere — had he made a mistake? — and the woman had sunk from sight but he could still hear her moans?

"Medical assistance," he said quickly into the microphone. "First-aid needed. At once."

Should he do something for her? But he could not leave his station. And the blood, everywhere, on his hands and shirt. He held them out in horror. He had never seen so much human blood before. . . .

And at nine o'clock precisely, the post office would open. Another day, just like any other.

What was wrong with his hands? Was there something he should remember? Like a vanishing echo a memory rushed away — a memory of what? There was nothing wrong, he was at his position where he belonged, with his Book close at hand and the shining mass of the multifrank before him. He belonged. Of course he belonged. Then why, again, a fleeting, fading frightening memory that it was wrong?

Why was he looking at his hands?

Howards shivered and unlocked the machine and cleared it, flipped the test and operational switch so the light glowed green, checked the cleared reading and set up 4,999. . . .

This was not right. Why had he done it? With a furtive glance over his shoulder he quickly cleared the machine. The long black hand of the clock clicked one notch forward and was ver-

tical and an immense queue of people formed outside his position. They were jammed solid, all looking at him, quiet now, though there was a murmur from the rear.

"Good morning, sir, he said to the red-faced gentleman who headed the line. "What may I. . . ."

"None of your conversation. I want service, not chatter. This letter, special delivery, at once, to Capitello, Salerno, Italy. What will it cost?"

"That depends," Howards said, reaching for the envelope which the man pulled back.

"Depends upon what, damn it? I want to mail this thing, not talk about it."

There was a murmur of impatience from the waiting people and, smiling insincerely, Howards said, "It depends upon the weight, sir. Special-delivery letters are delivered by orbiting rocket, and the charge varies according to the weight."

"Then you can damn well stop talking about it and weigh it," he said, thrusting the letter forward.

Howards took it, dropped it into the slot, then read off the price.

"Too damn much," the man shouted. "Mailed a letter to Capitello yesterday, and it cost less."

"It probably weighed less, sir."

"I wanna mail this package," a small child said, thrusting an untidy bundle onto the counter.

"Are you calling me a liar?" the red-face man shouted, growing even redder.

"No, sir — just a minute, sonny — I simply stated that if it cost less it must have weighed less."

"Damn nerve! Call a man a liar. Ought to thrash you. Wish to see your supervisor at once."

"My supervisor does not see the public. If you wish to file a complaint the Complaint Office is in Room 8934 — don't do that!" he added as the child pushed the package further across the counter so that it slid off the inner edge and fell to the floor. Something inside broke with a loud plop and an awful stench seeped out.

"You broke it!" the child screamed.

"I did not; take it at once," Howards said, picking it up by an end of string and dangling it outside. The child ignored it and began to cry loudly.

"Man ought to be horsewhipped, treating a child like that!"

"Room 8934," Howards said through clenched lips, hoping the man would leave.

A tall young man with red hair was bobbing up and down behind the weeping child. "I

would like to send a telegram to my uncle saying Dear Uncle, Need at Once Credits One Hundred. . . ."

"Would you please fill out the telegraph form," Howards said, pressing the switch that delivered a printed form into the dispenser outside.

"Bit of difficulty," the young man said, holding up both of his hands which were swathed in bandages and plaster. "Can't write, but I can dictate it to you, won't take a moment. 'Dear Uncle. . . .'"

"I am very sorry, but I cannot accept dictated telegrams. However any public phone will take them."

"Bit of trouble getting the coins in the slot. 'Dear Uncle . . . .'?"

"Cruel and heartless," the young girl next in line sniffed.

"I would like to help you," Howards said, "but it is forbidden by regulation. However I am sure that someone near the end of the line will write your telegram for you, then I will be happy to accept it."

"How very smart of you," the young girl said. She was exceedingly attractive, and when she leaned forward her breasts rested tidily on the counter's edge. She smiled. "I would like to buy some stamps," she said.

Howards smiled back, with utmost sincerity this time. "I would be extremely happy to oblige, miss, except for the fact that we no longer issue stamps. The amount of postage is printed directly onto the envelope."

"How clever of you. But isn't it possible to buy commemorative stamps still held in the postal vaults?"

"Of course, that is a different matter. Sale to the public of commemorative issues is authorized in the Book by Reference Y-23H/)48."

"How very intelligent of you to remember all of that! Then I would like the Centenary of the Automatic Diaper Service. . . ."

"Nerve, damned nerve, trying to get rid of me," the red face said, thrusting at him. "Room 8944 is closed."

"I have no doubt that Room 8944 is closed," Howards said calmly. "I do not know what is in Room 8944. But the Complaints Office is in Room 8934."

"Then why in blazes did you tell me 8944?"

"I did not."

"You did!"

"Never. I do not make that kind of mistake."

Mistake? Howards thought. Mistake! Oh, no.

"I'm afraid I have made a small mistake," he said, white-faced, to the girl. "There

is a later special order on the entry cancelling the issue of all commemorative stamps across the counter."

"But that should make no difference," she said, pouting prettily. "You can sell me a little teensy diaper stamp. . . ."

"If it was within my power, nothing would give me greater pleasure. But the regulations cannot be broken."

"Your head can be broken just like you broke this!" an immense and angry man said, thrusting the girl aside and pushing the crumbled package under Howard's nose. The stench was overwhelming.

"I assure you, sir, I did not break that. Would you kindly remove. . . ."

"My son said you did."

"Nevertheless, I did not."

"Call my boy a liar!" the man roared and reached across the counter and grabbed Howards by the shirt.

"Stop that," Howards gasped and tried to pull away and heard the material tear. He groped out and hit the guard switch. It snapped off clean and rattled to the floor. Howards pulled back harder and most of his shirt came away in the man's hand.

"Stamp, please," someone said, and a letter dropped into the slot.

"That will be two credits," Howards said, hitting the breakdown button, then ringing up the postage.

"You said Room 8944," the red face shouted.

"Been mistreating the machine," a sour-faced repairman said appearing beside Howards.

"Never, I just touched it, and it broke."

"These machines never break."

"Help me," a frail old woman said, pushing a battered and torn payment book across the counter with a scaly and shaking hand. "It is my pension. They will not pay me my money."

"Money due is always paid," Howards said, closing his eyes for an instant — why? — then reaching for the book. He caught sight of the man pushing up to the counter, a man with a tangle of black beard and a hateful expression.

"I know . . ." Howards began, then stopped. What did he know? Something pressed hard inside his head and tried to burst out.

"I do not know his number," the old woman screamed. "He is dead — and his papers, they were all destroyed you see."

"Do you know what this is? It is a needle gun."

"Not in Room 8944."

"Just one diaper. . . ."

Howards clutched graspingly at his head and did not know if he was screaming or if he was

hearing someone else scream.

Welcome blackness engulfed him.

"Now just sip this, and you will find yourself feeling fine in a few moments."

Howards took the cup that the Examiner held out to him and was surprised to discover that he needed both hands to hold it. He noticed that the backs of his hands were beaded with sweat. As he sipped he felt the helmet lifting from his head, and when he looked up he had a swift glimpse of it just before it vanished through a recess in the ceiling.

"The examination — aren't you going to proceed?"

The Examiner chuckled and steepled his heavy fingers on the desk before him. "A not uncommon reaction," he said. "The examination is complete."

"I have no memory. It seemed as though the helmet came down, then went up again. Though my hands are covered with sweat." He looked at them, then shivered with realization. "Then the examination is over. And I. . . ."

"You must have patience," the Examiner told him with ponderous dignity. "The results must be analyzed, compared, a report drawn up. Even electronically this takes time. You should not complain."

"Oh, I am not complaining, Examiner," Howards said quickly, lowering his eyes. "I am grateful."

"You should be. Just think of the way all of this used to be. Hours of oral and written examinations, with the best marks going to the crammers. You can't cram for a simulator examination."

"I do know that, Examiner."

"Just a few moments of unconsciousness, and the machine mentally puts you through your paces, puts you into situations and judges how you respond to them. Real situations that a postal clerk would face during the normal course of his duties."

"Normal duties, of course," Howards said, frowning at his hands, then wiping them quickly against his side.

The Examiner stared at the figures that raced across the screen on his desk. "Not as good as I expected, Howards," he said sternly. "You'll not be a postal clerk this year."

"But — I was so sure — the twelfth time."

"There is more to clerking than just knowing the Book, Go away. Study. Apply yourself. Your grade this time is high enough so that your student's status will continue another year. Work harder. Very few students are

carried past their fifteenth year."

Howards stood, helplessly, and turned before he left.

"My wife asked me, to ask you, we're not getting younger. Planning permission for a child."

"Out of the question. There is the population problem for one thing, your status for another. If you were a clerk, the application might be considered."

"But there are so few clerks," Howards said weakly.

"There are so few positions. Be happy you are a registered student with rations and quarters. Do you know what it is like to be an Under-unemployed?"

"Thank you, sir. Good-by, sir. You have been most kind."

Howards closed the door quickly behind him — why did he keep thinking there was blood on his hands? He shook his head to clear it.

It would be hard to tell Dora. She had hoped so.

But at least he still had his book. A whole year to memorize it again. That would be good. And there would be inserts and additions, that was always good.

He walked by the post office in the lobby of the building with his eyes averted.

—HARRY HARRISON

Galaxy Bookshelf

by ALGIS BUDRYS

The appearance of a second, and revised, edition of Damon Knight's *In Search of Wonder* (Advent: Publishers; P.O. Box 9228, Chicago, Ill. 60690, $6.00) is the occasion for several discoveries. One of them is that Damon deserved every good thing he got after the appearance of the first edition of these critical essays. You may take my word for it — if you haven't already guessed as a result of your devoted readership of these, my golden thoughts — Damon Knight sets an as yet unequalled standard in these matters, and furthermore does so without the guidance of his own prior example.

Second, Damon Knight apparently was never a simple critic of science fiction, but is instead a gifted, skilled polemicist for a personal, intuitive literary philosophy . . . that is, an editor. One of the great science-fiction editors, and in one narrow sense the most spectacular of them all because unlike Gernsback, Campbell or Palmer, or Boucher, he has functioned best when he has had control of no magazine at all. Unique among the handful of headstrong, fussy, exasperated and exasperating iron whims that have shaped the nature of this field, Knight is partially paralyzed by the opportunity to select and have published such original words as would fulfill his image of the field. His record as an overt editor is one of coping — with indifferent publishers, with inadequate budgets and with, if I remember right, a certain startling inability to see the real point of a story in manuscript. His productions have a sketchy quality to them, like the furnishings and victuals at Honore Balzac's house, if we are to believe Stefan Zweig. Here a placard on the wall bears the scribbled phrase "Here hangs a Rembrandt," and there the din-

ner table supports a sheet of paper on which is written the sumptuous bill of fare. Somehow, the elements of medium, bankroll and inventory have never met well for Damon. It was when he was reviewing what had already reached print, at the behest of other image-shapers, that he burst forth on us all as a major directorial voice.

Legend has it that Damon Knight was a curly werewolf, slashing the throats of the chuckleheads, splashing so much gore that his spectre haunted the night thoughts of authors about to do less than their best and caused them to think twice of foofooraw. Slash he did; why else did God make sheep? But his effect, his credential and his value lie in his poking and prying at the well-enough done. His exact appreciations of the well done are very good, and useful; but they began a fashion for superlatives which no writer, not even Kuttner, Sturgeon, or some of the others Damon treated so well on occasion, fully deserves. This field has yet to see the writer worthy of the praise this educated man at times expressed . . . but I quibble, when I should be going on to explain how meaningful and how influential Knight was when summing up the subtle but suddenly obvious flaws in work that had seemed pretty good. He made of J.T. McIntosh an instruction manual for many, whereas all he did with his total and vastly entertaining destruction of Hall, Flint and Ackerman was summed up when Ace reissued *The Blind Spot*, and with an Ackerman introduction.

These are the functions of an editor: the instruction of the young, the maintenance of an ideal and above all the isolation of the subtle flaw. They require special qualities in their practitioner. Any idiot can spot the big flops, every jackass serves himself, and any rabblerouser will happily divert you with his special music. The literary criticism of science fiction as she is presently practiced offers excellent examples of all this.

In this second edition you will find, among other goodies from the earlier version, the famous destruction of A.E. Van Vogt that first made Damon's reputation. You will also find, in print for the first time, the review that caused him to quit reviewing when F&SF refused to publish it. (What a small bone it is, after all, but perhaps it came from a dear beast). You'll also get a chance to note the only time Damon was totally wrong, which is a hitherto unpublished review of a novel of mine called *Who*? I am flattered that the Lord chose my work for the focus of the

necessary event when Damon was saved from the curse of perfection. In any case, for these and other magnificent bumps on the road to the apotheosis of our art, you should mail the six dollars to Advent tonight.

The Playboy Book of Science Fiction and Fantasy (Playboy Press, $5.95) contains some of the best science fiction and fantasy stories of our immediate time. Partly, this is because, unlike many collections from the slick magazines, its table of contents lists such contributors as Sheckley, Bradbury, Tenn, Clarke, Bloch, Pohl, Nourse, Sturgeon, Ted Thomas, Avram Davidson, and Fredric Brown in addition such other pretty good people as Bernard Wolfe and Bruce Jay Friedman.

I personally think the effect of *Playboy*'s patronage of Arthur C. Clarke has been disastrous. I believe that everyone who wants to read George Langelaan's "The Fly" has either read it in one of its many previous republications or deserves his personal Xeroxed copy from Reader Service. I think they had a much better Davidson to chose from. But by any reasonable standard Ray Russell's initiation of science fiction into the magazine and A.C. Spectorsky's continuance and encouragement of it have been two massive favors *Playboy* has done us, and you should buy this book to enjoy the result, if not the silly arrogance with which it is given you.

Neither Russell's nor Spectorsky's view of the field is exactly the same as mine, but the differences I find only broadening. What I find actively repellent occurs in the introduction and in the individual story blurbs, which miss no opportunity to amplify *Playboy*'s accomplishment by actively belittling the magazines from which these writers came. It is a fact that *Playboy* took in and sheltered many a man who'd been starving among the pulps. It is also a fact that with the possible exception of the late Charles Beaumont, neither Ray Russell nor his particular successor in this concern, A.C. Spectorsky, have a single enduring writer of their own to point to. Under those circumstances, the sneers and arabesque posturings of the blurb prose present altogether too epicene a target. And for the insistent use of that neologistic reference, "sci-fi," we also thank Thee.

Doubleday, like a couple of other publishers, has been in this field for some twenty years now and has either learned nothing or actively wants to debase the general public's understanding of the

medium. Else, why *Best of Amazing* ($4.50), an extraordinarily inept melange of selections from that magazine's avatar-crammed past by Joseph Ross, who in his secret identity is a high school English teacher and handles the language exactly like it.

Joe Ross has trouble getting subject and predicate within shouting distance of each other, refers to David H. Keller, M.D., as "the good doctor" with a straight face, obviously couldn't then resist calling Murray Leinster "The Dean of Science Fiction" and is like a fly in amber. He has gazed back upon the longest publishing history in the field, contemplated an inventory which contains some of the most interesting fiction contributed to the field, and he has selected "The Lost Machine" by John Beynon Harris. This is a now rather clumsy and always bathetic piece, presumably for its historical interest as an early example of work by a writer who had to change his name and most of his habits before he could accomplish anything major. He has also selected "The Worm," and burbled about his joy, as he went on to select the remaining contents — from a storehouse forty years in the filling! — because at last this fine "Kelleryarn" (sic) would be back in print. It is not an actively bad piece, at that — it merely occupies the space that could have been taken up by any one of a dozen other Keller expositions of this same monomaniacal mood. For that matter, it occupies the space that might have been taken up by a story, but by that criterion most of these pages would be blank.

Murray Leinster's "The Runaway Skyscraper" — complete with chapter-headings from its original *Argosy* appearance — is included here, (in this book offered as a tribute to Hugo Gernsback, editor of *Amazing* beginning in 1926 and leaving in 1929), as an example of the Founding Father's skill at selecting reprints.

Would that Joe Ross had that skill.

What possessed him to make of this very first *Amazing* anthology such a pudding of a job? "Marooned off Vesta" by Isaac Asimov was indeed Ike's first sale. His first story came several attempts later. And his "Anniversary," a sequel written thirty years later, is a stunt, a contrived stunt and a badly contrived stunt.

"The Metal Man," by Jack Williamson, does much to document Abe Merritt's influence on the young writer. It is a story full of memorable images, based on the notion that life is a vital force, indifferent to matter and capable of imparting itself to almost any

substance. Specifically, early Williamson, like much of Merritt before him, uses words and concepts like "energy," "radioactivity," and "crystalline" in special senses, endowing them with particular potency.

You can often tell what ideas in a story were felt most powerfully by the writer and had obvious special meaning to him. In most cases, its the sexy parts or the violent parts. But Williamson, perhaps like some others, was very much concerned with manifestations of the *elan vital* in those early days of this field. There isn't really much to "The Metal Man's" events, evaluated for story, but they do present a series of images in which life and power are glimpsed in massive universal motion which merely includes Man and flesh but does not defer to him or it. This sense you can extract from this story and find enjoyable and thought-provoking. But there are many better examples. Was Ross perhaps simply trying to locate the earliest possible example of everything that was done better elsewhere later? Is his soul that of the antiquarian?

"Pilgrimage" by Nelson Bond was, I would say, a reject from *The American Magazine* or *Collier's*. That was their mistake. Reprinting it in this context is Ross's.

"Sunfire!" by Edmond Hamilton is not the grand world-wrecking Hamilton, but the more contemporaneous poetic Hamilton of "What's It Like Out There?" and "Home Run." It is a hitherto unreprinted example of that letter mode, you got to say that for Joe and his sure touch for the not-quite. Even the most consistent writers in this field will write a so-so yarn to either build up to or come down from a good piece of work, whatever that work might be an example of. Ross's ability to select all valleys has the dizzy dazzle of consistent disaster all over it.

Finally, there is "Try To Remember," by Frank Herbert, a man who has written excellently once or twice, very well almost always, and grindingly monotonous sometimes. This is because Herbert, like for example Van Vogt and the late Mark Clifton, is a compulsive magician; a quick study or a dedicated apprentice in some arts such as semantics, personnel management or eye-training which will turn all our lives into gold. Periodically, this kind of writer selects an intrinsically dull magic, uses a particularly contrived plot, and chops out his wooden characters too crudely, all at once in the same story. Then all his potential defects conjoin, and Oh, boy!

This book does not represent

either contemporary science fiction or the true history of *Amazing Stories*. Its introductory tribute to Hugo Gernsback is so ingenuous as to seem insincere; whatever worth it offered as a genuine token is pretty well undermined by Ross's subsequent dragging-in of H.L. Gold, of all people, to stand shoulder-to-shoulder with Hugo. (I would like to see the look on the grand old man's face). Its copyright dates fall into the past with such vim as to evoke the best spirit of Frederick Fell, Pellegrini and Cudahy, McBride and some of the other publishers who were bumbling around this racket in the early 1950's, almost determinedly refusing to pick up anything that betrayed quality or sophistication, leaning on sheer spavined antiquity as a selling point.

Ross, I don't worry about. An English teacher can always make out as long as he remembers not to split infinitives in public and to never listen to what the words are meaning. *Amazing* I don't worry about, because somebody always comes along with a fresh supply of *tana* leaves every time it appears to be dying at last. But Doubleday . . . what on Earth has happened to your shrewd commercial brain, gents? Surgically implanted in a lustful giant robot, you say?

Orbit II (G.P. Putnam's Sons, $4.95) is Damon Knight's second compendium of original stories. It follows hard on the heels of *Orbit I*, so I assume this latest venture in producing books like magazines is either a success or a mistake that hasn't been acknowledged yet. (The two are often indistinguishable in publishing).

Editorially, it's the curious beast my review of *In Search of Wonder* might have led you to expect. It is more a sign that Damon's heart is in the right place than it is a really satisfactory book.

His selections are by Theodore Thomas, Kate Wilhelm, Richard McKenna, Gene Wolfe, Philip Latham, Joanna Russ, R.A. Lafferty, Kit Reed, and Brian Aldiss. I was struck by the terrific similarity of this lineup to a *Magazine of Fantasy and Science Fiction* contents page, as well as by the thought that Damon seems to have put this book together in his living room. But the best editors have always had a reasonably well defined group of writers clustered around them; what croggles me is that here they're somebody else's group, if you define possession by frequency of use.

Thomas's "The Doctor" is a great accomplishment, an exact statement of a central truth from which anyone with any sense or

understanding can go on to draw echoes in dozens of factual situations. This is one of the primary areas of opportunity for fiction; it is by the nature of the medium *the* area of opportunity for science fiction. This one is a straight, undeviating statement from beginning to end, barely turning aside the fraction of an inch required to explain how its doctor-protagonist got back in time so far.

After this opening chord, quality in the book drops quickly. Kate Wilhelm's "Baby You Were Great" is pretty good and contains some great inventive thinking, but not in places that will reach the reader. Writers should not write for writers, although we all do to some extent. It's a little like a roofer's carefully preparing the underside of a shingle so the wrecker who'll eventually dismantle the house can admire his skill.

Richard McKenna, who as you know is dead, was an excellent writer and a memorable person, a man capable of feeling and thinking on levels more of us should attain. "Fiddler's Green" demonstrates these qualities in its author. So do dozens of other stories, however, and the low overall quality of this umpteenth posthumous selection verges on insult to the bones.

Gene Wolfe's "Trip, Trap" is indistinguishable from dozens of other academe-oriented jokes published in F&SF during the Boucher years. Apparently, too, the stimulus of buying this kind of story automatically invokes an editorial response in the form of a clearly overblown blurb.

Philip Latham's "The Dimple in Draco," on the other hand, is representative of the kind of engineers' in-group "story" (astronomic division) that ASF used to put out once in a while. It's poorly representative, however, and when found outside *Analog*'s pages leads one to think maybe Damon bought this reject from John just to prove he can publish a story he doesn't personally like. For this sort of purpose, of course, an intrinsically unlikeable story is even more desireable than a good one.

Joanna Russ is represented by two stories about a single character, a female Grey Mouser named Alyx. In these two stories she is provided with contradictory pasts, neither of them clearly suitable for the matured protagonist of the actual stories Aside from that, she's a very pleasant creature, and I hope there'll be more of her. It's pretty lightweight stuff for two stroies, but if you don't put an issue together frequently, I guess you got to get your series character out in bigger-than-usual lumps.

R.A. Lafferty's "The Hole in The Corner" is the second-best story in the book; totally indescribable, it represents what can be done with the *F&SF* style, (even though Lafferty's natural home is right here in *Galaxy*). To get it done, you have to be not just witty and college educated. You have to be far enough away from those days to have some idea of what's real and what isn't. That gives you terrific scarcity value, because of all the kinds of story there are, the notional mode is the easiest in which to write badly well enough to get by.

What I mean by that perhaps cryptic remark may become clearer to you if you read the final story in *Orbit II*, Brian Aldiss's "Full Sun." Then there's Kit Reed's "The Food Farm," which like most of the stories in this book takes a notion and gives it the simplest possible twist, but with a good vocabulary and lots of cuteness lubricating the hard parts. Essentially, this kind of story is a spatter of code words and recognition symbols, evoking the spirit of intelligence and inquiry, flaunting credentials of sophistication. When you touch them they vanish, or become at best cardboard, Damon, cardboard. — Algis Budrys

∞

volume 1 NUMBER 1

A new science-fiction magazine with a new concept in publishing

Each issue will be filled with stories by Foreign Authors

Will give American readers a chance to read the science-fiction stories by Authors popular in the rest of the world. Written and translated by the top writers throughout the world.

We hope you will like it.

PLEASE LET US KNOW!

NEWSSTAND ONLY

Seated : Bennett Cerf, Faith Baldwin, Bergen Evans, Bruce Catton, Mignon G. Eberhart, John Caples, J. D. Ratcliff. Standing: Mark Wiseman, Max Shulman, Rudolf Flesch, Red Smith, Rod Serling.

"We want to test your writing aptitude"

By Gordon Carroll

Director, Famous Writers School. Former editor, *Reader's Digest, Time, Inc., Coronet*

If you want to write, my colleagues and I would like to test your writing aptitude. We'll help you find out if you can be trained to become a successful writer.

Several years ago, we started the Famous Writers School. Our aim was to help qualified people acquire the skills they need to break into print. We poured everything we knew about writing into a new kind of professional training course, which you take at home and in your free time. After a solid grounding in fundamentals, you get advanced training in the specialty of your choice—Fiction, Non-Fiction, Advertising or Business Writing.

Each of your writing assignments is examined by instructors who are themselves professional writers or editors. Your instructor spends up to two hours analyzing your work. He blue-pencils corrections right on it — much as an editor does with established writers. Then he returns it to you with a long personal letter of advice and specific recommendations.

This training works well. Our students have sold their writing to more than 100 publications including *Reader's Digest, True, Redbook.*

Stephen Novak of Wayne, N. J., says, "I just received a check from *Ellery Queen's Mystery Magazine.* That's 11 stories sold in six months." Doris Stebbins of S. Coventry, Conn., who has sold six stories to *Woman's Day* for $2,050 writes, "Taking your Course has made it all possible."

Writing Aptitude Test offered

To find out if you can benefit from this training, send for the School's Aptitude Test. If you test well, or offer other evidence of writing ability you may enroll. But there is no obligation to do so.

Famous Writers School
Dept. 6659, Westport Connecticut 06880
I want to know if I have writing aptitude. Please mail me, free, your Writing Aptitude Test and 48-page illustrated brochure.

Mr.
Mrs. .....Age.....
Miss [Circle one and please print]

Street.....

City.....

State.....Zip.....

Accredited by the Accrediting Commission of the National Home Study Council.