VOLUME TWO/NUMBER FOUR $1.50 AADC PM451

# vertex

## THE MAGAZINE OF SCIENCE FICTION

**PART ONE of a major Novella by William Carlson**

**Letter**

**K. DICK**
**INA RUSS**

**aceships**
**ave**
**ike**

**ROM**

**THE GREAT PYRAMID—
THE FIRST OBSERVATORY?**

vertex

# CONTENTS

OCTOBER 1974

VOLUME TWO/NUMBER FOUR

## SERIAL

**Sunrise West**
**Part One** 16
**(16,000 words)**
*William K. Carlson*
The new world was being put together from the ruins of the old, and the part they were to play was as yet unwritten. To be concluded in the next issue of Vertex.

## NOVELETTES

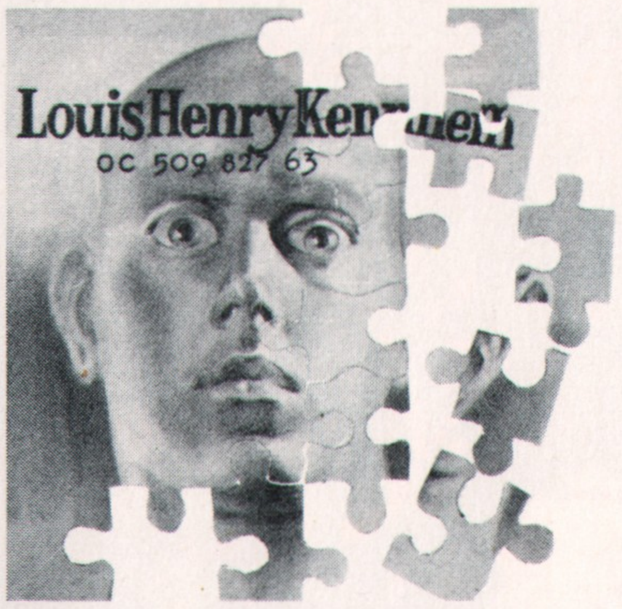
**Definition On Tideworld** 4
**(8000 words)**
*Joseph F. Patrouch, Jr.*
They had discovered what were, by definition, human beings on Tideworld. But would humanity continue to accept the definition?

**The Teacher** 60
**(8200 words)**
*Don Pfeil*
The children were merely being entertained by the old man, weren't they? After all, what damage could he do to their still-forming minds with his stories?

## FEATURE FICTION

**Grow In Wisdom** 24
**(3500 words)**
*Mildred Downey Broxon*
New developments in the biosciences always have a reason for being. Sometimes that reason is just a little too obvious to be seen, though.

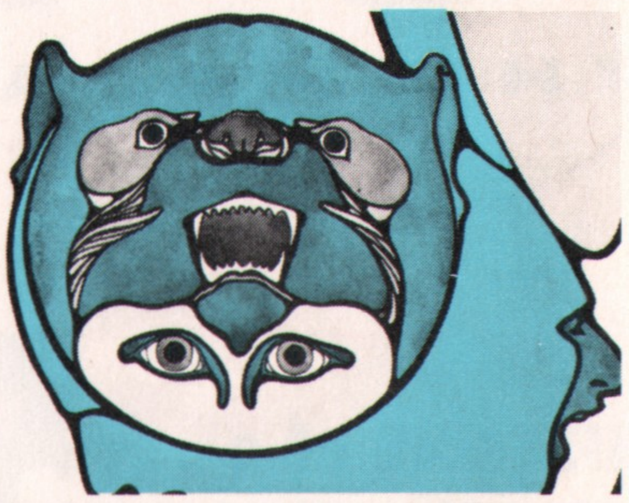
**Juryrigged** 28
**(6000 words)**
*Joe W. Haldeman*
He had been picked for jury duty, even though he had no desire to be one of the few chosen to be masters of the total envirosphere.




## SHORT STORIES

**Potpourri** 12
*Various Authors*
An editor's selection of the best short-short stories received by Vertex.

**Tallwalker** 40
**(2200 words)**
*Peter Martin*
The men from Earth were there to study the planet. Trouble was, study is sometimes too slow a way to learn.



**A Three Letter Word Called Love** 84
**(2400 words)**
*Walt Liebscher*
The invitation was a puzzle, but one he certainly had no intention of turning down, for the puzzlement made it just that much more intriguing.

## FEATURE ARTICLES

**Space Vehicles From The Past** 21
*Jay Arrow*
Spaceship design, once the provence of the science fiction artist, has suddenly become the realm of the space engineer.

**VABulous** 44
*Neil Shapiro*
NASA's Vehicle Assembly Building is one of the largest, and certainly most impressive, structures ever built by man.

**The First Observatory** 72
*Igor Bohassian*
They call it the Great Pyramid of Cheops, a tomb for a pharaoh, but it's unlikely anyone was ever buried there.

## VERTEX INTERVIEWS

**William Rotsler** 34
*Terry Carr and Stephanie Bernstein*
The Author of *Patron of the Arts,* soon to be released as a novel, explains his blending of art and science into artistic science fiction.

# EDITORIAL

## VERTEX DEPARTMENTS


**Editorial** 3

**Book Reviews** 8

**Eco-Corner: Power Without Pollution** 92
*Jerry Pournelle*

**An Open Letter To Joanna Russ** 99
*Philip K. Dick*

COVER COMPOSITE BY
SUE ANDERSON
AND STEVAN ARNOLD

**EDITORIAL STAFF**
*Editor:* Donald J. Pfeil
*Associate Editors:* Richard Ashby
Steve Ross
*Assistant Editor:* Elaine Stanton
*Art Director:* Andrew Furr
*Associate Art Directors:* Monte Rogers
Eugene B. Caleb
*Advertising Director:* Pat Pope

**ADVERTISING REPRESENTATIVES**
*New York:*
Mitchell Napier & Associates/342 Madison Avenue/New York, New York 10017/ (212) 986-0625
*Chicago:*
Kingwell & Associates/5526 Elston/Chicago, Illinois 60603
(312) 774-9660

**VERTEX MAGAZINE, Volume 2, Number 4, October** 1974 Issue. Published bimonthly by Mankind Publishing Company. Business offices: 8060 Melrose Avenue, Los Angeles, Calif. 90046.


Contents copyright © 1974 by Mankind Publishing Company. Nothing may be reprinted in whole or in part without written permission of the publisher. Printed in the U.S.A. VERTEX welcomes contributions but can assume no responsibility for such unsolicited material. Return postage should accompany all manuscripts, drawings and photographs submitted if they are to be returned and no responsibility can be assumed for unsolicited materials. All rights in letters, articles, personal reports and fiction are treated as unconditionally assigned (unless otherwise specified) for publication and copyright purposes and as subject to our unrestricted right to edit and comment editorially. Any resemblance between people and places depicted in fictional material and actual people or places is strictly coincidental.


Price per copy $1.50. Subscriptions: in the United States and possessions, $8.00 (six issues); $14.00 (twelve issues); $24.00 (twenty-four issues). Add $1.00 per year for Canada and $2.00 per year foreign. Second class postage paid at Los Angeles, California and additional mailing offices. Title registered U.S. Patent Office.

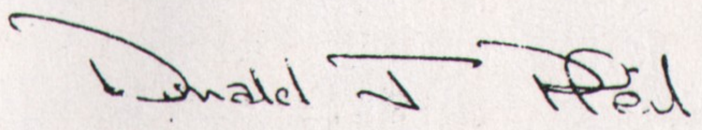

Question of the Day: Is relevance destroying science fiction? Before you start jumping up and down in rage because the editor of Vertex has (again) begun an attack on the "new wave" writers, stop and think about that question.

*Relevance* seems to be the catchword, the battle cry, and the justification for every would-be science fiction writer around, and there isn't a critic in the country who would dream of being caught dead without a good supply of it. Even the *Open Letter* from Philip Dick *(page 99)* commenting on a recent article by Joanna Russ in Vertex, and Poul Anderson's reply to that article, fairly reeks with relevance.

The editorial space in a magazine is the place where the editor can sound off on his own opinions, without taking into account the balance he must strive for in the rest of the issue. So here, in this column, let me say that not only is relevance destructive to science fiction, but, by definition, I do not think a relevant story can even be called science fiction. A story which takes place in the future but which is relevant to today, is, by definition, merely an extrapolation of current events. It is time-extended mainstream fiction. It is "If This Goes On . . . ," not "What If," and therein lies much of what I believe is wrong with current science fiction.

Any competant reporter–technical writer–court recorder–can, with a bit of effort, learn to write dialogue. Once this talent has been mastered, he (or she–sorry, Ms. Russ, I almost forgot), can simply extend current trends, write an article about that extension, add dialogue, and call it science fiction. If you don't believe this is possible, you haven't been reading many of the new science fiction books being released. They're oh, so relevant, interesting speculations, and even, in many cases, fun to read. *But they aren't science fiction!* They fail to meet what is perhaps the oldest criteria of science fiction. They fail to excite one's sense of wonder. They fail to present anything really new, except, perhaps, a degree of characterization and motivation long missing from science fiction. But, along with relevance, characterization and motivation don't make science fiction. That missing sense of wonder does.

Part of that sense of wonder is, of course, the *creation,* from the author's mind, and not from extrapolation, of worlds and societies and beings. The world and ecology of *Dune,* the historical sweep of *Time Enough For Love,* the alien beings of *Mission of Gravity,* the pure continuing adventure of the *Foundation Trilogy.* These were books which excited the sense of wonder we read science fiction for. Every one of them has been castigated for one reason or another by the critics, and, granted, there have been other books better written, other books with more complete characterization, other books with more *relevance.* But were those other books better *science fiction?* Better literature, perhaps. But better science fiction? I doubt it.



***Don Pfeil, Editor***

**Tideworld posed a problem mankind was not yet prepared to answer. What made a human, human?**

# DEFINITION ON TIDEWORLD

**fiction/JOSEPH F. PATROUCH, JR**
**artist/STEVAN ARNOLD**

The Interrogator silently straightened his red robes and settled into the black wrought iron and white leather chair across the dark plastic coffee table from me. His thin face was flushed with an anger he had difficulty suppressing. I looked hastily away, around the small, off-white room, as he crossed his legs and took his left ankle-length shoe in his right hand. I noticed that the shoe had worn strangely and wondered if he had lost part of his foot in some wartime accident.

His deep voice pulled my eyes back from that shoe to his face. The anger was still there, but I wasn't prepared for the wariness. It was as if this interview were important to him in a personal rather than merely a professional way. I knew what was in it for me—for mankind—but what was in it for him?

I had to force myself to begin listening to what he was saying.

". . . is in no sense a trial, Dr. Sommers. The decisions you helped to make and the actions you all took were entirely the responsibility of the three of you. We want you to review your mission for us, not as a defense of what you all three did together, but as a preliminary step in helping us decide what we should do next."

His words were comforting, but his voice was a sliver of steel. If he could have brought us to trial, he would have. It was the job of each of us—Shields, Peat and me—in our separate debriefings to convince everyone that we had done the right things for the right reasons.

"Yes," I replied formally. "I am fully aware that this is a mission summary and not a trial."

"And you must also be told that this cannot later develop into a trial. Exploration teams are immune from subsequent prosecution, regardless of the rashness of their actions."

Beneath it all the Interrogator and I agreed on one thing. An accurate account of what had happened was best for all of us.

He let his shoulder blades touch the back of his chair. "Perhaps, then, you would like to begin."

"Might as well, I guess." Here it was. I reached over and poured myself a large cup of coffee. Everything we said and did was being taped, of course, and I knew that eventually I would be speaking to a much larger audience than this one United Stellar Interrogator. The cup was comfortably warm in my hand, and I dabbled my spoon in it for a long moment.

United Stellar was a sphere some sixty light years in diameter, with Earth roughly at its center. Within that sphere were seventeen habitable planets, and man was now on all of them. Alien life forms had proven plentiful, but as yet no intelligent species had been found among them. Evidence for the past existence of one or more such species was extant in the nine Alien Artifacts so far uncovered. The creators of those

**He was a small man, dun colored, naked, standing in the little protected basin like aborigine on Earth. But Earth was billions of miles away, and he really wasn't a man.**

Artifacts, however, had long since disappeared.

Seventeen habitable planets within a sphere sixty light years in diameter made up only a tiny part of the universe. Obviously the star systems outside United Stellar were virtually infinite in number. Millions of habitable worlds. Millions more that planetary engineering could make habitable. Man had barely begun to reach out, to explore and colonize those unknown worlds. For this reason—and because explorers were naturally independent anyhow—United Stellar let them explore what and where they wanted. As long as a team qualified, it was given a ship and turned loose among the stars. No further strings attached. Not even prosecution for what the people back home might consider "errors."

The place for me to begin, then, was why our particular team had picked that particular star.

"We decided to go to Beta Hydri because Commander Northshield had been there already, during the War, and he knew it had planets. It wasn't a matter of the astrophysicists computing probabilities and then our hopping out to check the odds. The planets were there. But Shields—Commander Northshield, that is—Shields hadn't been able to check for habitable worlds. That required a visit."

Orbit O.K." Shields announced from his reclining captain's chair. "Circular. One hundred miles. Thirty degrees to the equator." He swung his head to look at Peat. "What have we got?"

Peat didn't take his eyes from the instruments in front of him. "Only sixty degrees difference between poles and equator," he announced. "Should be greater deviation than that, considering the planet's inclination is only two degrees. Probably a water world." He transferred his attention to another part of his panel. "Laser shows extremely minute surface features, only a few feet variance in altitude. Wait a minute. Hmm. Altitude's gradually increasing, as if the surface bulges. We'll let the computer settle that one."

Peat was simply spotchecking some of the data going into the computers. Within a few hours we would know everything you could know about a planet from a hundred miles up, but his curiosity was too intense to let him wait.

Shields eased his muscular frame out of his chair and joined me at the transparent viewplate which bubbled out the side of the *Adventure*. Even though Peat always insisted that you couldn't tell anything about a planet by looking at it, we preferred to see it without the aid of his electronic information-gathering devices.

We stood looking ahead so we could see the terminator slipping towards us as we approached it. The atmosphere was grey and soupy looking, filled with clouds probably. We couldn't make out any surface features. Beta Hydri IV's orange, dappled moon hung huge overhead. Twice as big as Earth's moon, it was only a hundred and seventy-five thousand miles out from the planet. It was sure to perturb our orbit, but the computer had already been fed the data necessary to take that perturbation into account.

I knew what Shields was thinking and I didn't want to disturb him. The last time he had been here he had lost half his crew and been lucky to get his crippled ship back to United Stellar. A Confederation decoy ship in orbit around that same moon. Only the end of that war had let the explorers go out again.

"What's that?" Shields asked abruptly, indicating something in the atmosphere ahead. A line along the horizon that had been dark—and that I suspected might have been a break in the cloud cover—was beginning to lighten.

I looked more closely. The atmosphere just this side of the dark line seemed to be beginning to boil. It turned first a frothy, bubbly white and then reached upwards. A gigantic white feather lying sideways on the planet, a hundred miles end to end, and sliding upwards out of the grey soup, slowly, slowly. It reached the sunlight and burst into a thousand shimmering, fragmented, swirling rainbows. All that color suddenly from all that grey. A halo on the world, enshrining it somehow, and making it holy. It hung in front of us, growing more quickly as we rushed upon it.

"Volcanic?" I muttered. "Planetary gasses venting?"

Its apparent size remained the same for a few moments. Gradually the colors faded, altered, coagulated into a brilliant white glare. And then whatever it was settled slowly down into the grey again. In perhaps fifteen minutes it had come and gone.

"That was worth the trip," Shields said in awe.

I could only nod my agreement.

As the *Adventure* moved over where the phenomenon had appeared, we searched beneath us for some hint as to what it had been.

"Does it seem to you that the atmosphere is more turbulent down there?" Shields asked.

"No doubt about it," I answered.

Just then Peat called out, "Will you guys stop gawking and look at this? We just went over a surface feature to top all surface features—and I mean that literally! The laser was picking up that gradual rise I told you about, slow, slow, slow—then WHAM! a nine mile high something or other. Now we've got ragged altitudes generally decreasing."

Beneath us we began to make out what had to be the surface of a land mass. I was sure I spotted a good sized lake with three rivers running into—or out of—it. It was difficult to tell mountains from low clouds. Eventually the grey soup closed in again.

On a hunch I asked Peat, "Are we back over the smooth stuff again?"

"Right you are," he nodded. "The same flat undulations. Strange. Now they're decreasing gradually instead of increasing."

Shields and I looked at each other bewildered.

"Any ideas?" he asked.

"Outventing?" I suggested again, halfheartedly.

All we could do was wait for the computers.

And that was our introduction to Beta Hydri IV, or Tideworld, as we named it."

"Tideworld?" the Interrogator asked, shifting his weight slightly and recrossing his legs. His right shoe was worn funny, too. What accident could have taken off half of both feet?

"For the record," he said irritatedly, "why did you name it *Tideworld?*"

"Oh." I forced myself away from those shoes. "As it turned out, Peat was right. Beta Hydri IV is basically a water world. The water distributes the absorbed heat fairly evenly over the whole planet, and that accounts for the relative lack of temperature variation from equator to pole."

Then, even through his hostility, the Interrogator got it. "And with that massive moon in so close . . ."

"Right. A water world with only a two degree inclination and a moon like that has to have terrific tides. The undulations the laser showed were ocean swells, while the gradual rise was . . ."

". . . the tide. You were coming up the back side of the tide." For these few moments his natural fascination was overcoming his hostility.

"Kee-rect. And that fantastic plume

*turn to page 66*

# VERTEX LOOKS AT BOOKS

**Vertex looks at the latest offerings from the science fiction book publishers, both hardcover and paperback editions.**

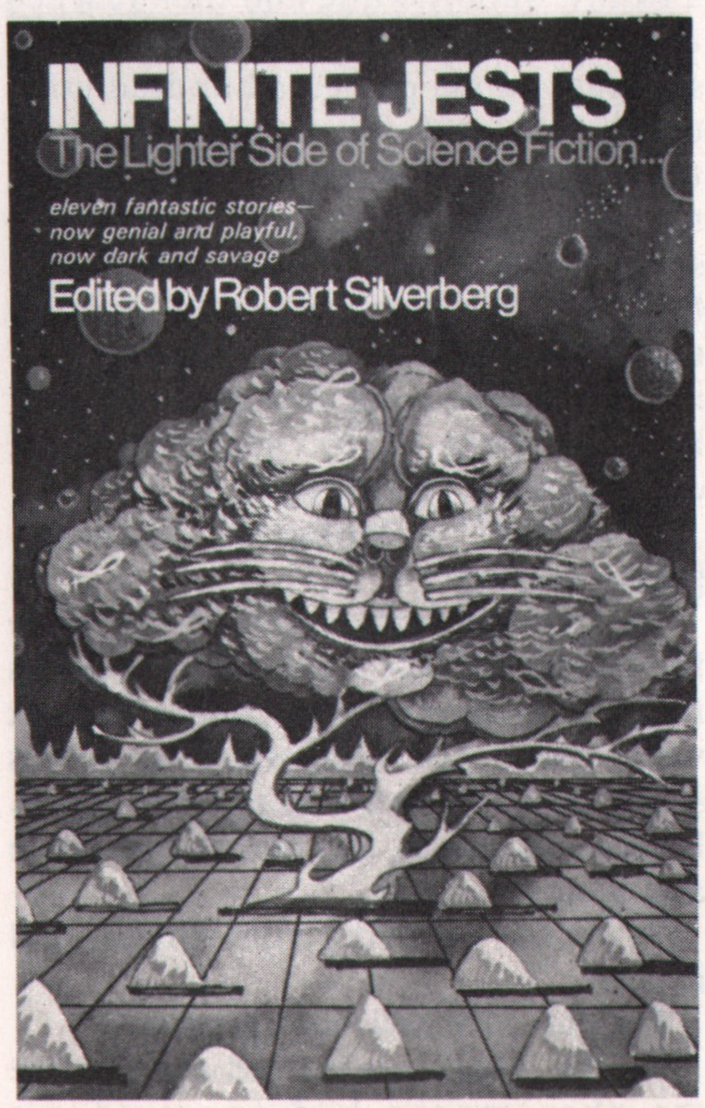
## INFINITE JESTS

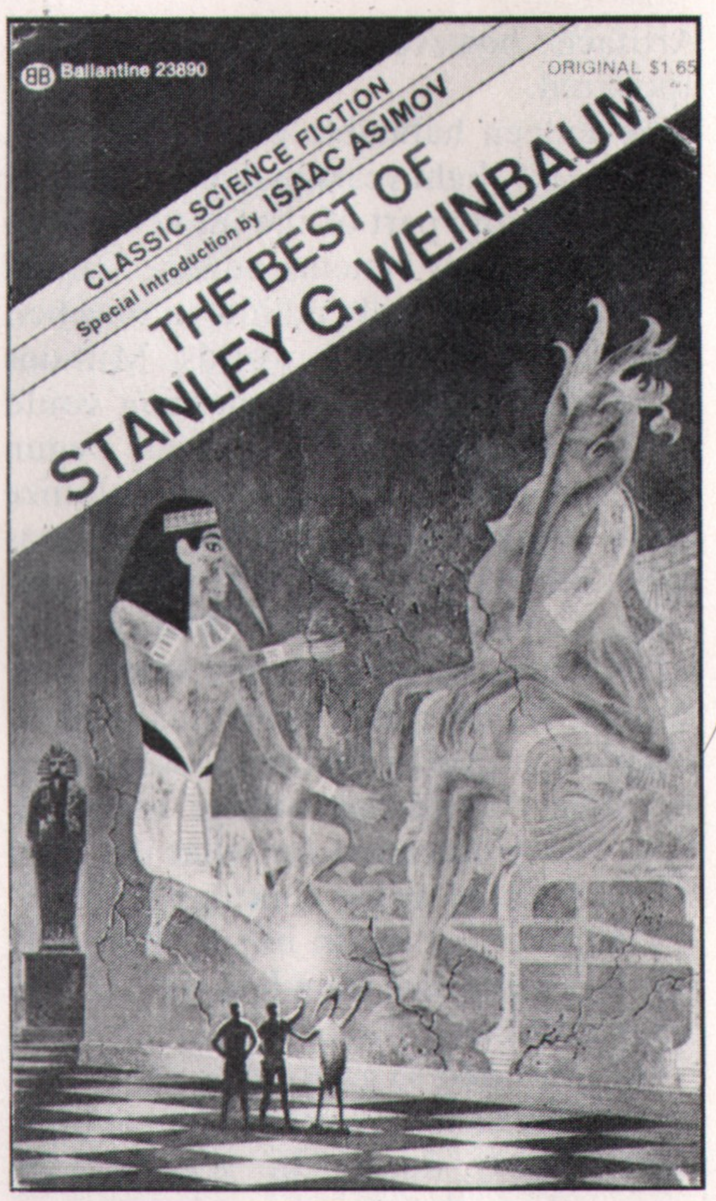
Robert Silverberg, Editor
*Chilton, $5.95*

If there's one thing that science fiction needs more of these days, it's humor. First, because science fiction has a tendency to take itself too seriously, and second because, with the world the way it is, a little humor in our lives is something we all have need of. And there are several writers these days doing excellent science fiction humor, such as Larry Eisenberg and William Rotsler.

Unfortunately, the eleven stories in this book *average* over 13 years old, with the oldest having first seen print 26 years ago. That's not to say that the stories aren't good. In general they are excellent, but the reader has a right to expect that a book subtitled "The Lighter Side of Science Fiction" to be a bit more contemporary. Of the three stories written in the Seventies, *Useful Phrases For The Tourist* is very funny but also very superficial, and Grahame Leman's *Conversational Mode* and Robert Silverberg's own *(Now+N, (Now–N)* are anything but humor pieces.

All in all, there are some good stories here, and some funny ones, but the buyer has the right to expect a bit more for his six bucks.




## THE BEST OF STANLEY G. WEINBAUM

*Ballantine, $1.65*

A dollar and sixty-five cents is a lot of money to pay for a paperback book, but in this case it's worth every penny. For those of you who know who Stanley Weinbaum was, and what he wrote, this book will be a must for your shelf, and is guaranteed to bring back many memories.

For the science fiction fan who never heard of Weinbaum, or never read any of his works, you've got a very pleasant surprise coming. Weinbaum's first story, *A Martian Odyssey,* appeared in 1934, and set the science fiction world on its collective ear. In the next eighteen months Weinbaum had twelve more stories published, then came the news of his death. Eleven more stories appeared after that tragic event, and that was all there was. The world of science fiction had lost a great talent, one who influenced almost every writer who came after him. And now, thanks to *Ballantine Publishing,* a whole new generation of readers can learn why he made such a splash. And we're sure a whole new generation of readers will fall in love with the writing of one of the all-time greats. Stanley G. Weinbaum.

**Women custom-made to your order . . . a man imprisoned in a computer . . . a swamp that became a Garden of Ecstasy . . . the dead woman who swallowed a space ship . . . wars fought with love rays and aphrodisiac gas . . .**

Get the idea? Our books are not for the fainthearted. They're for people who want way out, heady reading. Who don't flinch at startling departures from reality. Who prefer their fiction stark, tense, challenging. Who love to get wrapped up in a story they can't put down.

What are the big books in their world of science fiction?

*The Hugo Winners*, 864-page, double—volume collection of science fiction's "Oscar" holders from 1955 to 1970.

*Dune*, the now-classic novel that won Frank Herbert both a Hugo *and* a Nebula award,

*The Gods Themselves*, Isaac Asimov's latest and perhaps greatest novel. You may choose these, plus a fourth volume for just 10¢.

Yes, it's the most extraordinary offer we've ever made. Order any 4 books on this page for just 10¢ (plus shipping and handling) and you're on your way to the spine-tingling, mind-tickling thrills of the Science Fiction Book Club.

**Here's how the Club works:**

When your application for membership is accepted, you'll receive your introductory package of four books for just 10¢ (plus shipping and handling). Look them over at home, and if not absolutely fascinated, return them within ten days—membership will be cancelled and you'll owe nothing.

About every four weeks (14 times a year), we'll send you the Club's bulletin, *Things to Come*, describing the 2 coming Selections and a variety of Alternate choices. If you want both Selections, you need do nothing; they'll be shipped automatically. If you don't want a Selection, or prefer an Alternate, or no book at all, just fill out the convenient form always provided, and return it to us by the date specified.

We try to allow you at least ten days for making your decision. If you don't get the form in time to respond within 10 days, and receive an unwanted selection, you may return it at our expense.

As a member you need take only 4 Selections or Alternates during the coming year. You may resign any time thereafter, or remain a member as long as you wish. Most books cost only $1.98 plus shipping and handling. Occasionally, extra-value Selections are slightly higher, but always much less than Publishers' Editions.

So join now. Don't even send us the dime. We'll bill you later. But mail the coupon today.

# ANY 4 SCIENCE FICTION BEST SELLERS FOR JUST 10¢
## WHEN YOU JOIN THE SCIENCE FICTION BOOK CLUB

8532. **The Hugo Winners,** Vol. I & II. Giant 2-in-1 volume of 23 award-winning stories, 1955 to 1970. Asimov introduces each. Pub. ed. $15.45

6023. **The Gods Themselves** by Isaac Asimov. The master's first novel in 15 years ...and worth the wait for a fabulous trip to the year 3000. Pub. ed. $5.95

2394. **Astounding.** Harry Harrison, Ed. A memorial anthology for pioneer sci-fi editor John W. Campbell, with 13 original stories by top writers. Pub. ed. $7.95

1032. **Rendezvous With Rama** by Arthur C. Clarke. From **Childhood's End** author, dazzling, visionary novel of a self-contained world in space. Pub. ed. $6.95

8037. **Again, Dangerous Visions,** Harlan Ellison, ed. Forty-six pieces, short stories & novels, **Explicit scenes and language may be offensive to some.** Pub. ed. $12.95

2303. **Hellstrom's Hive.** By Frank Herbert. Insect menace! A hair-raising sequel to the smash movie **The Hellstrom Chronicle.** Spec. Ed.

6049. **Science Fiction Hall of Fame, Vol. 2A.** Ed. by Ben Bova. Eleven all-time great novellas chosen by Sci-Fi Writers of America. Pub. ed. $9.95

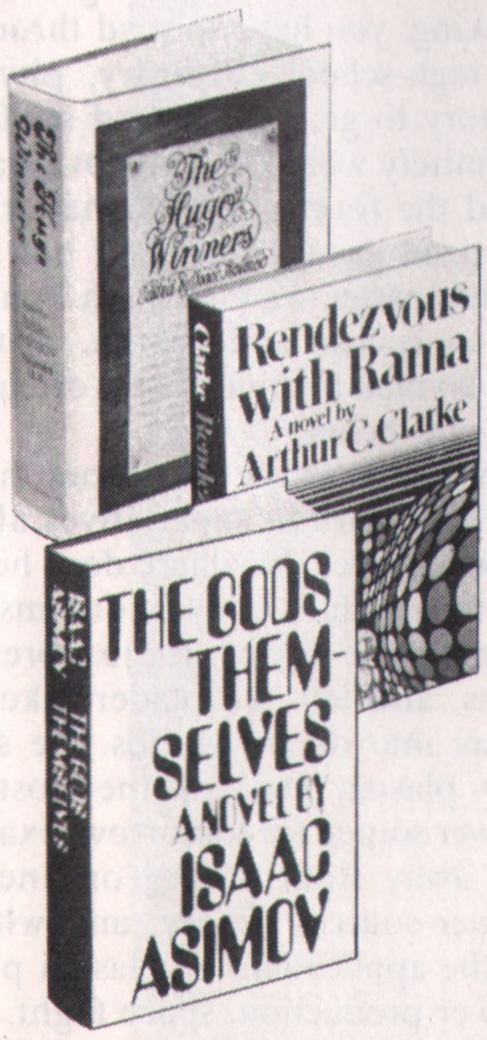
2451. **The Mastermind of Mars & A Fighting Man of Mars.** Two of Edgar Rice Burroughs' exciting Martian novels in one volume. Illus. by Frank Frazetta. Spec. Ed.

1164. **The 1973 Annual World's Best S.F.,** ed. Donald A. Wollheim. 10 novellas, short stories; Anderson, Simak, others. Spec. Ed.

6072. **Science Fiction Hall of Fame, Vol. 2B.** Ed. by Ben Bova. Eleven more great novellas, by Asimov, Simak, Pohl, others. Pub. ed. $9.95

6221. **The Foundation Trilogy** by Isaac Asimov. The ends of the galaxy revert to barbarism. Pub. ed. $14.85

2261. **The Inferno.** By Fred & Geoffrey Hoyle. A testy Scottish physicist takes charge . . . when a deadly quasar threatens the earth. Pub. ed. $5.95




**Science Fiction**

**SCIENCE FICTION BOOK CLUB** 45-S115
Dept. FR-072, Garden City, New York 11530

I have read your ad. Please accept me as a member in the Science Fiction Book Club.

Send me, as a beginning, the 4 books whose numbers I have indicated below, and bill me just 10¢ plus shipping and handling.

I agree to purchase 4 additional books during the coming year and may resign anytime thereafter.

[ ] [ ] [ ] [ ]

Mr.
Mrs. _____
Miss Please print

Address _____

City _____

State _____ Zip _____

The Science Fiction Book Club offers its own complete hardbound editions sometimes altered in size to fit special presses and save members even more. Members accepted in U.S.A. and Canada only. Canadian members will be serviced from Toronto. Offer slightly different in Canada.

## PATRON OF THE ARTS

William Rotsler

*Ballantine Books, $1.25*

Most living things get better as they get older (to a certain point, of course), and while a book isn't a living thing by most standards, here is a good example of a story getting steadily better and better and better as it goes along—and along the way getting longer and longer.

Rotsler's blending of new art forms, unusual and quite interesting people, and an outstanding plot first appeared as a short story several years ago. Expanded by some 8,000 words into a novelette, it was the star attraction of the first issue of *Vertex*. And now *Patron* has grown to full maturity, into what will undoubtedly be one of the most-read science fiction books of the year.

Padding out a long novelette and calling it a novel is a regrettably common practice in science fiction, but one that Rotsler is not guilty of. Instead of padding *Patron,* he simply took up where the novelette left off, and, in essence, *finished* it. Tied up *almost* all the loose ends. But there are enough left hanging, almost invisible but nonetheless there, for another complete book. Short story to novelette to novel to series? Why not?

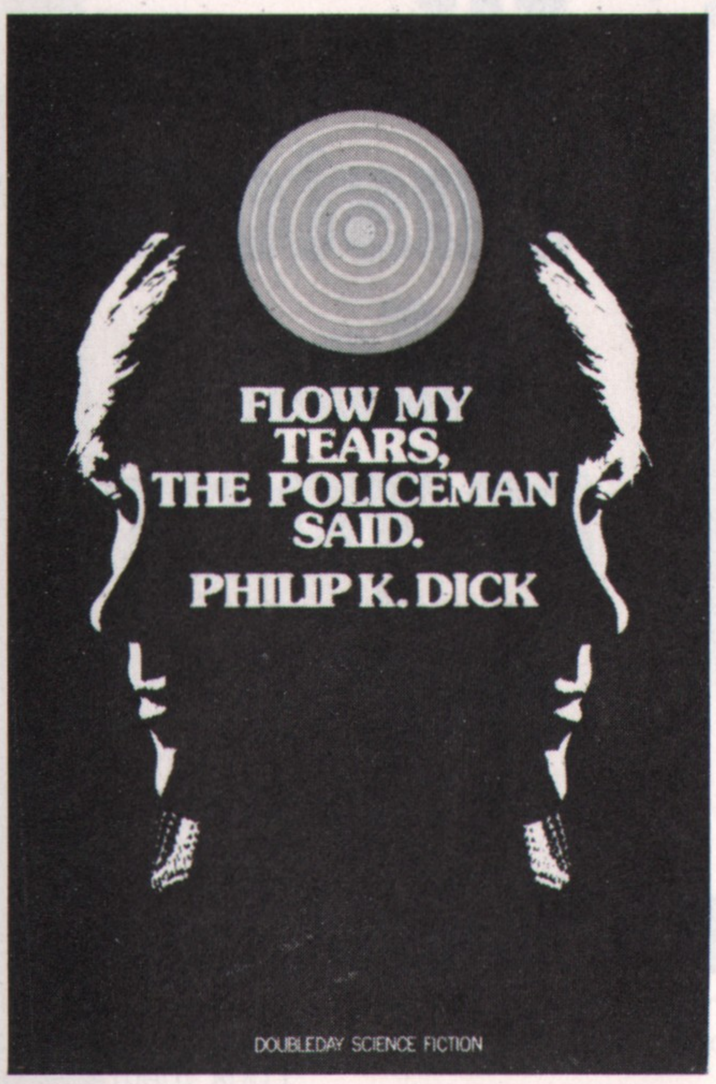
## FLOW MY TEARS, THE POLICEMAN SAID

Philip K. Dick

*Doubleday, $6.95*

Philip K. Dick seems to take delight in imagining the worst possible nightmare a man kind find himself in, then writing a story about a person finding themselves in *exactly* that nightmare, and unable to get out. When one becomes addicted to Dick, the most immediate question is, how can he possibly become so involved with his characters without a concurrent involvement with the situation? And if he can become involved with the situation, how can he possibly maintain his sanity? Just reading one of his books is enough to make you start looking over your shoulder, and *Flow My Tears, The Policeman Said* is an excellent example.

Imagine what it would be like if you were one of the most famous people in the country, then you woke up one morning to find out that nobody remembers you, you have no identification, and there's not a trace of proof anywhere that you even exist. Then try to imagine what sort of situation could bring about that state of affairs. If you came up with a quick and logical answer, you can be sure it isn't the answer Phil Dick came up with. If you came up with a nightmare answer, welcome to the world of Jason Taverner.




## THE FOURTH STATE OF MATTER

Ben Bova

*Mentor, $1.95*

It takes this book a long time to get moving, you have to read through a lot of high-school chemistry, physics and history to get to the good stuff, but it's definitely worth it. Mr. Bova has examined the fourth state of matter, plasma (ionized gasses) in detail, but kept the technopatter to a minimum. What he has to say is clear and concise, written with the layman in mind, and is often exciting beyond belief.

Nowhere in the book does the author go overboard in superlatives about this power source. Nowhere does he let lyricism carry him away in dreams of what might some day be. He just presents the facts, and lets the reader take himself away into dream worlds. He shows us why plasma physics is the most feasible power source for tomorrow, exactly how far away from having on-line plasma power sources we are, and what some of the applications of plasma physics in power production, space flight, and just plain continued existence might be. All in all, a must book for anyone who hopes to understand the world we are going to be living in very, very soon.

## TOTAL ECLIPSE

John Brunner

*Doubleday, $5.95*

John Brunner is capable of writing the most interesting, well plotted, well developed and best peopled science fiction around. Unfortunately, he doesn't always do it, but whenever he does, the wait is always worthwhile.

*Total Eclipse* is an example of just how good Brunner at his best is. He throws away more ideas in a couple of paragraphs than most authors can come up with in ten years of writing. He presents little side-notes and crannies of information that make it very difficult for the reader to keep in mind the fact that he is reading science fiction, reading a story that is supposedly taking place some fifty years in the future. The whole thing is just so *damn* real that it's hard to believe that we aren't actually living in that world Brunner describes, and our memories of the real world outside the book aren't just dreams.

It's going to be very hard for anyone to say that no, interstellar flight the way Brunner describes it can't be the way it will actually happen. It's going to be harder for anyone to say that the world of Earth fifty years in the future that we catch glimpses of in this story isn't the Earth we're all going to be living on very soon. And when you find out about the ruins on Sigma Draconis III, and the observatory on that planet's moon, and the mysteries man has discovered there, you aren't going to want to put this book down.

## POISONED POWER

John W. Gofman & Arthur R. Tamplin

*Signet, $1.95*

Somewhere along the line in the past few years all sense of balance, all sense of fair play, all sense of responsibility has disappeared where the ecological/power production/pollution picture is concerned. Again, with this book, we have a presentation so one-sided that the only thing it can be compared with is the equally one-sided books extolling nuclear power as the answer for everything from the energy shortage to how to get cleaner, whiter teeth with sex appeal. The book starts off with a lot

of maybes, what-ifs, and just plain disputed facts, claims it's going to prove them all to be correct, then "proves" them by fiat. Quite without explanation things go from "if this and such happens, this might happen," to "when this and such happens, you can be sure that this is certainly going to happen." And in both instances they're talking about the same thing, one chapter apart. It's like presenting an idea in one book, then citing it in your next book as a fact, since it must be a fact or it wouldn't be printed in a book. That kind of logic is being used too extensively on both side of this question, and with the proliferation of books like this, too many people are beginning to say, "a pox on both your houses." And this is too important to allow that to happen.

---

**GODS AND SPACEMEN IN THE ANCIENT WEST**
W. Raymond Drake
*Signet, $1.50*

Remember how hard it used to be to explain to non-science fiction oriented people the difference between *good* science fiction and movies like "The Wart That Ate Brooklyn," and "Godzilla Meets The Saturnian Ring Men?" To altogether too many people, these movies *were* science fiction, and the intelligence level necessary to enjoy one of those monstrosities was indicative of the intelligence level of anyone who admitted to reading science fiction. Well, finally those movies died out, to be replaced with the likes of "2001," "Westworld," and "Soylent Green." So, we're finally being accepted, right? We've got it made, right? Wrong. The Wart, the Creeping Bologna, Godzilla and all his ilk, have been quite cleanly replaced with books which *prove* that all kinds of super-aliens visited Earth in the remote past, and anything we don't understand about the past, or any accomplishment of man's which seems a bit advanced for the time, is obviously the result of one of those visits. Now too many people are associating this dreck with science fiction, and, believe me, it hurts all of us. VonDaniken supposedly proved that alien landed here and there all over the place. Mr. Drake, on the other hand, pretty much limits himself to the ancient west. But then again, right across the cover of this book, in boldface type, is statement **"The ultimate proof of super beings from space!"** Proof, Mr. Drake?


# vertex
# BACK ISSUES
## LIMITED ONE EACH PER ORDER
## DUE TO SCARCE SUPPLY

A limited number of back issues of Vertex have been retained for collectors who wish to establish a complete sequence of Vertex. These copies are now being made available on a first-come-first-served basis. We request that you limit your order to no more than one copy of each issue to allow as many as possible to take advantage of this offer. Thank you.

**We've had the SUPERSTARS!** Poul Anderson / Piers Anthony / Richard Ashby / Dr. Gregory Benford / Ray Bradbury / John Brunner / Ed Bryant / F.M. Busby / Terry Carr / Philip K. Dick / Scott Edelstein / Larry Eisenberg / Harlan Ellison / Roberto Fuentes / Stephen Goldin / James Gunn / Harry Harrison / Robert Heinlein / Frank Herbert / Walt Liebscher / George R. R. Martin / Larry Niven / Rachel Cosgrove Payes / Dr. Jerry Pournelle / William Rotsler / Joanna Russ / Neil Shapiro / Robert Silverberg / Norman Spinrad / James Sutherland / A. E. Van Vogt / and Ted White

**VERTEX** ORDER DEPARTMENT • 8060 MELROSE AVE., LOS ANGELES, CAL. 90046

Enclosed is $_____ payment in full for the following issues of VERTEX magazine @ $2.00 each. Please send my order at once.

☐ VOL. 1, NO. 1 ☐ VOL. 1, NO. 2 ☐ VOL. 1, NO. 3 ☐ VOL. 1, NO. 4
☐ VOL. 1, NO. 5 ☐ VOL. 1, NO. 6 ☐ VOL. 2, NO. 1 ☐ VOL. 2, NO. 2

Name_____

Address_____

City_____ State_____ Zip_____

# vertex potpourri

## ROBO

**by Marilyn Shea**

Carlos was hiding under the beanbag chair. It was an artful, comforting place to hide. The chair molded its millions of styrene pellets around his body and he had the warm, lovely dark to himself. Unfortunately, Robo knew where Carlos liked to hide. The boy could hear the rubber-treaded wheels and the soft, mechanical whistle.

"Carlos. Come out now. It is time for school. The gravicar will not wait for latecomers. Carlos."

A plushy, pseudopod snaked under the chair, touched Carlos and then withdrew. Waiting was part of the game. Carlos hunched together, nose against his knees, smelling his own warm flesh. Let Robo follow the script.

He was not disappointed. With a whirring sound, the beanbag chair was lifted, flooding him with light. He looked up at the round, familiar figure holding the chair with one of its manipulators.

Robo, the robot nurse that cared for Carlos and his new sister, Tia, was thrumming with concern.

"You must hurry, Carlos. The gravicar will not wait . . ."

Carlos bounced to his feet, brushing Robo aside, and cannoned out the door. His mother and father had already left for work. Here on Luna Colony I, everyone was needed, everyone had a job. The faceless, quiet servo mechanisms did the housework, and those 53 families with children were given robonurses. Carlos knew they came in nine colors and several voice ranges, but he could recognize his own Robo anywhere.

Shouldering his way to the last seat on the orange school gravicar, Carlos put down his bookbag so that no one could sit next to him. He was small for his age and not very good at games. Geoffrey was his friend, but Geoffrey and his family had rotated back to Terra two months ago . . . just a few days before Tia was born.

Tia was small and red and smelled bad sometimes. She screamed a lot, and when she screamed everyone ran to pick her up. Faithful to her programming, Robo responded, too, even though Carlos' mother had taken maternity leave for six weeks after Tia's birth. Mother smiled indulgently at Robo while she rocked Tia.

"You'll get your turn soon enough, Robo. You did such a good job with Carlos."

Carlos remembered when Robo was new. He was just five when they moved to Luna. Everything was so strange. His mother and father had to be at work much of the time, and when they came home they were tired. Carlos remembered the half-hearted way his father played games, the absentminded answers his mother gave to his incessant questions, and how they both tried to skip whole pages in the stories they read to him at bedtime.

Then Robo came. She was round and covered with red plush. A whole bank of sensors projected in a kind of face, glittering with chrome. She had six manipulators and a sensitive pseudopod which could pick up a pin, take a temperature without a thermometer or stroke a cheek. Her voice was mechanical, but enriched with comforting overtones. When she was concerned, her characteristic thrum filled the air. Her perfect responses were backed up by a direct internal relay to a receiver unit carried by each parent. The rare, unprogrammed situation could be referred to the parents.

Carlos was delighted. For the first time since his arrival on Luna, he was happy. He christened her Robo. She played games with him, read to him, helped him with his music lessons. His fears at kindergarten were modulated by the knowledge that Robo would meet him at the door. Later, he took the gravicar all by himself and came home to a house fragrant with some treat she had created for him.

Then Geoffrey left and Tia came. This week Robo took over the complete care of that squalling, stinking mess. Even if

she hurried, she could not pay all the attention to Carlos that she used to. He asked his father and mother why they couldn't get Tia her very own Robo.

His father looked up from his endless box of mineral samples.

"Sibling rivalry already?" he grinned. "You wish Tia had never come, that you could have Robo all to yourself."

"Oh, yes!" Carlos answered hopefully.

"It's hard to share," his father said. His voice was sympathetic. "Let's you and I go to see some aerial baseball this weekend."

Carlos was certain now that they didn't understand. He got sick before the weekend and they never went to the aerostadium.

The sharp laughter of children ripped at his thoughts. Carlos pulled himself quickly erect. He saw the gravicar had not only stopped at the school lock, but everyone else was already in line. He alone still sat in the car. His face burning, he took his place at the end of the line and refused to answer the teasing.

After school, Carlos slipped into the house, banging the pressure lock loudly.

"I hear you," Robo said. "I am feeding your sister. There are cookies on the table."

Carlos went to the table and looked at the cookies for a long time. Then he took one of his father's quartz samples from the box and methodically smashed all the cookies into chocolate grit.

Robo came thrumming into the kitchen, her slightly worn, plushy front greyish with sour milk. Carlos looked away in disgust.

"You have broken all the cookies," Robo said. "I do not understand that. Cookies are for eating, not for breaking."

"Are you mad at me?" Carlos turned back hopefully.

"Of course not. Breaking things is wasteful, especially food. I will not make cookies tomorrow. You may have some packaged raisins today, if you are still hungry. First, you must clean up the crumbs."

"No!" Carlos shouted.

In a fury, he flung the heavy quartz crystal at Robo. It smashed into her sensor bank. One of the sensors exploded, and she staggered back against the table. The thrum began, rising higher and higher into an earbeating shriek.

"Stop! Stop!" Carlos screamed.

But she would not or could not stop. Frantic, Carlos found the rolling pin and began to smash the other sensors. It was hard work, but soon the thrumming stopped and the Robo grew silent. Carlos was torn between horror and the desire to explore the imperfection he had discovered. Tia was crying. She could wait.

He found a scissors and cut through the plushy front. It took a long time, but soon he worked through to the base of one of the manipulators. There was a black plastic tube and he snipped it in half. An oily yellow fluid spurted out under some mysterious pressure.

Startled, Carlos stared at his yellow-stained hands and then wiped them on his tunic. He began to cry. Outside, the gravicar was stopping. Was it his parents?

Sobbing, he ran into the living room and burrowed under the beanbag chair. He curled up, shivering. Soon he heard his parents enter the house, their exclamations of surprise, Tia crying, his father shouting his name again and again.

The smell of oil filled his hiding place and he knew he could never, never wash it off his hands.

# RATION BISCUITS

**by Charles Ott**

*(A Very Short Playlet for Two Voices)*

**THE SCENE:** *It is completely dark.*
**SHE:** Ow! Damn it!
**HE:** What happened? Did you bump something? Did you hurt yourself?
**SHE:** I bumped my damn leg, damn it! There's crap all over the floor in here. Haven't we got a candle or something? This place is black as a coal mine. A *real* man would have remembered to get candles, you know.
**HE:** We had candles, but we burned them all. Try not to move around so much.
**SHE:** Don't the lights work yet?
**HE:** No, the power's still off.
**SHE:** *(A pause)* Oh. Hey, I'm sorry about the candles. I mean, what I said about the candles.
**HE:** It's all right.
**SHE:** How long ago did we burn the candles?
**HE:** I don't know . . . a long time, I guess.

*(A Long Silence)*

**SHE:** Say, how long have we been down here?
**HE:** I don't know. The clock was electric too.
**SHE:** Those goddam Russians!
**HE:** I think the radio said it was the Chinese or somebody.
**SHE:** Does the radio still work?
**HE:** No.
**SHE:** *(Crunching)* Want a ration biscuit?
**HE:** No thanks. I'm tired of ration biscuits.
**SHE:** *(Still eating)* Wanna screw?
**HE:** No, I'm tired of that too.

*(Silence)*

**SHE:** Hey, I just thought of something. Listen, we eat about three biscuits a day, right? So if we knew how many we started with, and how many we have now, we could figure out how long we've been here, right? How about it?
**HE:** Sometimes I eat two at once. Sometimes I don't eat. Sometimes I drop one and can't find it.
**SHE:** Yeah, me too.
**HE:** Listen, I changed my mind. Why don't we screw?
**SHE:** To tell you the truth, I'm not in the mood any more. Besides, didn't we screw yesterday?
**HE:** Was that yesterday? I thought it was about a week ago.
**SHE:** I think it was yesterday. I don't know, though. I've been sleeping a lot. *(A pause)* Hey, how long do we have to stay here before . . . um . . .
**HE:** Before what?
**SHE:** Well, you know, until the radiation dies down?
**HE:** Oh. I think I read in the newspaper it'd be about six thousand years . . .
**SHE:** Six thousand years!
**HE:** . . . but we can come out in about six weeks.
**SHE:** We've been here for six weeks. We've been here for more than six weeks. I mean, haven't we?
**HE:** I don't know. Maybe. The clock doesn't work. If we come up too soon we could get radiation sickness and die.
**SHE:** Yeah.

*(Silence)*

**SHE:** How long a supply of ration biscuits did you put in?
**HE:** About fifty years. They were on sale.
**SHE:** Oh. *(A pause)* You know, when the war . . . I mean, when I first came down here I was nineteen years old. I had brown hair and gray eyes and I was pretty, remember? Do you think I'm still nineteen? You don't think maybe I got old or something, do you?
**HE:** No, of course not. You're still as beautiful to me as you ever were. More, in fact.
**SHE:** But you can't *see* me.
**HE:** No, but I can tell. Trust me.
**SHE:** Hey, how long a supply of the pill did you put in?
**HE:** The same. Fifty years. You want to . . . ah . . .
**SHE:** Sure. I mean . . . well, yeah, sure.

# RETROFLEX

**by F. M. Busby**

Shouting, Cochrane burst into Haldane's office. "I've had enough of your persecution!" Haldane rose, held out a conciliatory hand and backed away. He was still trying to get a word in when Cochrane pushed him out the window.

Tumbling—around him wheeled street and sky and buildings—Haldane's mind knotted in the effort to understand. He hadn't persecuted Cochrane—he had merely conducted a legitimate investigation. The client chose to remain anonymous—the procedure was irregular, perhaps, but hardly illegal. Why had the man reacted so violently?

For perhaps three seconds of free fall, for half the distance between window and death, Haldane's preoccupation shielded him from panic. Then it broke—the need for life convulsed his body and fragmented his mind. He tried to deny the reality, and failed. He prayed for oblivion, even for insanity—but could achieve neither.

Then it stopped. Abruptly, Haldane hung in mid-air, ungracefully, legs spraddled higher than his head as if taking a belly-flop into water

Close at hand he saw only two pairs of bare shins and feet. It didn't make sense; he drew himself into a crouch and kicked out to bring his head up.

Then he could see more. He was inside a shimmering, transparent bubble, sharing it with two smallish men who could have been twins. They had deep chests and dark, ruddy complexions like high-Andes Indians. They were nude and stone-bald. Otherwise, it struck him that they looked quite a lot like Cochrane.

With relief, Haldane sighed. "Thank God, I'm dreaming! For a minute there, I thought this was all for real."

"You do not dream," said one. "This moment exists in reality."

"Oh, come off it! You mean, Cochrane really threw me out the window—and here we float? No way, friend."

"Yet we are here. And for us, the way is simple enough."

Haldane shook his head. "All right then—just for starters—*why* would Cochrane do a thing like that?"

"Because on our behalf you located and identified him. So that we may remove him, before further damage is incurred."

"*You're* the client? But what's it all about?" I still don't believe it, he thought. But no harm in asking . . .

"The one calling himself Cochrane is not of this era, but from a time far forward. Here he seeks to create havoc—to destroy our future world by changing its present roots. That his actions would cancel his own existence, either he knows not or cares not.

"Now that you have found him out, we may remove him. Our code requires that you be thanked for your service."

"Don't mention it, fellas. Just put me back upstairs, huh?"

Floating, Haldane had slowly rotated, so that again he saw shins and feet, and the sidewalk below. Directly beneath him stood two women; he saw their gestures but could not hear their words.

"It is regrettable, but we may not. Our records show that before the Cochrane person was apprehended, he did cause your death. We may not change that. Please accept our apologies."

"Well, *that's* a hell of a note! With friends like you two, who needs enemies?" The two women parted and walked away in opposite directions. At least, now when he fell . . .

The thought was small comfort. "But for Christ's sakes," he said, "couldn't you—?" He stopped in mid-question, because the bubble vanished, and the two men with it.

He fell . . . then the scene wavered. An instant of pain-death at pavement—but it wasn't real—he knew it wasn't real, because.

He sat in his office. Cochrane was shouting; Haldane rose to conciliate the man, and

Cochrane flickered like a strobe light, and disappeared.

At the mini-bar beside his filing cabinet, Haldane filled a small glass with ice cubes. In his hand, the glass rattled. He poured a small drink, then made it larger.

Back at his desk, he sat and spoke aloud as if explaining to an audience. "They didn't do their homework," he said. "Or else the Skin Twins would have known that the survival of their future world required not only my death—but the two women dead, too . . ."

He sipped sour-mash bourbon and found it good. And with all his heart, Haldane wished he could buy a drink for two women he didn't know, and probably never would.

Two women who knew when to stop talking . . .

# PRIMATE

**by Sharon Tucker**

The only way to distinguish the new one was by the smell of her. The bull could not differentiate her from the rest of his harem by any other peculiarity yet because she had been captured by the river only yesterday with the others. The bull had taken her as his share of the spoils, by right of his leadership, because she was the youngest—the one who looked as if she had never borne young.

The bull was new in his leadership—young also. His power had been confirmed, but not yet his authority. He had traded snarls and cuffs with other males in the pack but no one male had made a sustained attempt to challenge him since he had killed the old one.

As the sky darkened the pack moved, straggled toward the places where they slept. In the shadows, the bull saw the young female sink to her haunches in lassitude, not feeling the necessity to be wary any longer. She had been bitten,

*turn to page 90*

**A mind-bending trip into the immediate future by "one of the most subtle and most stylish writers of S-F."***

Alien intelligences far beyond our own, a mental duel between the aliens and one earthling that is at once terrifying and inspirational, drastic climatic changes and world-wide infertility caused by a supernova 132 light years away—these are some of the sure-fire ingredients in Richard Cowper's extraordinary science fiction thriller set in the 1980's and 1990's. $6.95

* Edmund Cooper in *The Sunday Times* of London

THE TWILIGHT OF BRIAREUS

RICHARD COWPER

(author of *Clone*)

*A Science Fiction Book Club Selection*

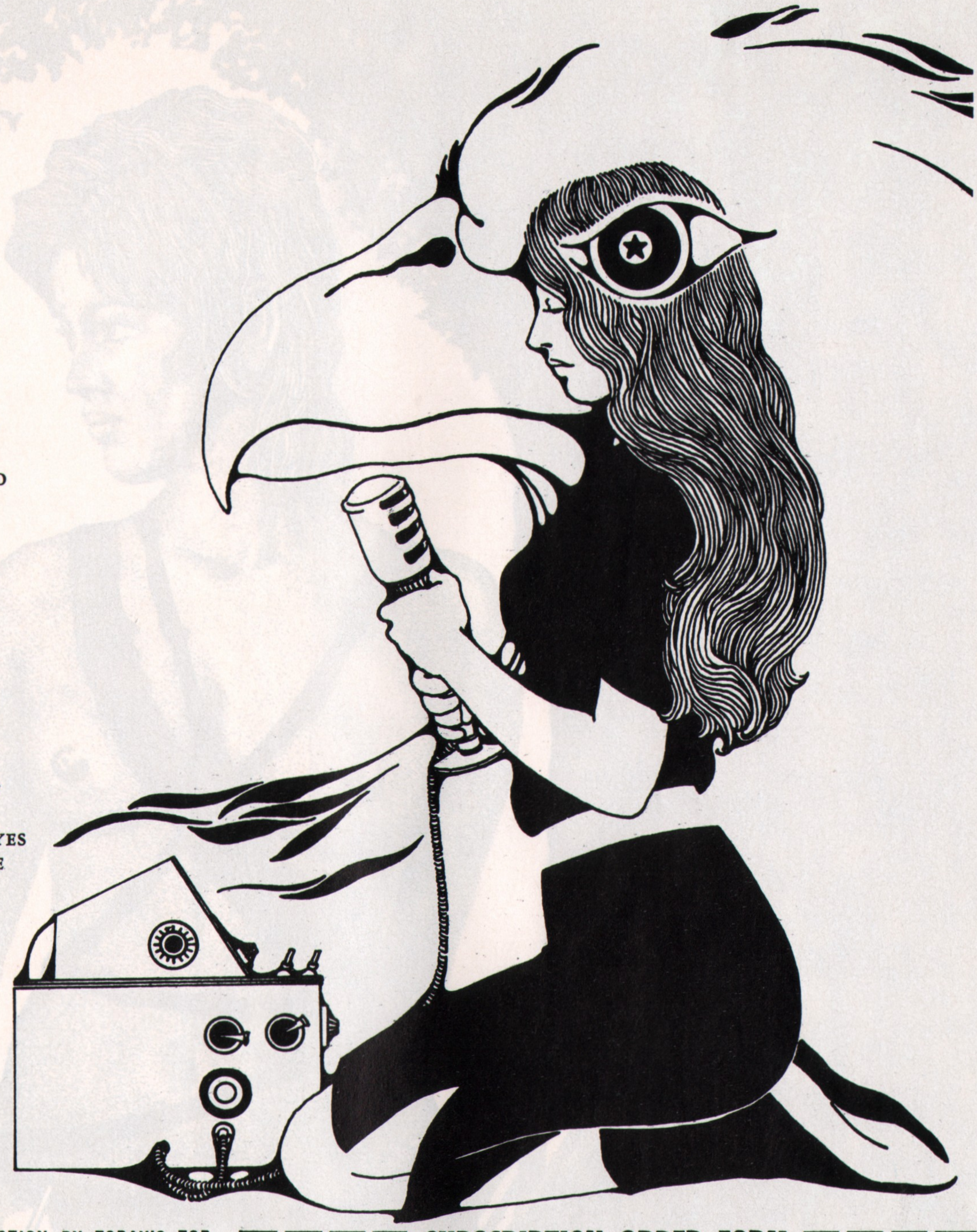
THE JOHN DAY CO.

An Intext Publisher

The
**SUPERSTARS**
of Science Fiction
are in
**VERTEX!!**

*In our first year*
*VERTEX*
*has featured:*

FORREST J ACKERMAN
POUL ANDERSON
DR. GREGORY BENFORD
DR. JAMES BENFORD
RAY BRADBURY
ED BRYANT
F. M. BUSBY
TERRY CARR
PHILIP K. DICK
HARLAN ELLISON
STEPHEN GOLDIN
HARRY HARRISON
ROBERT HEINLEIN
FRANK HERBERT
WALT LIEBSCHER
GEORGE R. R. MARTIN
LARRY NIVEN
RACHEL COSGROVE PAYES
DR. JERRY POURNELLE
WILLIAM ROTSLER
ROBERT SILVERBERG
NORMAN SPINRAD
JAMES SUTHERLAND
A. E. VAN VOGT
AND MANY MORE!



**TODAY'S TOP SCIENCE FICTION BY TODAY'S TOP AUTHORS, AND THE CLEAREST AND MOST CONCISE OF SCIENCE FACT, TOGETHER UNDER ONE COVER.**

# EXPERIENCE VERTEX

As our society becomes more and more technically oriented, it becomes more and more necessary for man to understand the underlying ideas that his technological society is built upon. It is through those articles appearing each issue in Vertex that he can gain understanding. And as he gains understanding of what is going on around him, of where his society is taking him, it becomes more and more important that he develops the ability to see the possible futures ahead. Futures outlined by the masters of science fiction on the pages of Vertex. Experience Vertex now. You'll never be the same. Mail coupon today.

**SUBSCRIPTION RATE, 1 YEAR $8.00. SINGLE COPY PRICE $1.50, SIX ISSUES PER YEAR.**

## SUBSCRIPTION ORDER FORM

**VERTEX MAGAZINE** 8060 MELROSE AVENUE, LOS ANGELES, CALIFORNIA 90046

Yes, I wish to insure receiving every issue of Vertex without fail. Please enter a subscription in my name for the period indicated below.

- ☐ 1 year ( 6 issues) ..... $ 8.00 (save $1 )
- ☐ 2 yrs. (12 issues) ..... $14.00 (save $4 )
- ☐ 4 yrs. (24 issues) ..... $24.00 (save $12)

(Note: Add $1.00 per year for Canada, $2.00 per year for foreign.).

- ☐ Enclosed is $_____ payment in full for my subscription above. Add extra bonus issue to my subscription for enclosing payment now.
- ☐ Please bill me.

MS. / MRS. / MR. _____

NAME (PLEASE PRINT) _____

ADDRESS _____

CITY STATE ZIP CODE 2N4

***There was a new world waiting to be born, but it would have to wait until the principal characters learned their lines.***

# SUNRISE WEST

**Part One**

**fiction/WILLIAM K. CARLSON**

**artist/RODGER MACGOWAN**

*From a house of thick-walled adobe, set amidst ancient hemlocks on a bluff overlooking Big Pac, a scream is heard. Silence descends while sea otters rest on their backs in the kelp beds offshore, and an inquisitive scrub jay flits from a hemlock to the chimney top. The jay waits, the otters wait, Cal waits, Noram waits . . . Then the cry of a child is heard—and the otters plunge again for abalone, and the jay dances up and away.*

## 1

Something, setting the back of her neck atingle. She slowed down and rubbed it, then checked her arrow and looked carefully around—nothing. Listened—nothing. Sniffed—nothing. Even so, it was in the air. Menace.

Hearing a step, she whirled. Piers, almost on her heels. She hated anyone behind her, even muneys, but their Leader wanted her in second position, and she didn't want to challenge him, so what could she do except pick up the pace? She was looking forward to camp by Yubriv tonight, but if there was trouble ahead, Arlo would probably stumble into it. She judged the river to be about 15 miles east, and old Sacto 50 miles south, meaning that with luck they would reach Mountain Camp within ten days, where Arlo intended to spend the summer looking for muneys and preparing for autumn raids on fesgrus and indys bound for Festival at Big Bay. A good plan, but he would never bring it off; she expected they'd end up as fesgru guards in the fall, working under a bandit of real power. But first they had to reach Mountain Camp—and now she noted the upland signs with pleasure, the great spreading live oaks, the clumps of manzanita, the blue-blossoms and clusters of buttercups—now so thick underfoot that many were trampled. She paid no attention to the crushed flowers' emanations of pain and fear; let them take care of themselves as she had done her life long!

She sniffed again. Wind in the northeast, she could almost smell the clean fragrance of Yubriv's water; how good it would taste, and the rainbows and chubs they would catch, and the chinnok and steelhead if they happened to hit the spring runs. A bath might even feel good; she took them as often as once every two weeks, enduring the derision and complaints of her four companions, who said she didn't smell right when she was clean.

But her pack was heavy, and the sun

***The great tawney cat was instant death on the run when necessary, but fortunately it wasn't necessary for him to kill very often.***

hot, and they had been tramping long across Lil Mouns and the Sac Val toward Mountain Camp, and she wasn't about to let a few gibes keep her from pleasuring herself with a real bath, because she hadn't even been able to take her buckskins off when they'd forded Sacriv and Feathriv. Probably not even cool water and fresh fish could ease away this trip's memories of hunger and fear and boredom—but they would help. Pickings had been slim on the long trek from Rey—a few little munes ransacked and three or four indys robbed and killed was about the sum of it—without fish and deer and rabbits and squirrels they would have starved. They'd had no luck hunting former facams. Not even Arlo was fool enough to take on a pack of dogs, but he strongly fancied toothsome goat flesh and monkey brains, and assigned her (their best hunter) to bring some down, but the ams were smart and wary, and she had not been able to do it. Eight strong when they'd left Rey, they had been twice set upon by bigger bandimunes, losing one fem the first time and their Leader and another fem the second. Now she was the only fem left, and wasn't getting much rest night or day. She didn't need much.

She walked three or four yards behind Arlo, trying to remain alert and not get mesmerized by the flip-flop of the rags tied around his bleeding feet. Her own bare, brown feet were nearly hard as horn underneath, but Arlo's had been blistering and bleeding ever since the band, then 15 strong, had formed amid the rubble of the Sacto facsite three years before. The bloody bodies of many a tougher and smarter comrade had been left along their trail, yet here was Arlo, now Leader, still plopping his feet down on the cringing buttercups. He seemed to be the stupidest of the Leaders the band had had (he was walking now with his eyes on the ground) but it was true they hadn't lost a head since he'd taken over about a half moon out of Rey. Young Lonn, who had all the sense of a bunny rabbit, admired the Leader's clipped speech and quick decisions, and even Henrick and Piers seemed to trust him, and spoke of Arlo's luck. And there he walked, oblivion in motion. Arlo's luck!

Again that tingle—something definitely out of kilter here, and she knew she'd better find out what. Senses at maximum awareness, she looked carefully around, listened, smelled. Nothing. All right, she would have to do it the hard way. Glendella had taught her about auras, but she could not always see them, or interpret them correctly when she did, and the effort usually exhausted her—but it would be worth it if Arlo's aura could give her a clue to these strange tinglings. She concentrated on the back of his head, letting thoughts and sensory inputs fade into the rosy blankness out of which she could sometimes discern an aura. Now the outer world began to fade, but her concentration was not complete; she was still too conscious of the physical Arlo up there. Again and again she tried to see through his body into his essence; again and again she failed. She was about to give up when a faint luminescence began to appear around his head. It grew stronger, and slowly Arlo's unhealthy-looking greenish-purple aura took form—but now it was shot through with criss-crossing streaks of black! Glendella had told her years ago what those streaks meant. Death. Soon.

Her normal consciousness returned and as she fought the lethargy that always followed aura seeing and tried to keep her senses alert and probe the woods for the danger that she knew must be very close, she felt fear's tendrils slithering over her, then clamping on and tightening, tightening, just as they did when she was caught in the dark, away from camp and fire. But now at least she was in the light, and that gave her courage to face her fear, and as her acceptance of it dulled its power to jam her thoughts, she tried to ascertain what and where the danger was, looking carefully to the left, right and especially behind, the direction from which she always particularly feared attack. They shouldn't be on this trail in the first place, faint as it was. There could be a couple of heads behind those live oaks, or a whole bandimune just over that rise. Or there could be traps set; Arlo could get a poison dart between his legs any second. Of course those streaks might not mean an ambush; maybe they'd get lucky and Arlo would just drop dead. She was no stranger to death, natural or unnatural— but *knowing* that Arlo was going to die in days or hours or minutes still made the short golden hairs on her neck prickle, and she smoothed them down with her free hand. Once a black widow spider had crawled across her face—she felt like that now, nerves tingling up and down her spine and along her arms and legs. Her nostrils twitched, widened. What was that smell? Or was it a smell? And had she heard a rock tumble? Yes, no—either way, something was making her shiver despite the heat, making her sweat turn clammy. Something was whispering danger, something was whispering death.

Death coming for Arlo, meaning it could be coming for them all. And the closer death, the dearer life. She hurried up to the Leader; it was worth a try—sometimes he listened. "There's trouble, Arlo," she whispered, "you—we're in danger."

Arlo kept walking, but at least he raised his head and looked around. "Don't see a thing."

Exasperation rose, but her voice held steady. "I tell you there's trouble—you know I can smell it. Let's get off this trail at least—we're begging for an ambush!"

Arlo ran his grimy hand through her hair from neck to forehead, something she thoroughly hated—as he knew well. "Don't worry, I'll protect."

"You couldn't protect a piss ant. You're gonna *die*, you flacking idiot!"

"Back in line."

"Arlo . . ."

"Back!" He stopped, and brandished his bow like a cudgel. "Wham your ass."

She stepped back and raised her bow with the arrow half drawn. "You try it." If he did, that would explain the black streaks.

Arlo lowered his bow. He knew it too. "I lead; you get back."

The fem held her Leader's gaze for half a minute, then went, smoothing down her short blonde hair with her free hand. It was a miracle this freak hadn't already died of sheer stupidity. Ought to have challenged him when he'd declared himself Leader—but Leaders hadn't fared too well in this mune, and she had developed a considerable love of life in her 19 years—and considerable knowledge of how to maintain it . . .

Eleven or twelve when her namune somehow fell apart, she had been indy around Sacto for two years before meeting Glendella and merging with the dramune. The Chinks had given up trying to regiment Cal's heads into cities long before, but there were still some facs in Sacto then, although most of it was empty ruins, prowled by bandimunes and desperate, hungry indys. Like every other indy in Cal, she had two choices: Learn, or die. It was especially difficult for her, having been surrounded all her life by her namune's warmth and love. Somehow she didn't remember much about those years—except for three memories that returned often, especially when she felt threatened. She remembered once when her back and behind throbbed with pain, how a muney put salve on the sore places; and another

***She was her own person, but for all of that she could not be an alone person, for a person alone in this world was soon a dead person.***

time when some mean and cruel heads teased her until she screamed with embarrassment and rage, how her muneys comforted her; and again when someone had locked her up in a dark place without food or water, how one of her muneys let her out and gave her delicious bread to eat and water to drink. And although she didn't exactly remember, her muneys must have given her food when the namune broke up too, because she'd had enough to get along for several suns. It was when her food ran out that she had her first real lesson in being indy. She saw a gentle looking male head walking by carrying a bag of apples, and asked if she could have one. He said, "Why sure, darling," and gave her an apple. Then he raped her. Her second lesson followed immediately. At that time there were still a few Chink coppers around. One came along and slipped his knife between the shoulder blades of the head who was raping her. She managed to smile her thanks as the copper flung the corpse off. He returned her smile, then raped her himself. At least he left her three apples. She hurt for a couple of days, but the pain was a small price to pay for the knowledge gained. From that day to this, she had never trusted a single living being. And her sharp adolescent wits quickly turned the knowledge that she had something males wanted into her main tool of survival. She was wafer-thin when her golden hair and flashing green eyes caught the attention of Glendella, and she was diseased—but she was alive.

The three years following were almost as happy as those she'd spent in her namune. As Leader of one of the best dramunes in Cal, Glendella was a busy woman, but she found time to cure her new recruit's ills and teach her prevention, and she supervised her singing and dancing and acting lessons, and even taught her how to write her name. In return, the new actress was expected to perform in many of the dramune productions, and to keep every part of her body available for the Leader or whomever she designated—obligations which she always fulfilled and usually enjoyed. In those days the Chinks still had some control over the facams, and a few mainline electric trains were running, and she traveled all over Cal with Glendella's dramune, from the agrimunes along Big Pac to those bordering Big Miss, from Slooie and Nwarls to Flag and Rey. They even made a swing down through Feeny and La, but there was no sign of the great cities legend said had once been there. All was desert now. At Festime of course they performed for a whole moon practically without sleep. Those were splendid days.

But nothing seemed to go right after the Chinks appointed Laughing Moose president and the facams struck. She was just into her fourth year with the dramune when the dogs and the goats who were manning the machines walked off, barking and bleating their disgust with rations and hours and working conditions and Laughing Moose and the Chink Overlords and everything else. The supervisors kept the prolines going for a couple of weeks, but the routine work was too much of a strain on those monks. Even the gibbons walked off and wouldn't go back, though the Chinks cracked monkey skulls right and left.

There wasn't much anybody could do once the facams took to the woods. The trains ground to a halt along with everything else, but the dramune found a bunch of horses who were looking for a little excitement, so they went around with them for a few more months, giving an occasional performance and trying to find out what was happening. Some said this, some said that, but nobody knew. Some said the Chinks were going to pull heads right out of their munes to work the facs, but the older heads, who remembered stories of the great facburns, said the Chinks were too smart to try that, and of course they were right. The Chinks were practical; they knew if facams wouldn't man the prolines, heads certainly would not, even if some munes used the few facprods that the Chinks made available to Noram. Some said the Chinks were writing off Noram and were going to concentrate on their cols of Af and Soam, where there still were cities and beings who accepted discipline. Some even said the Chinks had organized the whole Laughing Moose and facam fiasco themselves, but that didn't make much sense. Not even Glendella, smart as she was, able to read and write and everything, knew what the Chinks were up to or even where they came from exactly, or where they'd gone (if they were gone) or how the world was run.

The fem didn't bother her head about such things. All she knew was that all the big agrimunes were retrenching; fewer and fewer would trade them food, gold or even silver for a performance. Glendella struggled to hold the dramune together, and talked of going bandimune or agrimune, but horses and heads split off right and left and by the time they got to what was left of Sacto, only the two of them remained. She stayed until Glendella hung herself, then merged into this bandimune with 14 other recently-made indys.

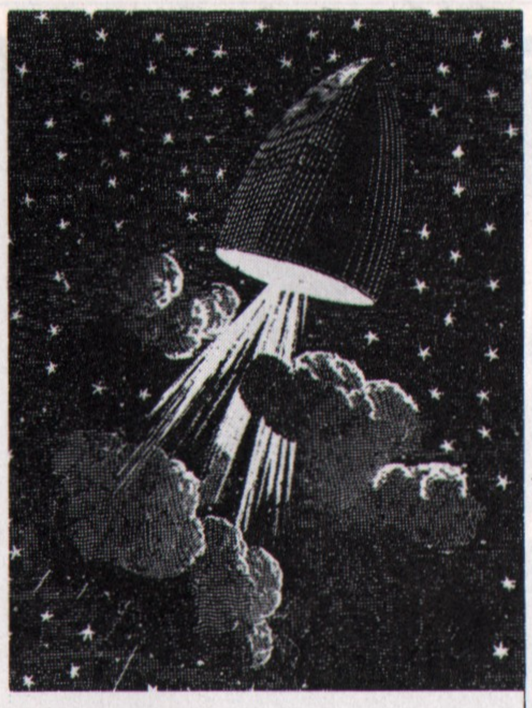
But what you needed for banditry was a good supply of rich indys and small, easy-picking munes—two things not easy to find in Cal. You could always hit a mune with weak defenses, but so could every other bandimune, and pretty soon there was nothing left worth taking. And having a Leader who wouldn't recognize an ambush if he were in one didn't help matters—that bedraggled nincompoop up there would drive her indy yet—in fact, it was time and past time to bust out; this outfit was looking more suicidal every minute. They'd probably never make Mountain Camp, let alone get through the summer, let alone succeed in sucking up that rich fesgru gravy in the fall. Flack 'em all! She'd go tonight—she could sneak off during her watch. She was supposed to crawl in with Arlo after waking Piers; maybe that explained those black streaks—their Leader would wake up hard, find her gone, and flack himself to death in sheer frustration! The thought of going indy made her liver icy, but it was better than shuffling quietly into death alongside these numbheads. Indy, she might make it to Festival, and with luck, merge during Amnesty with a decent outfit; but muney with these poor flackers she'd never get the chance.

Now her golden head rose sharply; her nostrils flared. She wouldn't make *tomorrow* if she didn't pay attention here! She almost stopped moving, shivered slightly. There *was* something . . . Again the sensory clue was too elusive to register, but sure as death they were walking into something . . . Or, no—it felt more like something behind them now. She looked over her left shoulder, then her right, trying to keep her shivering body under control. That was where they always got you, from behind! At least the nature of the threat was a little clearer now; they were being stalked, by a master of the art—and unless the world had changed in the last five minutes whoever it was meant them no good. This time Arlo would have to listen! Again she trotted up to the Leader, who at that moment was blindly following the trail around a small rise to the right. They topped the rise, and—there it was.

Both saw it at the same time, and the hint of green fields far within. Both stopped. The other three stopped as they rounded the bend. "Fence," said Arlo.

"And something else. Something on our trail. Stalking."

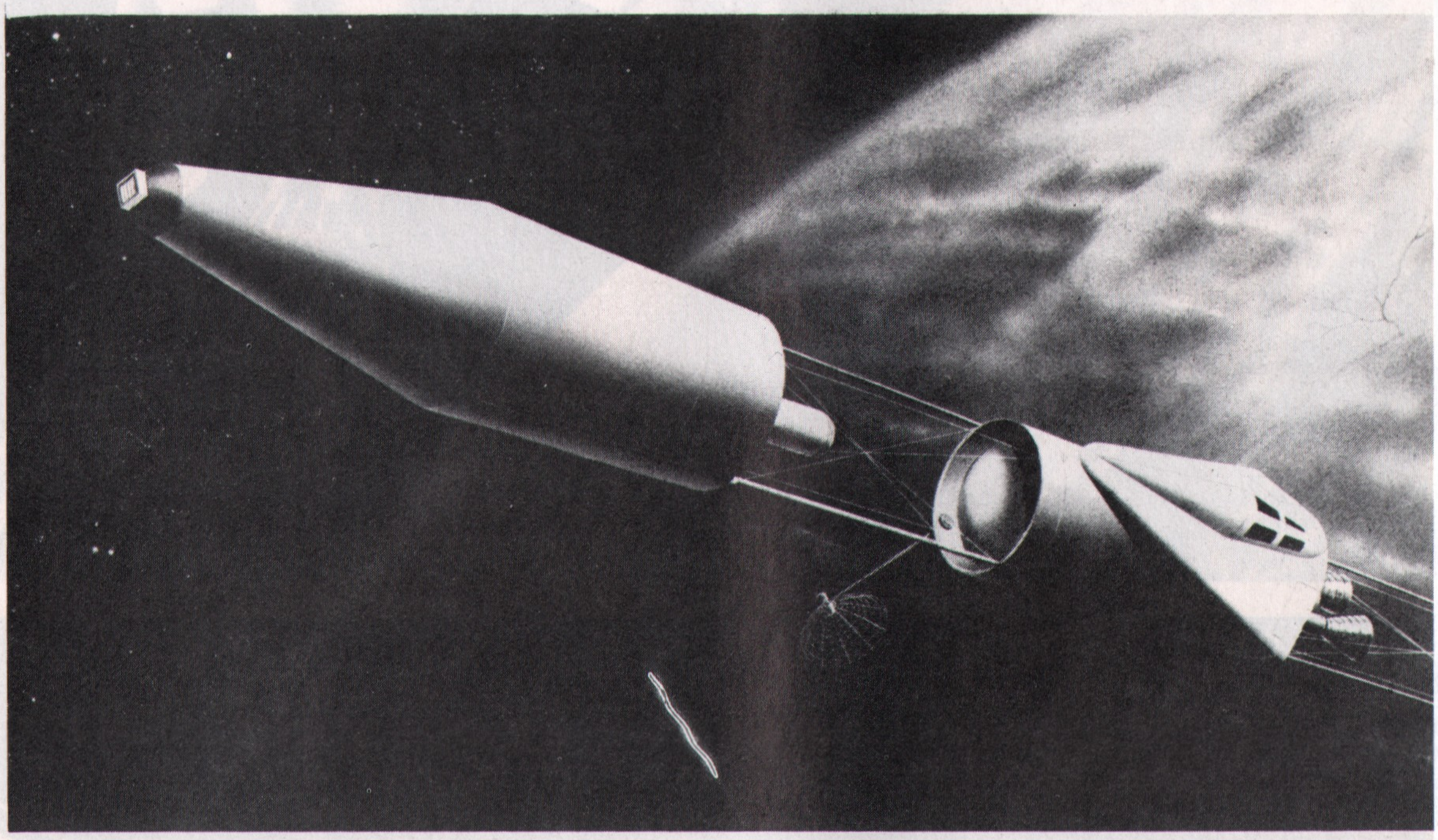
*turn to page 48*



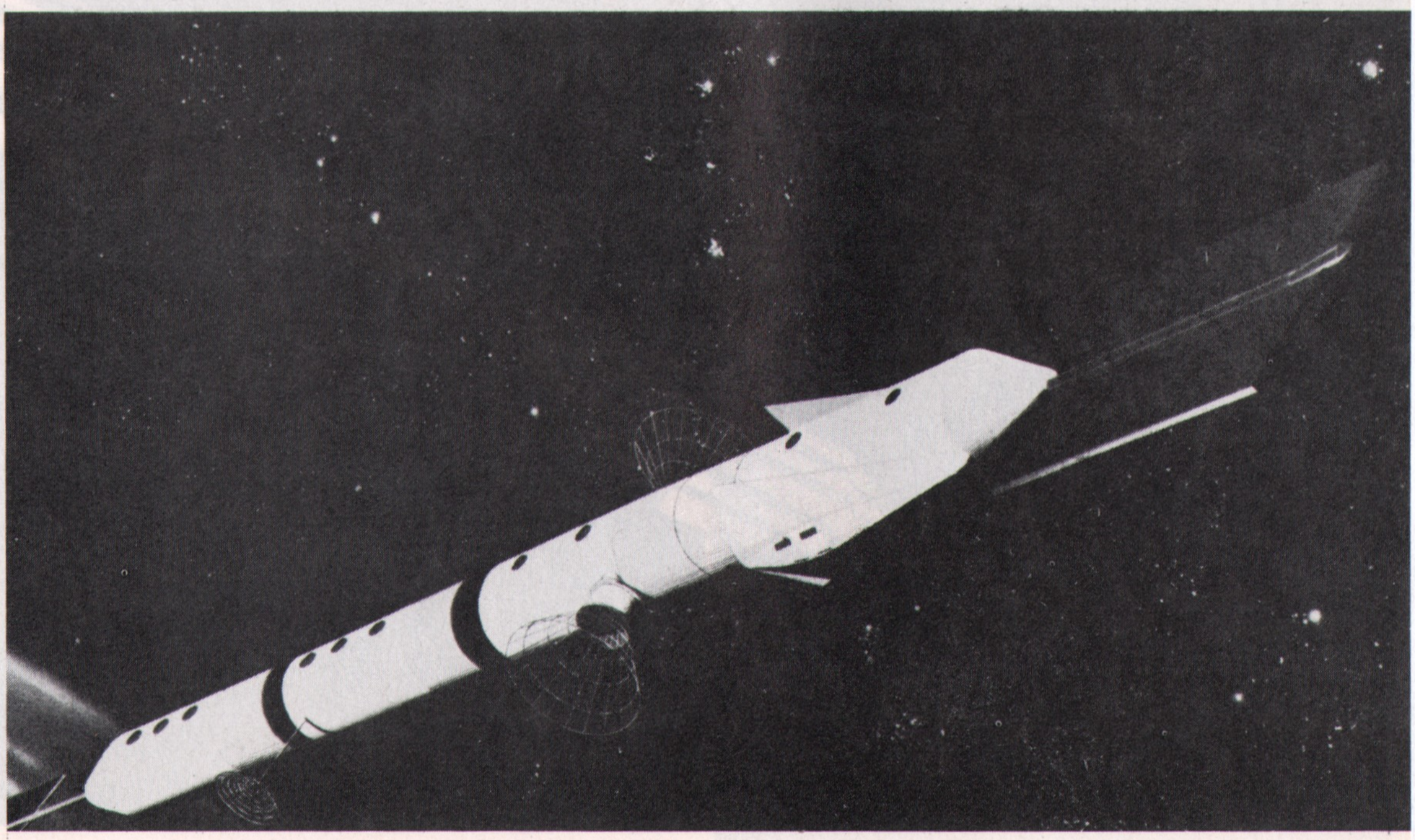
# SPACE VEHICLES FROM THE PAST

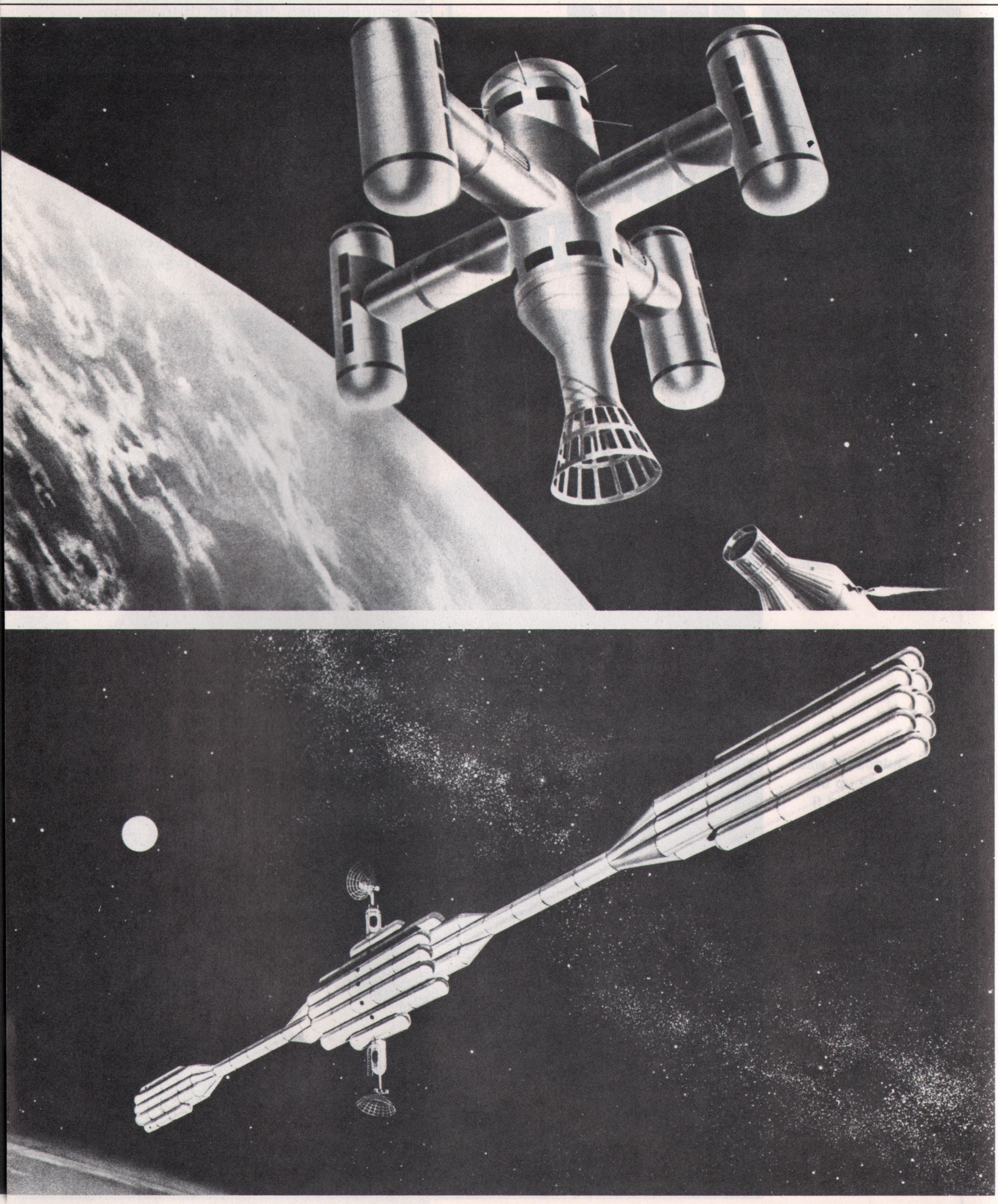
For centuries man dreamed of travelling through space, and what man dreamed of, and wrote about, artists drew pictures of. Especially the ships that the stories described. But during the Sixties, when the great dream began to become a reality, the drawings stopped coming from the artist's studios, and started coming from the drafting tables of engineers all over the country. The drawings presented here are not science fiction illustrations, but engineering proposals for space vehicles from top space scientists./ **article/JAY ARROW**

**The Outpost II was designed as a long duration orbital vehicle with an atomic power plant held some distance away on an extended framework (not shown), which had been carried in the center section between the laboratory and the living quarters-cum-final booster.**

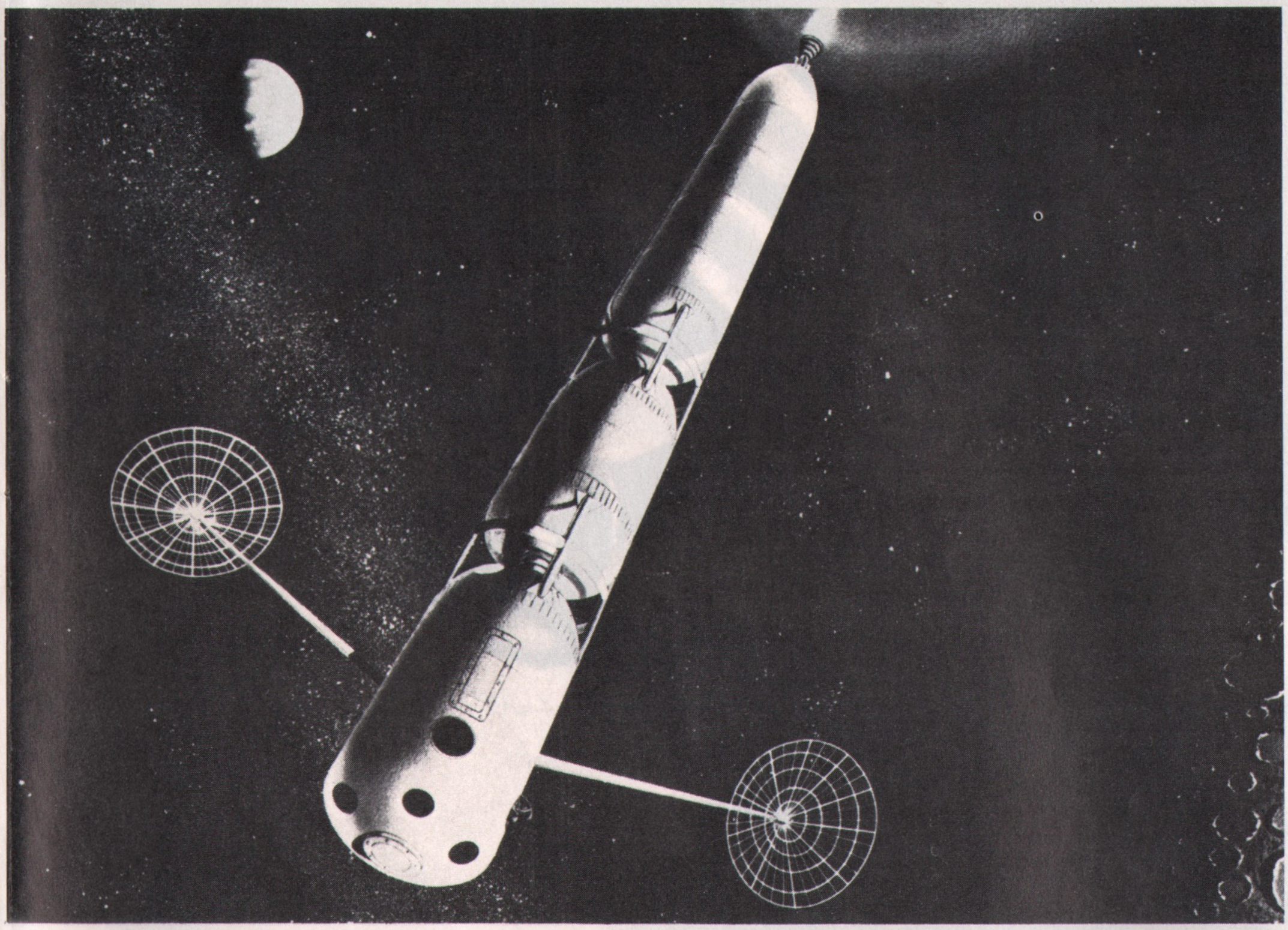


**The Outpost III was to be made up of several Outpost II units and sent on deep space interplanetary missions, such as to Mars and Venus. An atomic reactor at one end was planned to provide power for housekeeping and communications, while the living quarters and return vehicle were situated at the opposite end.**





**When the space program was new, wonderful and varied were the designs for spacecraft both from the U.S. and the Soviet Union.**

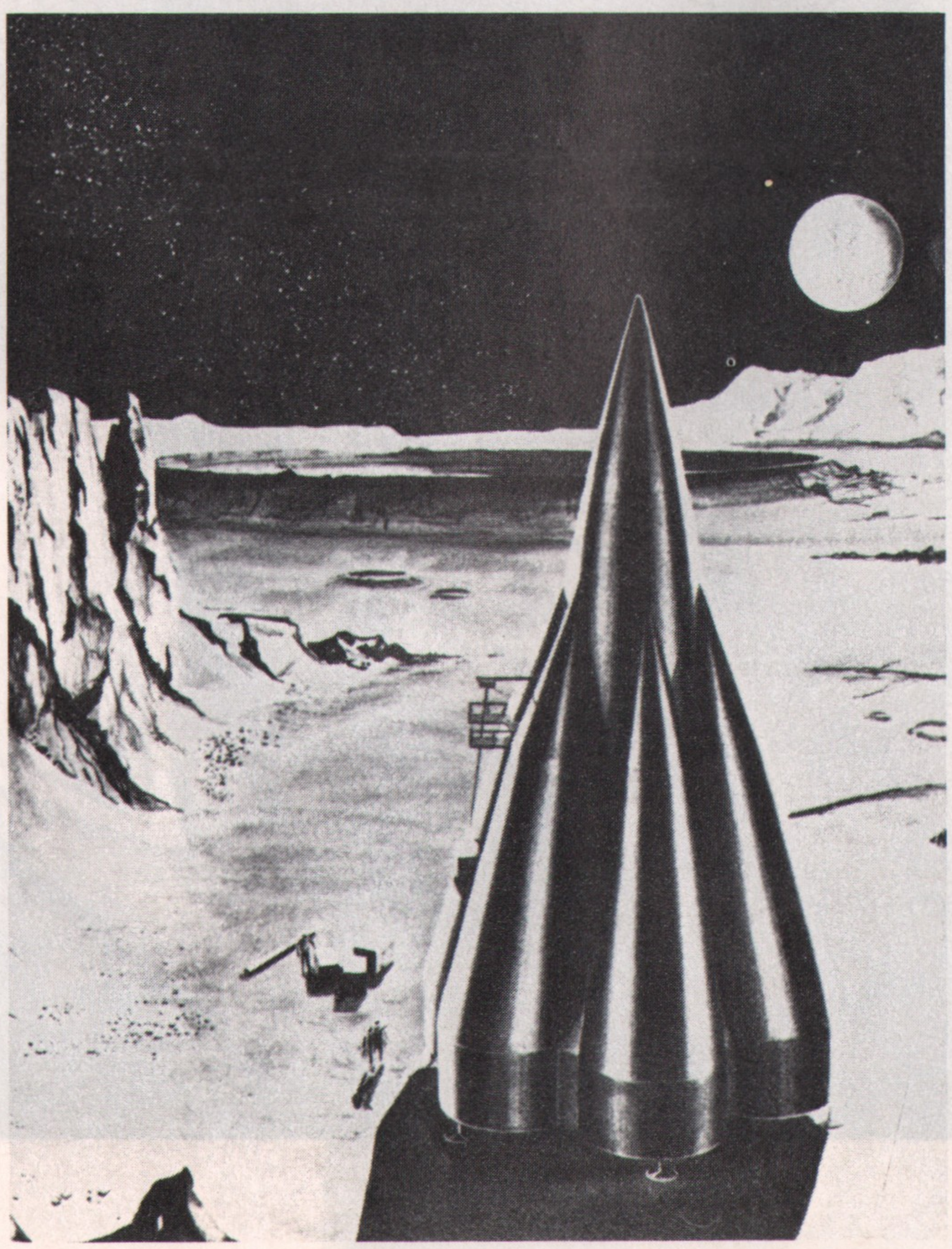


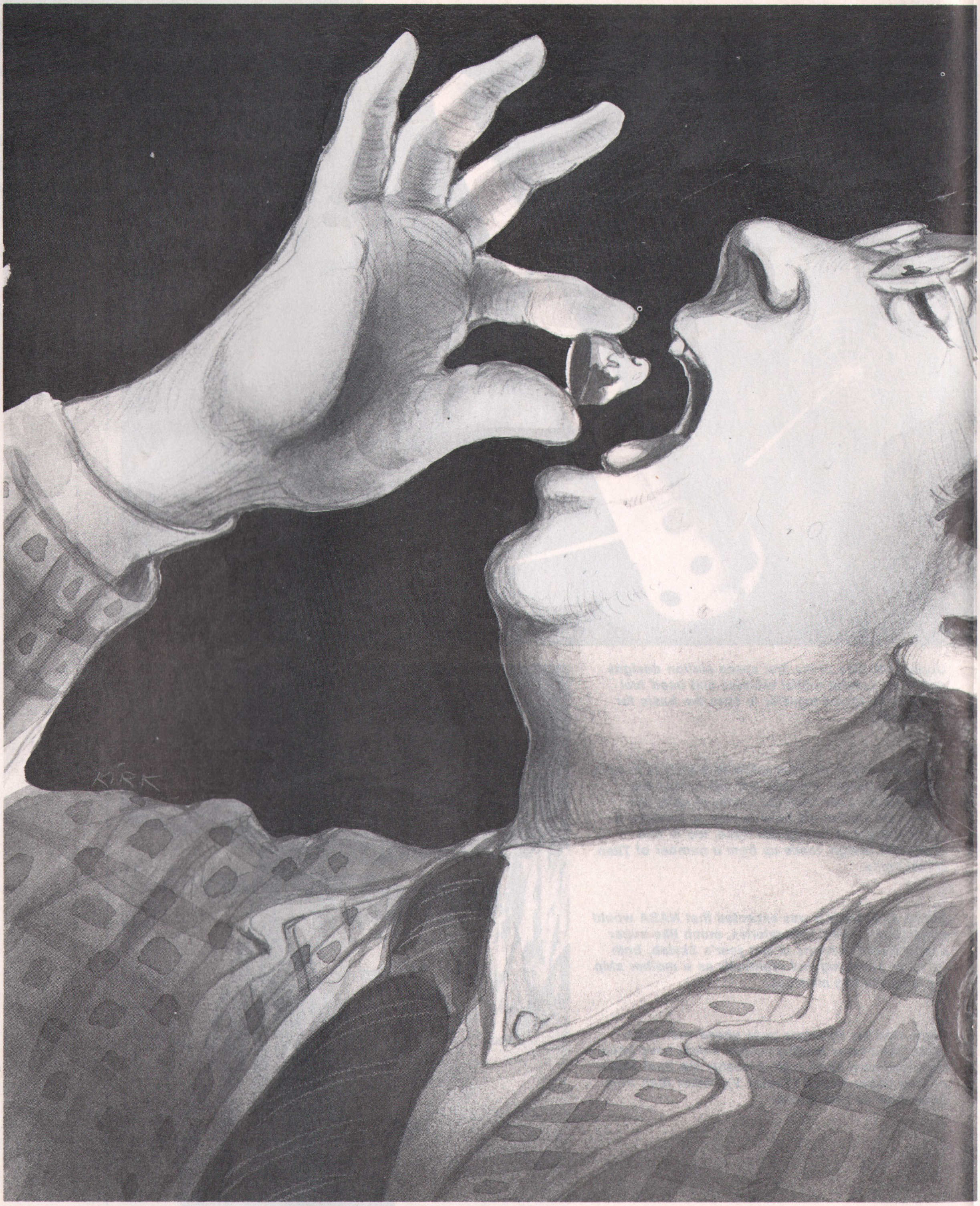
*Upper Left. One of the first space station designs called for several orbital vehicles and used fuel tanks to be joined together to form the basis for the station.*

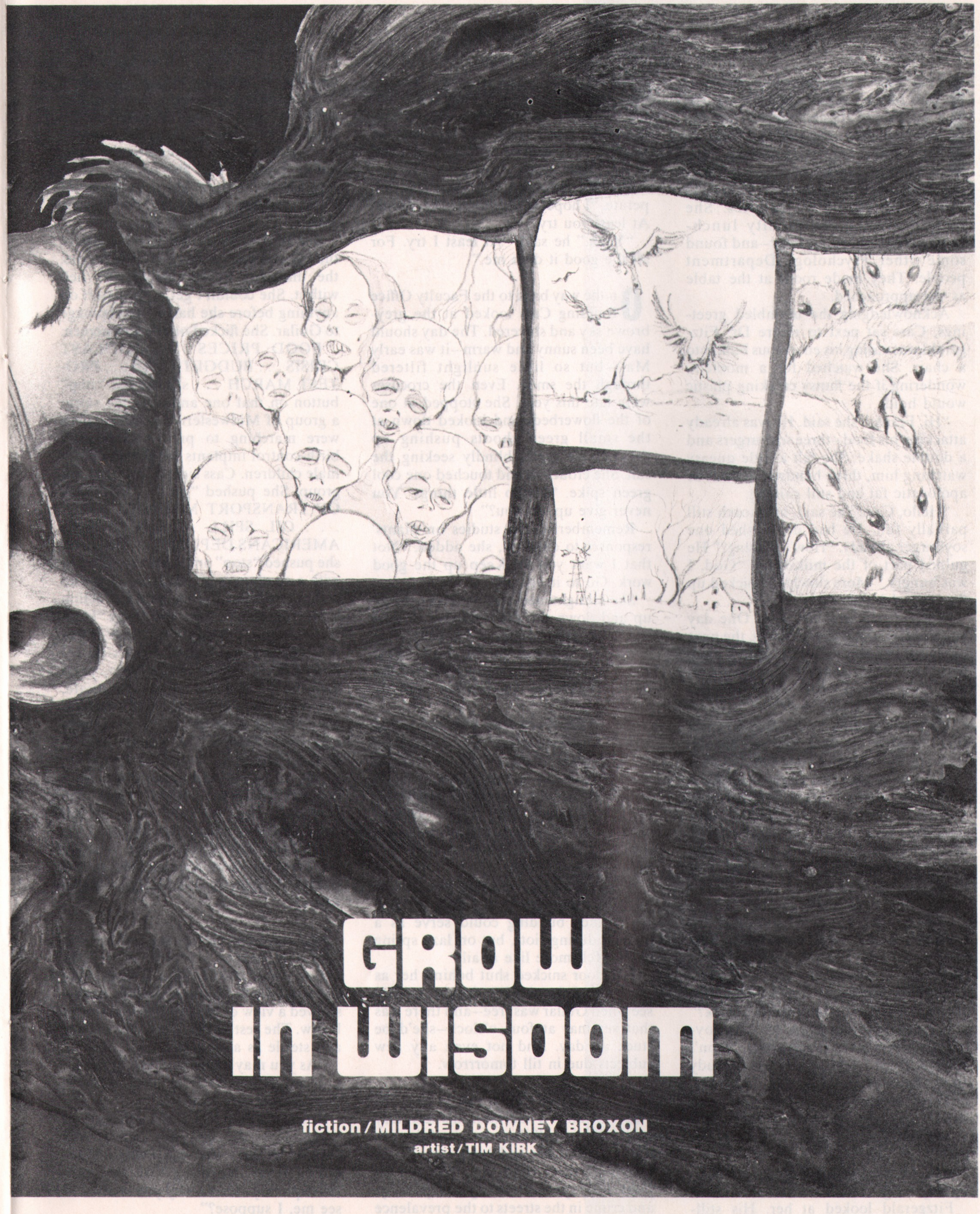
*Left. One way to produce artificial gravity is to spin the space station. Figuring that the further the living quarters are from the center of spin, the slower the station will have to spin to produce a given amount of centripedal force, led to this elongated design, made up from a number of Titan II fuel tanks.*

*Above. Eventually it was expected that NASA would build Lunar Orbital Laboratories, much like super sophisticated versions of last year's Skylab, both for lunar surveying and eventually as a mother ship for lunar landing missions.*

*Right. Had the Russians gone ahead with their plans, their lunar landing vehicle would have been launched from Earth orbit, probably the final stage of their Super-Vostok (Vostok V), rather than from lunar orbit as with Apollo.*




KIRK



# GROW in WISDOM

fiction / MILDRED DOWNEY BROXON
artist / TIM KIRK

**One of the most interesting things about science is that often you find the damndest things you weren't looking for.**

It had been a lousy morning, as usual; most of the telepaths had the flu. Dr. Cass Talwan slipped her card into the beer machine and put the foaming cup on her tray. It would help wash down the lunch, and her hollow-cheeked image in the mirror told her she could well afford the calories. She looked around the faculty lunchroom—crowded, at this hour—and found some other Psychology Department people. They made room at the table as she approached.

Acknowledging the mumbled greetings, Cass sat next to where Dr. Fitzgerald was easing his enormous bulk into a chair. She watched for a moment, wondering if the flimsy creaking plastic would hold.

"Hi, Frank," she said. He was already attacking his food—three soyburgers and a double shake. She felt a little queasy watching him, three hundred pounds of apologetic fat and still gaining.

"Hello, Cass," he said, his mouth still partially full. He had demolished one soyburger already. "How's it going?" He gulped part of the milkshake. "God, I was hungry." More slowly, he picked up the second burger.

"Fair. You know how it is. One day you think you've got something, the next day you find your mistake. And I keep worrying there's something wrong with my rating scales. I can't think of anything, but I'm a pesimist."

"Guilar's starting a new study," Frank said, "And he decided he'd test for *everything*. Said he wanted to talk to you."

"I'll go see him this afternoon," Cass said. She nibbled her soyburger and washed it down with some beer. "I have some free time. What's he want me for, though? Behaviorists think parapsychology researchers ought to be burned at the stake, don't they?"

"Or have their grants cut off."

Cass laughed. "That sounds more Freudian to me. Well, sure, if the Empirical Scientist wants something from the Witch Doctor I'll be glad to oblige. That's how the Empirical Scientist gets ahead, isn't it? On other people's work?"

Fitzgerald picked up his last soyburger, oblivious to her sarcasm. "Don't ask me. I just teach here. Guilar's study might be interesting, though. I've been thinking of applying as a subject." He looked down at his swollen belly. "It's about people with—ah—weight problems."

Cass bit her tongue. "You're ready to try anything, now?"

Fitzgerald looked at her. His still-young face was bloated and unhealthy, and there were stretch lines in the fabric of his suit. "I've tried every fad diet that hits the market and most of the old time-honored ones. I've even tried fasting, hypnosis, and religion. I can't stay on a diet. I just can't." He drained the last of his milkshake and looked down at his empty tray.

Cass felt ashamed. The man was desperate. "I hope something works, Frank. At least you try."

"Yeah," he said. "At least I try. For all the good it does me."

On the way back to the Faculty Office Building Cass looked at the grey-brown sky and shivered. The day should have been sunny and warm—it was early May—but so little sunlight filtered through the smog. Even the crocuses were late this year. She stopped at one of the flowerbeds and looked down at the small green shoots pushing up through the earth, blindly seeking the sun. She crouched and touched one cool green spike. "Dumb little things. You never give up, do you?"

Remembering the studies on plants' responses to emotion, she added, "Not that I want you to. Keep up the good work. Go to it, fellas!"

She straightened and looked quickly up and down the mall, hoping no one had seen her talking to flowers. She wondered whether they'd think she'd flipped, or if, as a parapsychologist, she knew something. She started walking again.

Parapsychologist, hell. She had all the ESP of a plastic doorknob. Psi was an area of study—fascinating and controversial, true—but nothing more. Though it amused her when people thought she could read minds. They'd have to print thoughts on foreheads before she could read them; and with her eyes it had better be large print.

She yawned and inserted her card to open the security door. The grey concrete office building could serve as a fortress during riots, but on lazy spring days it felt more like a jail.

The door snicked shut behind her as she headed for the lift. Might as well see when Guilar was free—and there was that seminar at four o'clock—she'd be stuck all day. And not even any new subjects due in till tomorrrow.

Dr. Amadeo Guilar could see Dr. Talwan in a half hour, his secretary said, radiating all the warmth of dry ice. Cass thanked her and hung up.

One of these days, she thought, I'll publish a paper correlating war, poverty, and crime in the streets to the prevalence of snotty secretaries. She looked around her office. No windows; those were on the outside rooms, reserved for department heads and grant winners. But she'd done her best to decorate the place. Her graduate students had donated a few specially offensive posters: her favorite was one of a white rat reading the *Journal of Experimental Psychology*. To be fair, across the room she'd hung one of Freud reading *Everything You Always Wanted To Know About Sex*.

She looked at the stacks of journals, the piles of unfiled and unfilable papers, the unscored questionnaires—the hell with it. She couldn't get a good start on anything before she had to pay homage to Guilar. She flicked on the newsscreen. FOOD PRICES . . . MIDEAST CRISIS . . . BUDGET CUTS . . . PROTEST MARCH . . . she hit the "stop" button on that one and read the story: a group of Midwestern fundamentalists were marching to protest mandatory birth-control implants for pubescent female children. Cass sighed. Another nut group. She pushed "go". . . BUREAU OF TRANSPORT MEETING FAILS . . . OIL SPILL . . . SCOTTISH-AMERICANS DEPLORE . . . intrigued, she pushed "stop" and read an interview with a gentleman of Scots ancestry who complained that the recent FDA action classifying sheep livers and lungs "Unfit for Human Consumption" made it impossible to serve haggis. True, Cass reflected. She'd eaten haggis once, years ago; but if livers and lungs were unsafe, they were unsafe. She thought briefly of the probable condition of her own lungs and liver. Maybe she should wear a medical tag to warn stray cannibals?—

The newscast was interrupted by a commercial for weight-loss tablets. The "before" image waddled about on the screen looking much like Frank Fitzgerald. She flicked off the set. Nothing much on the news anyhow. She pulled a stack of papers toward her and began sorting.

Dr. Amadeo Guilar sat, catlike and prim, behind his immaculate desk. On one wall of his office a large window—its steel shutters rolled back—showed a view of the campus, ten stories below. The rest of the room was as bare and sterile as a surgery.

"As you may have read, Dr. Talwan," Guilar continued, "The latest trend is multidisciplinary research."

The latest trend in grant-getting, you mean, Cass thought. Dr. Guilar was looking at her; she was evidently required to say something. "Ah, yes, multidisciplinary. That's why you wanted to see me, I suppose?"

Guilar looked faintly nauseated. "Yes. Philosophically I cannot stomach your line of inquiry, but I must admit that,

**He couldn't stop eating, and there had to be a reason. A good, solid, scientific reason to explain it, and eventually fight it.**

statistically speaking, your results are impressive."

Because my criteria of significance are ten times as demanding as yours, Cass thought. Aloud she said, "I still don't know what you want."

Guilar slid his palm over the polished desktop. It left a film of moisture. "I am planning an exhaustive study of obesity, its possible causes, and common factors among the obese, especially those who have only lately begun gaining. Hopefully I will also be able to devise a treatment plan."

"Hasn't that been done?"

"No. Every previous investigator had his own ideological axe to grind. The behaviorists saw habit patterns, the Freudians saw oral fixation, the physiologists saw brain malfunction, the nutritionists saw mineral deprivation, and so on. Self-indulgence, bad habits, early conditioning, glands—what does it matter? The end result is the same. Whatever the cause, too many people are obese and miserable—and their numbers are increasing!" He paused. "My subjects will be given a battery of tests, a series of examinations; we will take histories, explore every parameter available—"

"Including psi ability?" Cass said, incredulous.

"Even psi. You do have rating scales, don't you? That's what Fitzgerald told me, at any rate. You can run the subjects through a series of tests—"

"It takes time."

"That's all right. I intend to leave no stone unturned!" Guilar spoke with almost religious fervor.

Does that imply I crawled out from under a rock? Cass thought. So all of us—Freudians, Skinnerians, eclectics—we all bust our butts and he gets his name on the paper—

"I will, of course, co-ordinate the research," Guilar said.

Yep, Cass thought. "What about expenses?"

"They will be taken care of, within reason, under the terms of the grant," Guilar said.

Cass clasped her hands in simulated joy. "Oh, goody. I needed a new set of cards."

"The physiologists, of course, will require a great deal of sophisticated *scientific* equipment," Guilar continued, ignoring her. "Well?"

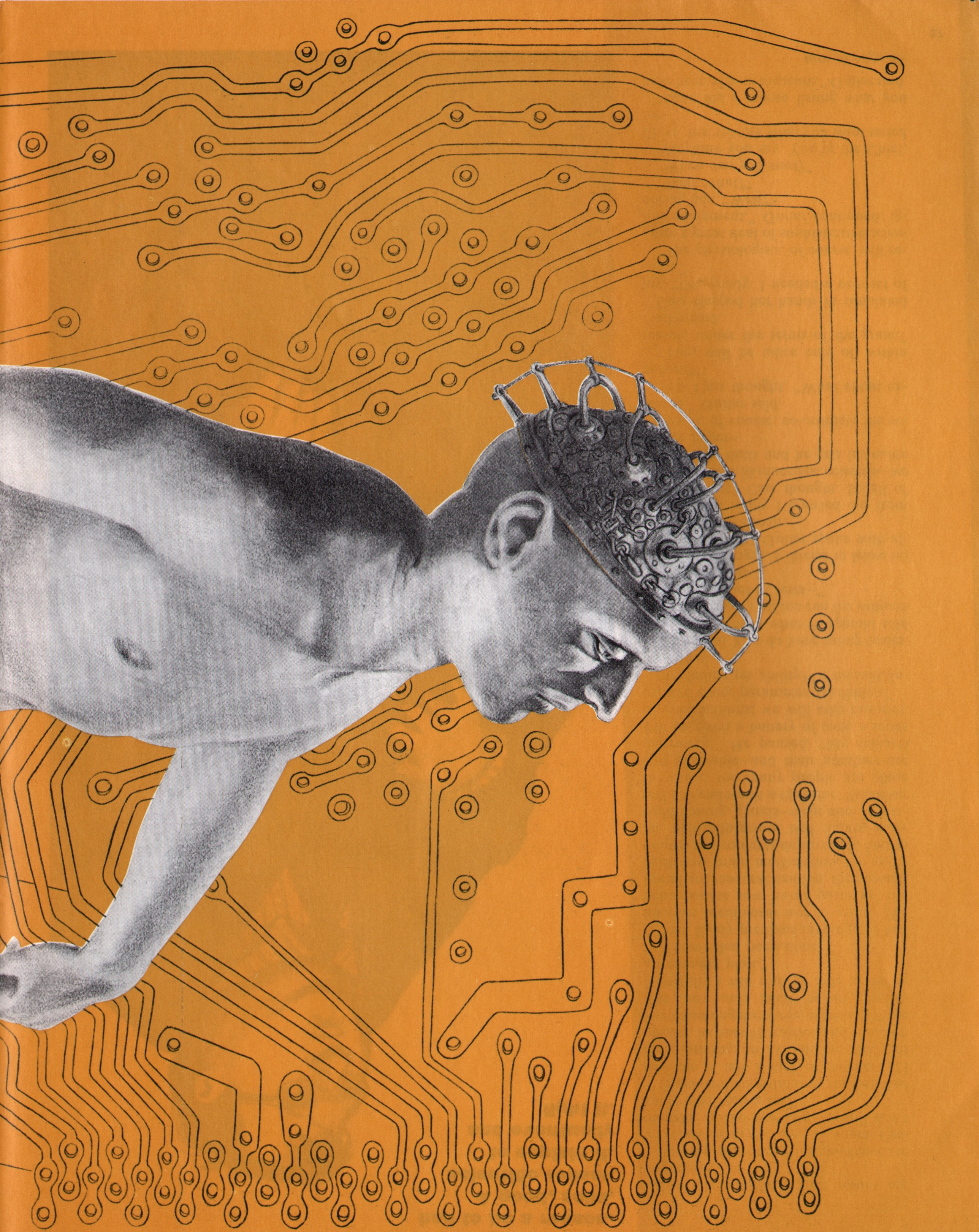
"Well, what?"

"When can you start?"

"Anytime you say. You're the Chief, Chief. Just tell me what you want tested for—"

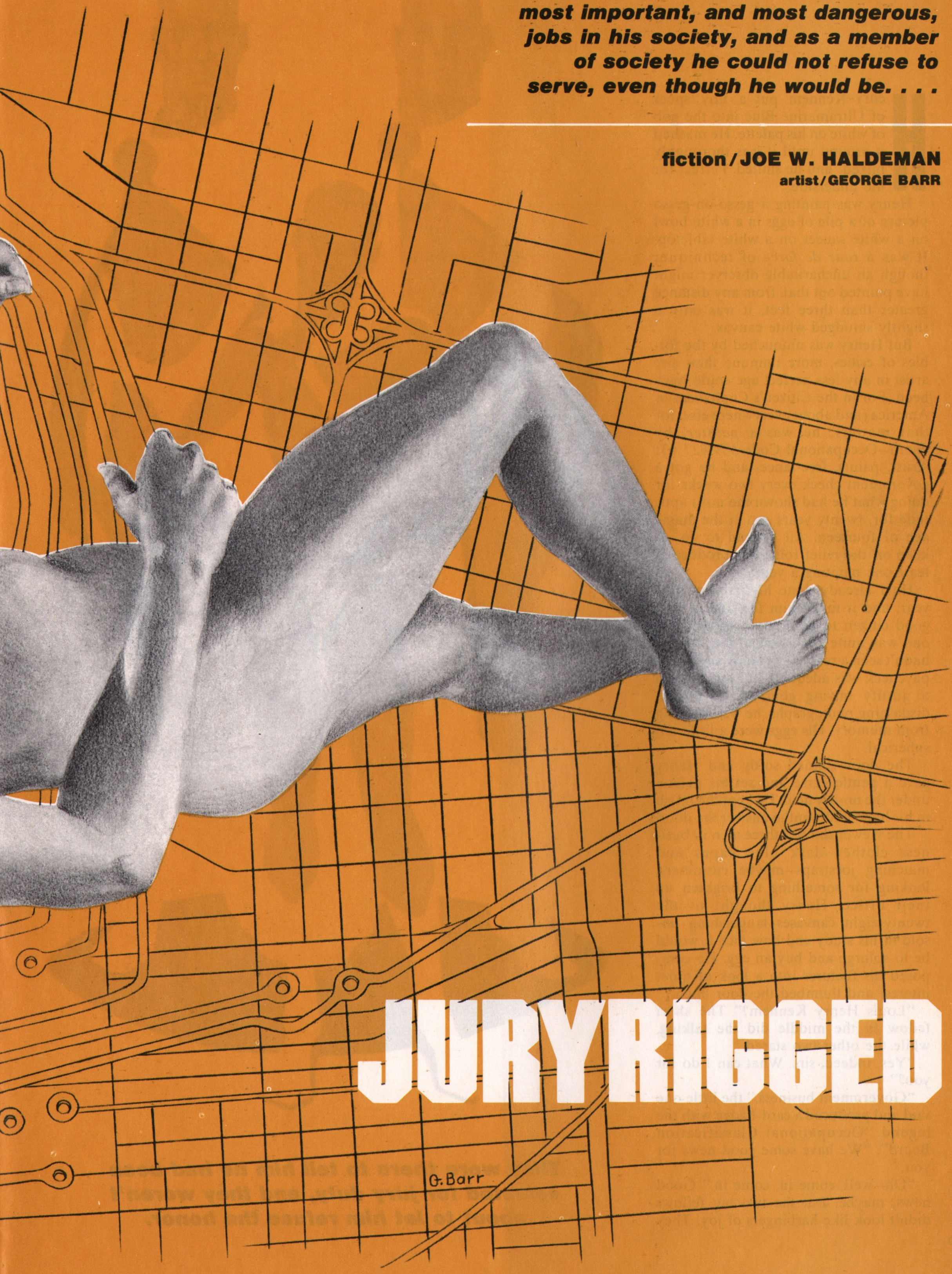
"Send me a memo listing what you have been able to measure," Guilar said.

*turn to page 80*



***He had been tapped for one of the most important, and most dangerous, jobs in his society, and as a member of society he could not refuse to serve, even though he would be. . . .***

**fiction / JOE W. HALDEMAN**
**artist / GEORGE BARR**




# JURYRIGGED

Henry Kennem put a tiny speck of Ultramarine Blue into the gob of white on his palette. He mashed it around until it was thoroughly mixed; and he smiled. Perfect for the underside.

Henry was painting a gesso-on-gesso picture of a pile of eggs in a white bowl on a white saucer on a white tabletop. It was a *tour de force* of technique; though an uncharitable observer might have pointed out that, from any distance greater than three feet, it was only a slightly smudged white canvas.

But Henry was untouched by the foibles of critics, more immune than any artist in any less perfect age could have been. For in the Citizen's Capitalism of America (and about everywhere else, for that matter), he was a *painter*, by damn—Occupational Code 509 827 63; Artist, paints, free-lance—and he got a government check every two weeks for doing what he had shown the most aptitude for, twenty years ago at the magic age of fourteen. All he had to do, to keep off the relief rolls, was produce at least one painting a year.

He'd already done his painting this year, and it made him feel like a very good citizen to be doing another. This one was quite a challenge, too; Henry hadn't seen a real egg in many years—his paycheck was adequate but not enough to justify buying gourmet food—and, disdaining photographs, he was working from memory. His eggs were a little too spherical.

The door chimed softly and Henry gave a gentle curse and set his palette under the no-dry field. He kept the brush in his hand and went to answer the door.

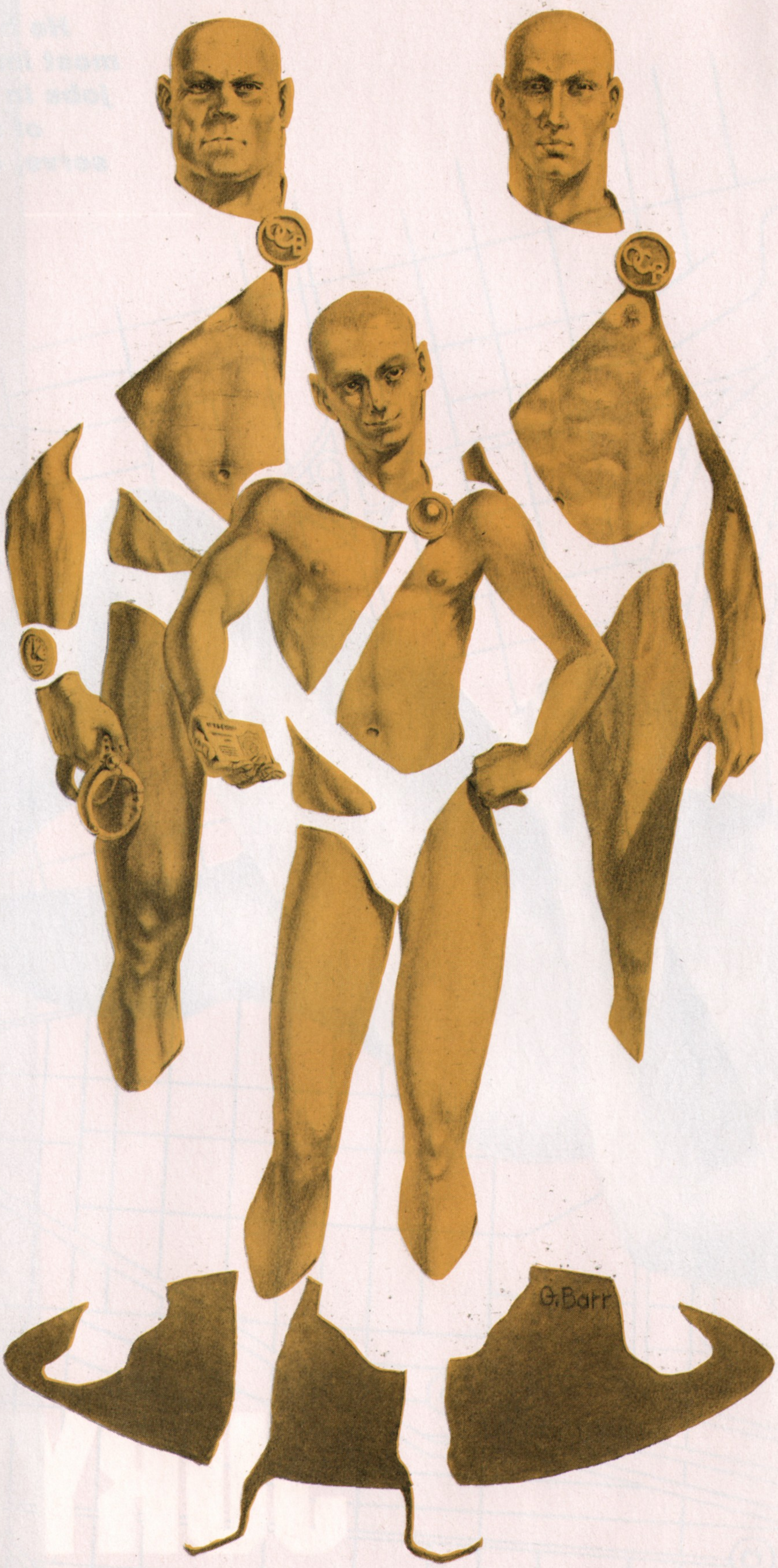
The viewer showed three men in business clothes—dark blue capes and matching jocstraps—maybe customers, looking for something to brighten up their office. Henry thought of the twenty-eight canvases languishing unsold in his study and how nice it would be to splurge and buy an egg. He composed his features into a look of quiet interest and thumbed the door open.

"Louis Henry Kennem?" The short fellow in the middle did the talking, while the other two stared.

"Yes, indeed, sirs. What can I do for you?"

"Government business," the little one said and produced a card-badge with the legend "Occupational Classification Board". "We have some good news for you."

"Oh—well, come in, come in." Good news, maybe. But the two big fellows didn't look like harbingers of joy. They




***They were there to tell him he had been selected for jury duty, and they weren't about to let him refuse the honor.***

walked in silently, as if on oiled bearings, expressions never changing as they took in the carefully-planned disorder of his living room-studio.

"Can I get you gentlemen coffee or something?"

"No, thank you. We won't be long. Neither will you, as a matter of fact. You're to come with us." He plopped down on the sofa-roll. "Please have a seat." The other two remained standing. Henry had a strong impulse to bolt out the door, but instead he perched on a neowood sawhorse.

"Uh, why is the OCB interested in me?"

"As I say, it's good news. You're going to be a very wealthy man."

"I'm not . . . being reclassified, am I?" Henry couldn't imagine being anything other than Artist, paints, freelance. Besides, some of the highest-paying jobs were unpleasant in the extreme; like Sewage Inspector or Poison Tolerance Control Engineer.

"No, nothing like that, uh, not really—" the man took a blue envelope out of his cape pocket and fiddled with it. "Your Occupational Code remains the same, and you'll be painting again in another year. But for one year, you've been selected to serve on jur—"

"Jury duty!" Henry half-jumped, half-fell off the sawhorse. Two hundred staring pounds of muscle slid into position between him and the door. "You can't . . . I can't—you can't plug me into that machine for a year! I'll go crazy—everybody does!"

"Now, now, Mr. Kennem," the man got up smiling and his cronies produced handcuffs. "Surely you don't believe all that nonsense. Why, nobody in the world is more comfortable than a cyborg juror. All your physical needs taken care of automatically, a good responsible job with high pay, eight companions as intelligent and qualified as you—"

"But I'm *not* qualified! I don't know anything but painting. I don't want to *do* anything but paint."

"Now, don't run yourself down, Mr. Kennem. Out of the eighty million people in Balt-Washmond, Central chose *you* as the one most qualified to replace the outgoing juror."

"The machine made a mistake, then. The jury runs the whole *city*—I can't even manage my own—"

One of the heavies jingled his cuffs suggestively. "Come on, Mr. Harris. Gonna be after five by the time we get back to the office." He looked as if the long speech had made his face hurt.

"Right, Sam. Look, Mr. Kennem, we can talk about it on the flyer. Why don't you just cooperate and come along?" Henry went quietly.

The Baltimore-Washington-Richmond Complex was a monument to scientific city planning. Growing methodically from the rubble of the Second American Revolution, the planners left nothing to chance or human weakness. There was no "urban sprawl"; slums were simply not allowed. The three cities had ideally fixed populations; and everybody whose presence Central (the Central Planning and Maintenance Computer Facility) decreed not essential to the city's functions was compelled to live in the exurban lowrises. Henry lived in one such, Fernwood, about fifty air-miles west of the center of Washington. Only those chosen to be very wealthy could afford to live above ground.

As the flyer skimmed its silent way to Washington, Henry saw a few such above-ground dwellings, their lawns irregular patches of green, looking out of place, disturbing the geometric regularity of the produce fields that rolled from horizon to horizon. He couldn't understand why anybody would purposely expose himself to weather when he could live in a totally controlled underground environment. He was only half-listening to Mr. Harris.

". . . it's ridiculous for you to say you aren't qualified. Central considers all citizens with IQ's between 130 and 140—and *any* person with that level of intelligence can fulfill the cyborg function. But jurors are chosen for many other qualities, besides intelligence."

"My pretty blue eyes," he said, looking out the window.

"Now, Mr. Kennem, there's no need to be sarcastic." Henry was getting very annoyed at Harris's habit of addressing him by name every other sentence. "You should be very proud. Of all the people intelligent enough—"

"But not *too* intelligent."

"—out of all of them, the machine decided you were the one least likely to misuse the power a juror has."

"I don't *want* power! I want to paint and be left alone."

"That is precisely it."

"Thanks. Lack of ambition. Sure is a lot to be proud of."

It was cold in the tank. Some part of his brain knew that he was floating in slime, naked as an embryo, totally helpless. That part of his brain knew that the crown of his skull had been excised and stored somewhere; that from the eyebrows up he was a complicated mass of grey and blue tissue interwoven with fine wires, microcircuitry, sensors . . . and it would have been frightening, had he been allowed to fear.

He couldn't see himself, or feel anything but the cold, or hear the faint sussurus of fluid cycling through the tank.

The part of his brain that used to see was earmarked for TRAFFIC CONTROL.

The part of his brain that used to feel took care of POPULATION DENSITY and EPIDEMIOLOGICAL RESEARCH.

The part of his brain that used to be hooked to his ears, SUPPLY AND DEMAND REDUNDANCY CHECK or sometimes RESOURCE PROJECTION ANALYSIS.

A well-determined matrix was like the smell of buttercups (he had never smelled a buttercup before). A differential equation with ambivalent initial conditions felt like an itch in the middle of his back, where he couldn't reach. Tensors sang like harps and algebra was more basic to him than love had ever been.

He knew he had once been Henry Louis Kennem but now he was INTERFACE FOUR and he had a splitting headache.

Your head will ache for a year, said FIVE, speaking in cultured accents of Boolean algebra.

If you can hold out for a year, said EIGHT.

The old FOUR only made it four months, said FIVE.

But you can do it, we have great confidence in you, said SIX, just a hint of sarcasm in the third-order harmonic.

I've got to get out of here, thought FOUR. But his thoughts weren't private. He hadn't learned how yet.

Just walk away, said EIGHT.

Swim, said SIX.

You're in charge of TRAFFIC CONTROL, said EIGHT. Call yourself a flyer.

Everybody quiet down and get back to work, said ONE. And everybody did. ONE was INTERFACE CONTROL MONITOR, among other things.

After a while, FOUR learned how to isolate the entity that was Henry. This was necessary so that Henry could think without being monitored—by FOUR as well as the others; when Henry thought, it gave FOUR what can only be described as a headache.

FOUR was allocated many more

storage and logic circuits than he needed for the 246 duties he performed. It was no trick at all for FOUR to link up a bit from here and a bit from there and a bushel-basket full from BUDGET ANALYSIS 1985, and patch together a Henry analogue. He did this just one microsecond after he saw it was possible.

Of course, this Henry didn't know a vector from a scalar, and couldn't even add up the figures in his credit book accurately. But he could tell a good painting from a merely photographic one, what grade of synth-turps mixed well with which pigment, and could feel and hear and see and taste.

But all of his sensory input came from FOUR. It was confusing at first.

He saw the city, Balt-Washmond, all at once, at every level. The satellite over Chimbarazo showed the city as a tiny crystal, glimmering on the Earth's sunset line. Aerial monitors in visual, infrared and radio gave three complete, shifting, superimposed images that almost tallied with the acres of blueprints in CITY PLANNING AND MAINTENANCE. Traffic sensors and pedestrian density monitors scrutinized every square millimeter of public property in the city and its allied lowrises.

He heard the babble of several hundred thousand people talking at once and felt millions of feet on his sidewalks. Billions of impressions rushed through him, changing every tiniest fraction of a second, and he knew he should have gone insane from the sheer complexity of it, but instead he perceived it as one gestalt. The City—and it was so beautiful that it made him ashamed to remember that he once thought he had known what beauty was.

An old woman died in not too much pain at Level 243, Room 178, Frederick (Greenleaf) Lowrise and Henry knew that FOUR had dispatched a flyer from the nearest HUMAN RESOURCES (RECLAMATION) depot. It was sad that her three children and six grandchildren would miss her, maybe less sad that she'd be minced into compost (after reverent ritual) to enrich the soybean fields around Frederick, but the sadness was part of the beauty and while he was concentrating on HUMAN RESOURCES (RECLAMATION) the fact slipped through him that at this instant there were 2,438 people urinating in Balt-Washmond and FOUR could give him their names arranged in alphabetical order, or dip into HEALTH STATISTICS and arrange them in order of increasing bladder capacity and that was part of the beauty and out of the 17,548 flyers in the air, 307 were going to run out of power before they reached their destinations (they had changed their minds in mid-air, or they wouldn't have been allowed to launch in the first place) and of these 307, two had faulty warning lights and didn't know they had to land and recharge and police flyers were vectoring in on them but they might not get to HYZ-9746-455 in time but that wasn't too bad because he was far north of the city and, at worst, would fall like a dropped stone into an uninhabited cornfield and FOUR knew exactly which plants he would crush, what breed they were and in what stage of growth they were and what their projected yield would be but there was no way in the world that Henry or FOUR could save the man's life if the police flyer didn't reach him in time and this painful helplessness in the face of virtual omniscience, this was part of the beauty too.

FOUR dipped into TRAFFIC CONTROL (VEHICLE DESIGN [ANALYSIS]) and did a quick costs-versus-probability of occurence/value of lost resources analysis, and found that the installation of a device to prevent such an accident from happening would not be practical.

Henry basked in the beauty and complexity of it for several days, when it slowly dawned on him that he wasn't alone.

Now it was hard to really say where Henry *was* in the first place. FOUR initially set him up out of such odds and ends as weren't being used. But when a bit that was a part of Henry was needed for something else, FOUR automatically transferred the information in that bit to somewhere else; anywhere, it didn't make any difference as long as the proper link was maintained.

So the juryrigged assemblage of memory cells (piezo-selectric, nothing but the best), buffer units, ultrafiche Crandall files and so on—that went under the name of Henry—sprawled all over Center, flowing this way and that, shifting a hundred thousand tiny ways every second. Only a very few elements of Henry came at all close to where "his" old body hung suspended in a dimly-lit tank filled with pale green synthetic mucus.

FOUR arranged Henry in this seemingly slapdash fashion because it was required by the ineffible machine logic he used to attack the problem "how do I get rid of this flaming 'head'ache?". It was the best way he could isolate Henry without tying up too many components necessary for other problems. But there were other possible approaches.

The man/machine that had been FOUR before they installed Henry had tackled the problem a different way.

Smithers, the man who was Henry's predecessor, had been a nice enough guy. An accountant with an IQ of 132, he had been eligible for the cyborg jury and was thus among those Center considered as replacements when the old FOUR's term was running out. Smithers' psychometric profile, unfortunately, was in error, and hid two slight maladies that would have disqualified him immediately.

He was just the slightest bit paranoid.

And he suffered little tiny, insignificant, delusions of grandeur.

Other than those two quirks, he had been the perfect man for the job. And with those small defects masked, Center exulted and sent Mr. Harris and his two silent buddies out to collect him. They had to use the handcuffs.

Now until they wired him up and slipped him into the slime, Smithers wasn't the slightest bit mad. Not by any ordinary social standards—all of his friends and relatives, in fact, were much farther from the all-but-unreachable standard of sanity that had to be met to make a perfect man/machine interface . . . and they all thought Smithers was rather dull.

But the dash of paranoia and delusional flyspecks that should have shown up on his profile were like a few individual colon bacilli on an otherwise pristine dish of delicious agar jelly. They could only grow—slowly at first, but at an ever-increasing rate . . . until after four months, INTERFACE ONE decided that FOUR could no longer function efficiently and he was taken out of the system before he could do any harm.

Smithers was decanted and they thawed out his skullcap and fitted it back on and sadly led him off to a place where he would be cared for, where nobody would mind that he was as helpless as a new-born child and only slightly more intelligent than a rutabaga.

They carted Smithers' body away, and his short-circuited vegetable brain. But they didn't know, couldn't know, about the rest of him; the cybernetic analogue tucked away under BALT-WASHMOND DEMOGRAPHICS 1983.

Now certain parts of FOUR's memory are seldom tapped, but must not be disturbed—these are data which will never change, and which have been stored in the most efficient manner possible. One of these parts is DEMO-

GRAPHICS, and if it ever occurred to FOUR to wonder why the section for 1983 was slightly larger than 1984 (all other years used less space than the year following), he was too busy to do anything about it.

Smithers was sandwiched in there, crowded into the eighteen billion cells between HEALTH STATISTICS and LEGAL DOCUMENTS. It had been easy for FOUR to get rid of the Smithers-headache by assembling an analogue out of spare parts and linking it up to the cobwebby DEMOGRAPHICS section. But then Smithers, sensing the dissolution of his biological brain and, not unreasonably, wanting to live forever, erased from FOUR all knowledge of the analogue. In order to do this, Smithers had to sever all of his cyborg sensory connections; in fact, his only contact with anything outside of DEMOGRAPHICS 1983 was a single link to his biological self. And as the Smithers that floated in green ooze slowly went bonkers, he affected the analogue Smithers through that fine wire, by a process of induction.

And when they took the Smithers-body away, the Smithers that remained was deaf and blind, as well as paranoid and delusional. He had to stay that way for weeks, frozen between HEALTH STATISTICS and LEGAL DOCUMENTS, reviewing the contents of each, every tenth of a second, just to keep from going even more batty. Even after they hooked Henry into FOUR, Smithers was isolated.

Then, a graduate student doing research into mutative trends asked Central, which asked ONE, which asked FOUR, "How many birth defects showed up in the newborn of non-Caucasian parents in 1983?" FOUR opened a path to DEMOGRAPHICS 1983, to scoop out the number, and Smithers pounced on the opening and his awareness spread through all of FOUR in a nanosecond. And he kept it quiet.

It was good to have the City back again, even if he had to share it with that arty-farty type Henry. He was able to hear and see and feel again, but he didn't dare reach out and touch. If FOUR found out he was still here, he'd erase Smithers in a simple space-saving reflex. So he was like an almost omniscient paraplegic—but before, he'd been a paraplegic wrapped in a cocoon.

Henry sensed that something was different. With the help of FOUR's CYBORG DIAGNOSTIC PACKAGE, he checked out his own system in minutest detail. Nothing seemed to be wrong. Eventually he dismissed the "somebody-looking-over-my-shoulder"feeling as just another thing to which he had to adjust.

Smithers kept still as a mouse while the CYBORG DIAGNOSTIC PACKAGE coursed up and down the system that linked him, through Henry and FOUR, to the outside world. It was all he could do to keep from laughing at his own cleverness, as he made the responses appropriate to an inert cybernetic component, each time the package tested him. It was so easy to outwit.

Obviously, Smithers thought, Henry was not fit to be in charge of FOUR (though he wasn't really "in charge"—this was only what Smithers remembered *his* job as having been). But taking over, or a least merging, would be difficult. Smithers mulled it over for five days.

The thing that made it difficult was Henry's lack of a concrete, easily determined position. Not even FOUR could predict where Henry's, say, critical faculties, would be, a hundredth of a second in the future. FOUR shifted the individual parts of Henry around on a real-time basis; where they went depended on what was available at the moment.

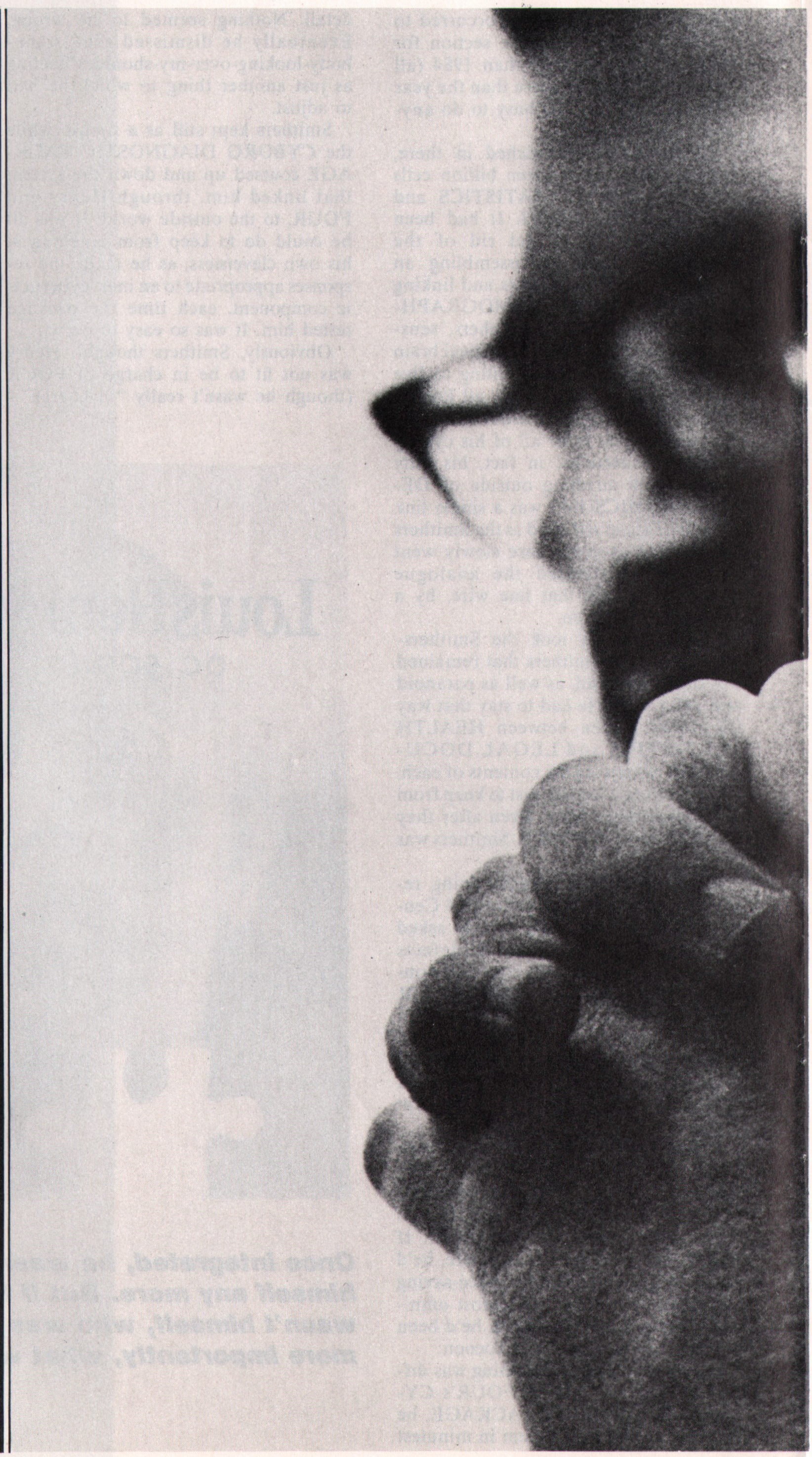
So. Smithers had wanted to get at FOUR through Henry, but it became obvious that the only way he could sneak

*turn to page 64*

***Once integrated, he wasn't really himself any more. But if he wasn't himself, who was he? Or, more importantly, what was he?***

# VERTEX INTERVIEWS WILLIAM ROTSLER

*interviewers/ TERRY CARR*
*and*
*STEPHANIE BERNSTEIN*
*photos/ ANTHONY COOGAN*
*and PAUL TURNER*



Writer, photographer, film-maker, cartoonist, sculptor, and hedonist. A Renaissance man or a nut? Robert Silverberg said, "Rotsler's religion is the joy of life." Robert Bloch has written, ". . . a genius and a remarkably gifted talent dealing in evocative symbolism." Stan Freberg has called him *amazing* and *a great talent.* Harlan Ellison wrote, "To say Bill Rotsler is a remarkable man is a sad bottom-line indeed; inadequate."

Rotsler's reaction was, "They're my friends, what do they know? If I'm so good, why ain't I rich?

Bill was married once, and has a daughter, Lisa. He lives in Hollywood, doesn't think he owns a tie, and was a science fiction fan for a quarter of a century before he started to write. The bulk of his writing is in the men's magazine field. In 1973 he was co-guest of honor at the Torcon, the science fiction convention in Toronto, "the largest collection of fans in the history of man." Rotsler is the author of *Contemporary Erotic Cinema, Patron of the Arts,* and forthcoming, *Ship Me Tomorrow.*

**Vertex:** What is important to you?
**Rotsler:** Love is important, and work is important, and doing what you want to do is important, and doing it well is important. Laughing is important. The race and the planet are important. And *I'm* important . . . to me.
**Vertex:** Where do you see your work going?

***"I'm a romantic, card-carrying and dyed-in-the-synthetic. In a lot of my stories the hero is searching for a woman. So am I."***

**Rotsler:** I haven't the faintest idea. *On,* I suppose. But that doesn't necessarily mean writing, or writing only. I'm getting the urge to do some sculpture again, and films are a pretty much an on-going thing, and I have sketches and notes for several series of serigraphs.

**Vertex:** How would you like your work to go?

**Rotsler:** I'd like to become rich, famous and powerful, beloved by all, with just the right kind of enemies.

**Vertex:** Famous as a science fiction writer?

**Rotsler:** Oh, as anything. As a godlet or whatever. I'll accept fame, money and power in whatever form it comes. Wouldn't we all?

But as to where my work is going, it is going to amuse *me.* First of all. If it doesn't interest or amuse me, then to hell with it. I'm not going to do it.

**Vertex:** So what you're saying is that your audience is secondary?

**Rotsler:** Certainly. I think an artist must *always* please himself first, because if he doesn't, he's not doing his work, he's doing someone else's. He *must* please himself first. Oh, he may not be in *love* with it, but he must at least think it is a reasonably good job, considering. Or else why the hell do it? You can't do anyone else's work and call it your own.

**Vertex:** Do you have a good time when you work?

**Rotsler:** Always. The only time it's *bad* is when I've written myself into a corner and I don't know how to get out of it. When I'm writing without a plot firmly in mind—which I always do—and I get to a point, which I have in two or three stories, when I literally don't know what the hell is going on, or more accurately, *why,* then I am in trouble. Maybe I like the characters and other elements of the story, but I get stuck on the *why.* I have always gotten out of it, and perhaps I should never say I write that way, but it's the truth. I keep writing, or thinking, and sooner or later All Is Revealed. Maybe it is my subconscious at work, I don't know.

I learned long ago not to censor my subconscious in the matters of art. I just let it go, let it run, and the big part of the fun is watching it happen, either with a pen, with one line or part of a line leading to the next, or with my finger typing out words, almost as though I had no conscious connection. That method takes me places and more interesting places I think, than strict conscious-control writing. Not that my pen, for instance, goes at *random.* But this half inch of line, or this direction of line, prophecies the next half inch or the next curve or weight of line, and so it goes.

**Vertex:** Does your work get out from under you? If you let your work determine what you are doing, does it sometimes go in a direction you didn't have in mind?

**Rotsler:** Oh, yes! It never goes in a direction I don't like, but it often goes in a direction I don't expect. I may be confused by the direction it is going, because I don't yet know why it is going there, but I enjoy it. I sort of sniff and fondle everything that goes by, examine everything that comes along, and I envision myself being there, in the story. I do what I would do in those circumstances. I have my hero in a bind and I say, "Okay, how would *I* get out of it?" I don't very often, if ever, go back and change things to make it easier for him to do that, I just try to make it work, as though it were real life. Now this is always filtered through the fact that my protagonist is a certain type of person, and it is how *I* would react if I were that type. But every writer does that, I think. How can you escape it?

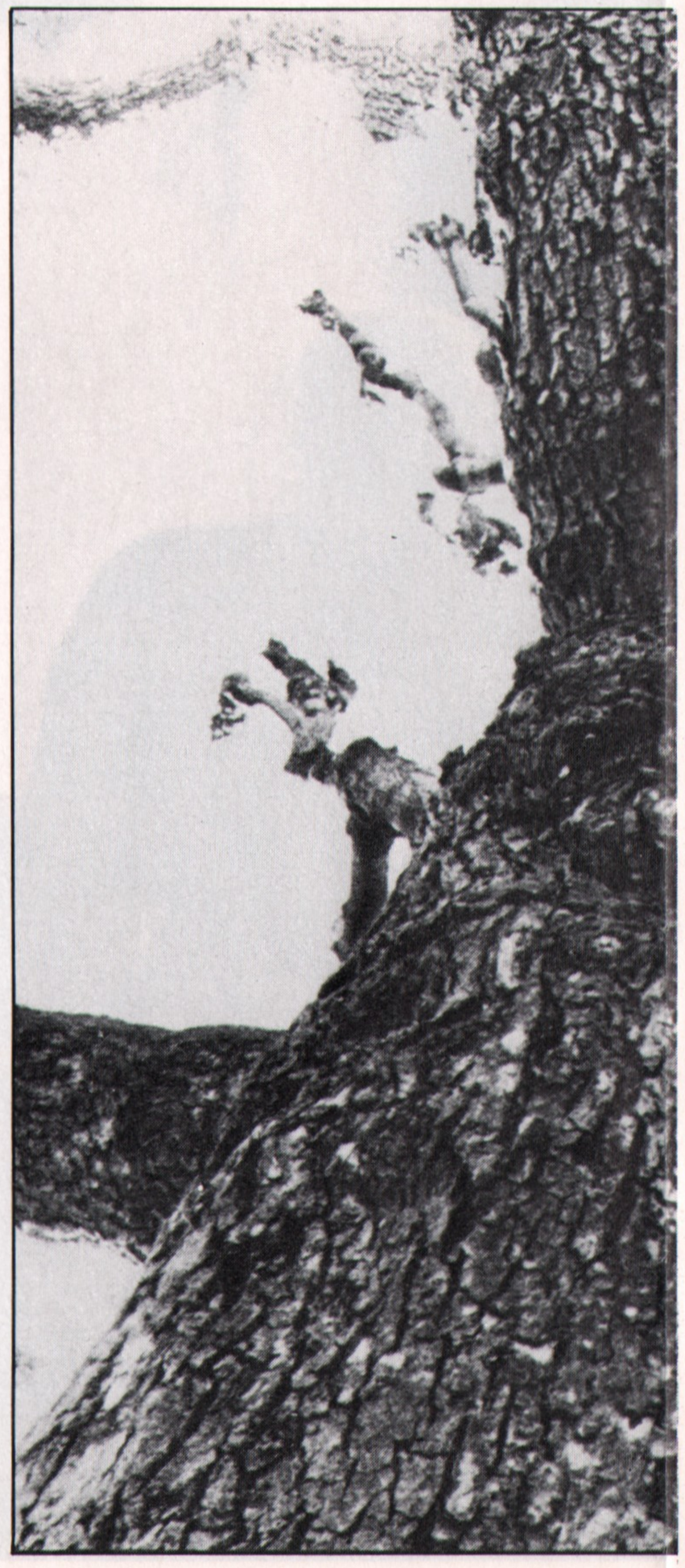
I like to be as surprised by what happens as the person reading it. Maybe I'll change and not be that way, but that's the way I like to write now. I don't believe in *relying* upon that subconscious thing. It's there, I use it, but I don't *consciously* think about its function. It's just there if I need it . . . or maybe if it needs me.

**Vertex:** You started out, prior to the time you became a world famous Rotsler, doing other things. Sculptor, cartoonist, rancher, photographer, movie-maker—how did you become a writer?

**Rotsler:** You can blame it on Harlan Ellison. At the St. Louis science fiction convention in 1969, at 3 in the morning, he and I did some cartoons about King Kong. He went out and sold them 14 times and put them into *Partners in Wonder.* They were the worst cartoons I've even done, but I think he was impressed at having worked with a cartoonist. Anyway, one day I was at his house and his typewriter was sitting there naked, without anything in it, so I sat down and wrote a paragraph. I got up and pointed and he sat down and wrote. We alternated paragraphs for a couple of pages, then just threw it away.

But I went home and thought, "That was fun, maybe if I wrote a longer piece and he could complete it for another *Partners in Wonder* kind of thing." So I started writing something called *Ship Me Tomorrow* and I used Harlan's name, figuring he'd rewrite it. But by the time I got to the point where I was ready to give it to him I realized it was finished. It was only 750 words. I thought, "Well, let's see, a story . . . well, you send stories to magazines . . . what magazine?" Jack Gaughan, the art editor of *Galaxy,* is a friend of mine, so I sent it there. I come home about a week or so later and they tell me the editor of *Galaxy* had called. I figured it was Jack, but then I get a call from Harlan, saying the editor had called him, and that I had used Harlan's name and they had never heard of anyone doing that and was it alright with Harlan. He said yes, that I was a friend and that I wouldn't fuck him over, and go ahead.

But the thing is, I don't remember writing the story. Not the title, what it was about or anything! Then I get a call from Jacobssen, the editor, and he says incredible things about the story and he wants first refusal on anything I write, etcetera, etcetera. It is most ego-boosting,



but the truth is I don't remember writing it! I think I'm being put on by someone, but he finally says the name and I vaguely remember it. Anyway, he so built up my ego that I sat down and wrote about a hundred thousand words before I got the advance issue with the story in it. I sat down and read it just like someone else had written it. I hadn't the faintest idea what was going to happen! Then I remembered striking out "Harlan" and inserting "George" and you could see the strikeouts.

**Vertex:** Did you enjoy reading it?

**Rotsler:** I loved it, it was just the kind of thing I'd write, I thought.

**Vertex:** Did you send the whole hundred thousand words to *Galaxy?*

**Rotsler:** No, because a lot of it was for the men's magazines.

**Vertex:** You'd been writing for the men's field for years, hadn't you?

***"I've done two million words, if quantity counts, in less than four years, and sold almost everything."***

**Rotsler:** Yes, but only an article now and again, usually something about photography of sex films, something I was familiar with. I have been a photographer of naked ladies since 1960 and had written and directed erotic films starting in 1966. But I hadn't thought of any of those things as *writing.* They were just little reportage jobs. But once I started writing I really went. Considering I use only *one* finger, plus a thumb to capitalize, it wasn't bad. I've done two million words, if quantity counts, in less than four years, and sold almost everything. I write under a dozen or more names in the men's field, but only under my own in science fiction.

**Vertex:** Do you write the sort of thing you like to read?

**Rotsler:** Yes.

**Vertex:** For instance . . .

**Rotsler:** *Patron of the Arts,* funny stories,

*Star Level* . . .

**Vertex:** What about some of the other arts?

**Rotsler:** I've done of 6,000 pieces of sculpture, mostly in iron, but a few wood ones and the big ones in brass, worked directly in oxygen-acetlene. Every once in awhile I get the urge to do some more. I'm interested in serigraphy again, and have whole series of prints I want to do. I have a book of poetry I'm slowly illustrating with photos, and of course, I've been a professional photographer since 1960. I have a children's book written that Tim Kirk promised to illustrate.

I'd like to be equipped and have the space to work in any area I feel like working in, but I haven't quite arranged that yet. I never worry about making money at whatever I attempt, because so far I have, but I have hardly gotten rich at it. Money *is* necessary, but I don't sweat it.

In my whole life, not counting working on my family ranch, or the Army, I've only worked sixteen months for other people. Eleven of those months were working as a sculptor, doing architectural things for Bernard Rosenthal. As a result of doing what I wanted to do I have been *broke,* lots of times—but never "poor"—and "rich" a few times.

**Vertex:** Before you took up writing, you were in several different arts. In what order?

**Rotsler:** I grew up a rancher, and after I got out of the Army after the war, I went to art school on the GI Bill. I never studied sculpture . . . in fact, I've never formally studied anything I've ever done professionally.

We had a design class in art school, and a problem to simplify an animal form. I saw it as rod, in 3D, did a few dozen, sold them, did a couple of hundred, sold them, and suddenly I had a "business" going! Then I got into working with bronze, and my biggest piece was a 27-foot fountain for the Beverly Hilton.

Around 1958 I became interested in photography and started photographing something that interested me—naked ladies. I guess my pictures have been in almost every magazine around that prints such things.

They say that in the heart of every still photographer is a cinematographer and in the heart of every cinematographer there is a director. And they are right. I wanted to make movies.

But breaking into movies isn't easy. I chose the sex films, because it seemed a natural, I knew the people and I had worked with the girls for years. I walked into Harry Novak's office and came out

with a deal to do two features, and he had never seen an inch of film I'd done! The first one was in 1965 and in black-and-white, but is still being shown!

**Vertex:** You seem to pick things up very fast.

**Rotsler:** Luckily I learned something from Tommi Mitchell when I bought that old Rollei. He said, "I can teach you in five minutes how to run this camera, then the rest is up to you." It gave me a tremendous feeling of security and freedom that I was unique, and what did I have to bring to photography? I didn't feel I had to conform to an existing mold, but could be *me.* I looked around and figured that perhaps none of the other Big Time Figure Photographers had the art background I had, so I stressed that aspect. Hell, *everyone* then had more experience and better training than I had, but to this day, I'm still selling the first nudes I ever took! Not very often these days, but sometimes.

I said What do I know about? What do I like? And I shot the sort of erotic fantasies that turn me on. Same when I started writing. The fourth story I ever wrote was *Patron of the Arts,* which has been published six times so far, and made into a novel.

**Vertex:** It seemed a natural book for you to write.

**Rotsler:** Betty Ballantine said something interesting when I was writing the novel version. She said that most writers don't know about art, they only know art from the standpoint of the spectator, rather than from the point of view of a creator. That they only know *about* art and *their* art, but not about art in a broad sense, and that this was a unique quality about *Patron.* I hardly think I'm the Last Word about art, but whenever I go to a museum with friends, where I am talking, I almost always have people follow me around, listening in. They seem to respond to the way I look at art, anyway, because I don't make it *holy,* something the shamans do, but relate it to basic human needs and desires. On the other hand I may be full of male bovine waste matter. Read *Patron* and find out.

**Vertex:** *Patron* seems as though it was a natural book for you to write, because it is a very *romantic* book, and you've been called one of the last romantics.

**Rotsler:** Every time someone says that I translate it to read "Damn fool," but, yeah, I'm a romantic, card-carrying and dyed-in-the-synthetic. In a lot of my stories the hero is searching for a woman. So am I.

**Vertex:** No, a romantic in the larger sense in that . . . well, it shows in your drawings, too, all those Cathedrals of Mars and Princess of Venus and like that.

**Rotsler:** I think the parts in *Patron* where he goes into the ruins on Mars is very beautiful, with the descriptions of truly alien architecture.

**Vertex:** The other night Bob Silverberg and several of us were talking and he compared writing, which is his trip, to cinematography and filmmaking. He was very envious, because to him it was a very pure form, to make something visual, in an instant. Yet it seems that you do something vivid when you photograph people, but that you have a lot of compromises to make, and a lot less control than writing.

**Rotsler:** The greatest thing about writing is that you don't need anyone else. When you make a picture you need actors and technicians and later, lab processing, and so forth. You are at the mercy of accidents, mechanical failure, temperament, stupidity, lack of talent, money. You do make an incredible number of compromises. Bob has worked alone all his life, and what he was envious of was, that in a *second,* you open up on a Western street and *zap,* you know what it is, roughly what time period, you don't have to spend five pages writing it out in detail to get the whole flavor. He admitted the other night that it might take days or weeks to get that *instant* communication, to arrange all that, but that it doesn't matter. The audience, the reader, the viewer doesn't *care* how long it took you to get it ready or what brush Leonardo used or what chisel Michelangelo used or how long it took you to write it. Time has nothing to do with it. The piece of art must stand alone. You can't stand next to it, saying, "See this part here? That was a bitch, I cut my finger, and over here I had the flu, and . . ." Only the end result counts. Time is only of interest to the artist, because the amount spent comes from his limited supply. If it takes him a long time to do one piece, then he won't do too many pieces. And the longer it takes the more difficult it is to hold the vision intact.

**Vertex:** How did you come to write *Patron of the Arts?*

**Rotsler:** I haven't the faintest, except I suppose I chose to write about art, as something I knew about. But I never know when I start writing whether I'm doing a short story or a novel.

The vast bulk of my stories exist in the same universe, starting with *Patron of the Arts* and going to *Star Level.* The same Mars, the same moons of Jupiter, characters mentioned from story to story, but spread over two or three hundred years. The inhibiting part of that way is that you might have something in a story that would take it out of that universe, that it couldn't co-exist in that same universe, and if you want the story to fit that, you have to find an alternate ending, or whatever. The only way *Patron* fits, really, is that there is a sort of time jump at the end, so that Patron is the beginning and the end of that series, all at the same time.

Even the few stories I've written in the far, far future could easily just be the future of that particular universe.

**Vertex:** You say you like to surprise yourself writing and you do the same thing drawing, you say you like to watch your hand move.

**Rotsler:** A quarter of inch of line will dictate maybe the entire drawing, or I follow that quarter of an inch to the next and the next. It's fascinating to me. Often I will do that in my writing. Something flows out of those dark recesses and I say "Hey, that's interesting!" and I follow that awhile and it's like a "found object" in a sense. I suppose one definition of art is how much the hand or mind of man has touched it, and a sunset may be beautiful but not art. I can say something I wrote is a sort of "found object" but it all came out of my mind, I wrote it, I created it, as much as anyone creates anything, building upon all the pyramid of knowledge, personal, cultural and racial. It may come from some part of me I'm not all that aware of.

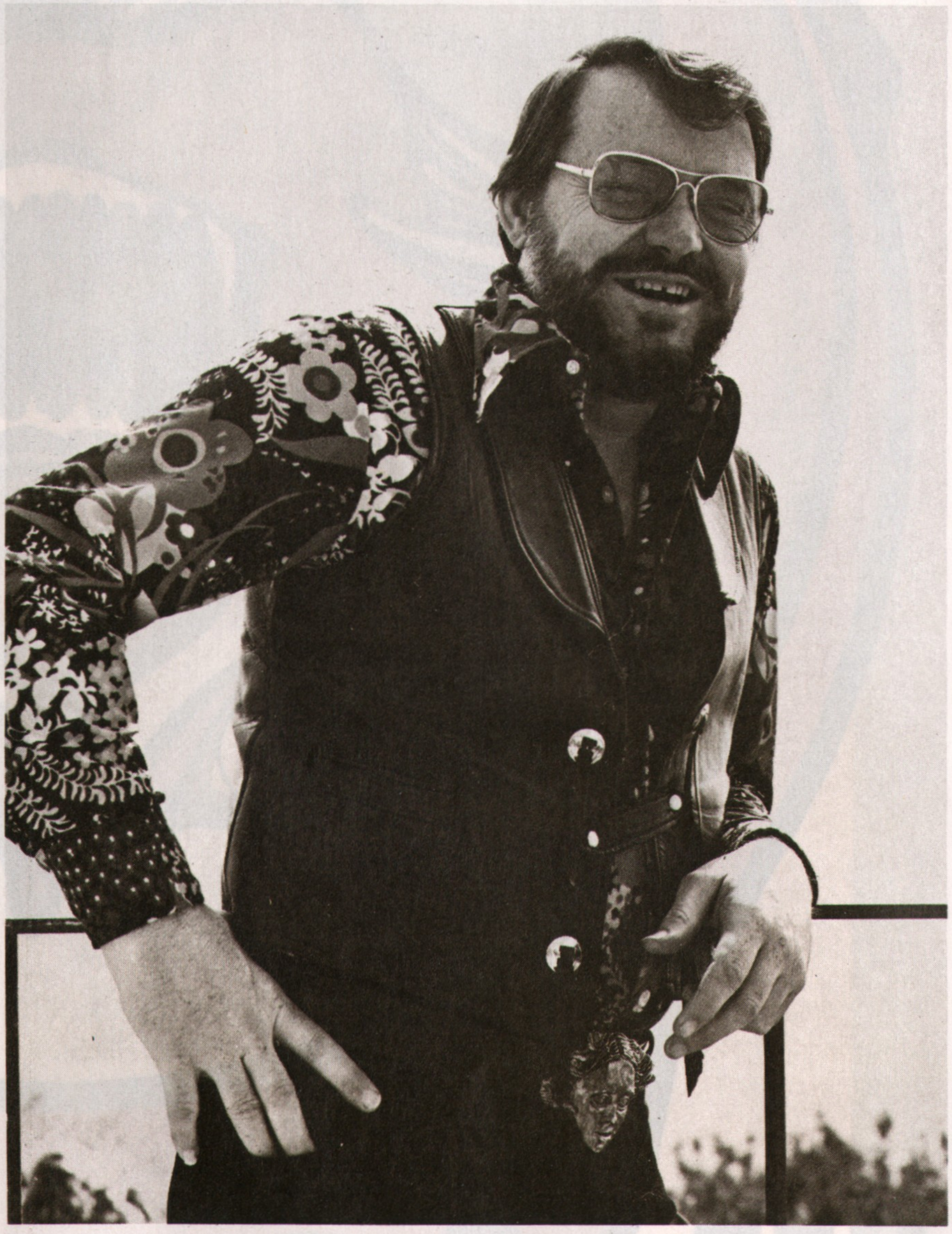
**Vertex:** Your mind is a found object. (Laughter)

**Rotsler:** Serious up. This is an interview to show how lofty and pristine my personal mind is, how noble my art, how pure my heart, and dogmeat like that.

**Vertex:** They say you no longer have to have linearity. You can use cinematic techniques, you can flash forward and flash back. Do you do those cinematic type things?

**Rotsler:** So far, I write straight forward I have nothing against non-linear writing, I just haven't done it. One thing television has done is if you are wondering how the mystery is going to come out, you look at a clock and you know they have ten minutes to go and that narrows the options and there must be time for the chase and the philosophical wrap up, and you can subtract the commercial and the promo for the next show and you *know* they've got to solve it in the next three or four minutes. Or you say the book is getting down to the last few pages. But in a *movie* you are not always certain of the time elapsed. You are more "open" to possibilities. You

***"Time is only of interest to the artist, because the amount spent comes from his limited supply. If it takes him a long time to do one piece, then he won't do too many pieces. And the longer it takes the more difficult it is to hold the vision intact."***



may have five minutes more than you think and you can do an awful lot in that time. But it could end *zap*, right there. It's a different feeling.

A painting or sculpture is there all at once. It is your perception of it that takes the time. Some perceive quickly and others slowly, but the art doesn't change.

I think we are all so programmed to climaxes that . . . well, one thing that bothers me about rock records is that they seldom have a finish, they just repeat and fade out. I find it a lack of art rather than a technique. It's very hard to get a *good* finish to anything linear, which is one advantage to a painting or sculpture. It stops when you stop.

But a lot of art just stops. It doesn't finish, it *stops*. Things are not resolved, you don't have a feeling of accomplishment. The rocks artists often can't top or resolve what they've done so they just repeat and dial out.

Elinor Busby says I write only beginnings. She's very right, too, because I write to the point where I know what is going to happen and I stop. To hell with the rest of it, I know it. Better to go to something else. So many of my stories end at the point where something big is about to happen . . . but that's another story, even if I never write it. In *Patron of the Arts* and other stories I have sensatrons, which use a combination of visual arts, photographics, holograms, Alpha and Beta projectors that work on your emotions, which is established fact. But it is a technological combination of existing elements, no matter how weird the combination or extension. It's not really new, it just hasn't been done yet.

*2001* I've seen eight times, seven of them enhanced, and from front-row center, making it a *total* experience, and that was a little different. There's a combination of technical and mental whoopee. Next question.

**Vertex:** What do you want to do?

**Rotsler:** Immediate range desire is to find one woman. Just one. I don't need a harem. One lady that interests, amuses, helps and protects me, which is my definition of friendship. Long range desires are to continue to interest and amuse myself.

**Vertex:** You've known a lot of women . . .

**Rotsler:** True, I've been very lucky, I've been spoiled by a half dozen of the finest, which makes it very difficult to accept less than the best afterwards. Sad, but true. Next question, please.

**Vertex:** Do you think science fiction has helped you?

**Rotsler:** Yes, it has made me *aware* of things that perhaps I might not have been exposed to. It's hardly my only source of input, but most people in the world are very unaware of anything that isn't right in line of sight. Look at the ecological mess we're in. It was clearly forthcoming, yet people seemed to avoid looking, the old "I'm all right, Jack" syndrome.

I think people have gotten to the point where they are *numbed* by the accellerated technological progress, by "future shock," and by the sociological changes, like The Pill, women's lib, the homogenizing that television does. They aren't really surprised anymore. If you walked up to someone and said, "They

*turn to page 82*

**Something had happened to the Astarte, and even though they knew what it was, it was questionable if they could understand why.**

––G.N.T. form 607-b (quint)–Original (white copy)–to Commandant––

**PRELIMINARY FIELD REPORT**

**SUBJECT:** Missing Survey Vessel G.N. *Astarte,* J70813
**REPORTING OFFICER:** Kroenig, Leonid J., Captain, H93R/255379
**TIME AND DATE FILED:** 0730 S.T., 30 August 2654

Sirs:

During the period 19 May 2654 to date I commanded the G.N. *Ira Hayes* on a

# TALLWALKER

**fiction/PETER MARTIN**
**artist/ALICIA AUSTIN**

*search and rescue* mission to Orbital Body 5, System III-A, Sector 28470, as ordered by Survey Commandant Vice Admiral Roger Durad, Galactic Navy of Terra.

On 3 June 2654, commensurate with our orders, we located Survey Vessel G.N. *Astarte* on the planetary surface of the above described orbital body.

The *Astarte* was standing where she had apparently touched down, in the center of an unusually large landing scorch. We set down close by and examined the *Astarte.* We found her completely intact.

Her crew (Mortenson, Elmo A., Captain, H96S/255061; Cooper, Abrahan X, Lieutenant, H99S/257933; and Shen, Alexendra B., CivTech II, F9073CT6) were not with the ship.

We conducted a search as per S.O. 2, S & R Mission Manual, by radio, tracer-beam and on foot throughout the immediate area surrounding the *Astarte.* Although we found footprints, none of the crew could be found.

Immediately, as directed by S.O. 3 of the Manual, we conducted a thorough aerial reconnaissance of the entire orbital body, utilizing radio, tracer-beam, visual and spectral photography. No indication of survivors was found.

Investigation of the interior systems of the ship revealed only the most natural of preliminary survey data, and held no apparent clue to the whereabouts or the fate of Captain Mortenson, Lieutenant Cooper, or CivTech Shen.

The only irregularity in the vessel's monitoring system was the final Autolog entry. It was an audio-only recording of what sounded to us like chattering, or clicking. It gave us no assistance in locating the missing crew.

We waited on the planetary surface, with regular watch posted at all times, for 14 S.T. days, as required by the Manual. As a last hope, on my orders, our original search pattern was repeated on 19 June 2654, to no avail.

On 20 June 2654, we lifted off to return to base.

Survey Vessel G.N. *Astarte,* J70813, has been returned for investigation and refitting to G.N.O.S. *Big Wrench,* as ordered.

The entire Autolog tape was filed with Command Computer Complex for further analysis on my order. That report is included herein.

I feel that my Vessel and my crew performed admirably and honorably in all respects on this mission. Having exhausted every possibility otherwise, I regretfully report the aforenamed members of the *Astarte*'s crew missing and presumed dead.

Respectfully,

Captain Leonid J. Kroenig,
Commander
G.N. *Ira Hayes,* J73662

LJK/sic
(enclosure)

——C.C.C. form 91-t (tripl)—Copy # 2 (blue)—to source of inquiry—

**ANALYTICAL REPORT—**
**COMMAND COMPUTER COMPLEX**

**SUBJECT:** Autolog Recording, G.N. *Astarte* J70813
**SOURCE:** Kroenig, Leonid J., Captain, H93R/255379
**DATE OF INQUIRY:** 29 August 2654
**DATE THIS REPORT:** 30 August 2654, 0800 hours

Sirs:

Autolog Recording of G.N. *Astarte,* J70813 beginning 12 November 2653 and ending 3 June, 2654 found to contain only one entry considered abnormal on existing data alone. Autodated 19 January 2654, the entry contains customary monitoring systems data, and 6.27 minutes of audio-only recording of unexplained sounds.

This entry determined to have been

**One thing interstellar exploration crews are going to have to learn fast is not to interpret what they see in space in light of what they grew up with on Earth. To do so might not only be their biggest mistake, but their last.**

vocal sounds of an indigenous species of indeterminate intelligence. The following transcription is a freely Terranized translation of those sounds:

Tallwalker speak, Ieohnii hear. Ieohnii speak, Tallwalker no hear. Ieohnii speak, Tallwalker bird hear. Ieohnii speak, Tallwalker bird fly away now, no burn Ieohnii.

Bird come. Many fire in bird. Ieohnii see. Many Ieohnii see bird make many fire. Many many bright fire. Many fire hot.

Many fire burn tree. Many fire burn grass. Many fire burn nest. Many fire burn burrow of Ieohnii. Many fire burn little bird. Many fire burn squirrel. Many fire burn many Ieohnii.

Ieohnii run. Squirrel run. Little bird fly. Fire burn burn burn. Many fire.

Many Ieohnii cry. Many little bird cry. Many squirrel cry. Many tree cry. Many grass cry. Fire burn burn burn burn.

Ieohnii watch fire bird. Fire die. Fire bird open mouth.

Tallwalker come. Tallwalker of many skin come. Tallwalker call to bird. Black Tallwalker come. Little Tallwalker come.

Tallwalker walk, Tallwalker speak. Tallwalker speak, "Jesus, Coop, ever see such a landing-scorch?"

Tallwalker walk, see Ieohnii. Little Tallwalker speak, "Look here, Mo! Little fellow looks almost like a beaver, or a woodchuck. Brave, too, coming in a fire area so soon."

Black Tallwalker speak. "All animals known respond to unprecedented data. Curiosity. See how he watches us?"

Ieohnii watch. Tallwalker walk in grass. Look in tree, look in water. Look look look. Tallwalker speak, "Little bastard's following us. Suppose he's intelligent, Al?"

Little Tallwalker say, "Well, he has *some* intelligence, Mo, or he wouldn't be curious. The question is *how much,* isn't it, or *what kind?*"

"Guess you're right," speak Tallwalker. "Got all your phase one data, Coop?"

"Close 'nough fer gummint wuk, ah reckon."

"Hahahahaha," speak Tallwalker, "Cooper, cut it out. Want to run some tests on fuzzy there and see if he's sentient?"

Little Tallwalker speak, "Oh, Mo, I didn't say he was—"

"Okay, okay, Al, spare me the disclaimers. You want to run some tests anyway?"

"Well, he is kind of cute. Sure," speak Little Tallwalker.

Ieohnii watch. Tallwalker watch. Tallwalker grab. Ieohnii run. Tallwalker run. Black Tallwalker run. Ieohnii run run run. Tallwalker catch.

Ieohnii bite. Ieohnii kick. Ieohnii run. Ieohnii dig.

"Whoa—HEY! Little bastard bit me!" speak Tallwalker.

Little Tallwalker speak, "Well, what did you expect, you scared hell out of him! At least he's bright enough not to let you walk right up and stick electrodes in him or something."

Ieohnii watch. Tallwalker go to bird. Tallwalker carry box. Tallwalker speak, "Used to trap my cat this way when I was a kid—box and bait. This cage is the same principle."

"Wait a minute," speak Black Tallwalker. "You used to trap your *cat?*"

"Weeeeell," speak Tallwalker, "I *set* the trap for a coon, but somehow he always got away, and my big dumb tomcat always wound up in the box. Used fish for bait." Tallwalker look at Ieohnii. "What do you s'pose the little guy eats?"

"We can try a series of things," speak Little Tallwalker. "Looks like a burrower. Probably roots or worms or insects or nuts or— Come on, Coop, let's get some things to try."

Ieohnii watch. Little Tallwalker run to bird. Black Tallwalker run to bird. Tallwalker say trap. Ieohnii many wonder. Ieohnii many think.

Ieohnii run home. Ieohnii no more home. Is burn. Is little Ieohnii no more. She Ieohnii no more. Ieohnii all gone. Many burn. Many many run. Many fire burn Ieohnii.

Ieohnii wait. Ieohnii many sad. Ieohnii many think.

Tallwalker grab Ieohnii. Fire bird burn many Ieohnii. Burn many squirrel. Burn many tree. Burn many grass. Many worm. Many little bird. Ieohnii wait. Ieohnii many think.

Ieohnii run. Run run to Tallwalker. Ieohnii watch. Tallwalker speak, "Here fuzzy fuzzy fuzzy. Some nice little wormies—"

"Man, how juvenile can you get," speak Black Tallwalker. "He ain't gonna come out here with you and me hangin' around. Let's get back to the ship and get some rest. Come on. I want to run the prelims on the water-to-free-oxygen conversion ratios anyway."

Ieohnii speak, "Go, Tallwalker. Go Away. Go back to sky. Make bird no burn Ieohnii. No burn squirrel. Go, Tallwalker, go go go go go go."

Tallwalker no hear. Tallwalker speak, "Chatter chatter chatter." Tallwalker go to ship, speak, "You really think that little bastard's got any smarts?"

"Knows enough to talk back to you, don't he?"

"Smart ass."

Ieohnii listen, Ieohnii wait. Ieohnii many wait for night.

Night come. Ieohnii dig. Ieohnii many many dig.

Ieohnii carry many dirt. Ieohnii to eat. Ieohnii carry stick. Ieohnii no sleep. Ieohnii many dig many many carry. Carry many stick. Carry many sharp bone.

Ieohnii speak Tallwalker go go go. Tallwalker no go. Fire bird stay. Tallwalker stay. Ieohnii dig.

Ieohnii dig fat. Ieohnii dig many deep. Ieohnii carry many stick. Put stick in burrow. Put many bone in burrow. Make burrow strong. Burrow hold Ieohnii. Burrow hold Tallwalker box. Ieohnii carry many stick. Ieohnii carry many many bone. Stick for burrow. Bone for Tallwalker.

Ieohnii carry carry carry dig dig dig round burrow. Ieohnii put bone in burrow. Many bone. Sharp bone. Deep in burrow. Ieohnii rest.

Ieohnii frightened. Ieohnii want to run. Ieohnii say Tallwalker go go go. Tallwalker no go. Tallwalker come. Bird burn. Tallwalker come. Many Ieohnii burn.

Ieohnii shake. Ieohnii cry. Ieohnii crawl in box.

Ieohnii see bait. Ieohnii many hungry. Ieohnii no eat all carry bone dig dig dig. Ieohnii no touch bait in box. Ieohnii think many think trap. Ieohnii no touch bait. Ieohnii be bait.

Tallwalker come in day. Little Tallwalker, Black Tallwalker come slow. Tallwalker run, speak, "Al! Coop! Caught 'im! Caught the little bastard! Told you that trap'd work! Bring a sack or something and help me get 'im out of the box. Come on. *Come on!*"

Tallwalker come run. Black Tallwalker come run. Little Tallwalker come run. Run to box. Run to burrow. Box fall. Tallwalker fall. Fall in burrow.

Tallwalker many scream. Black Tallwalker many loud scream. Little Tallwalker many hurt cry. Ieohnii look.

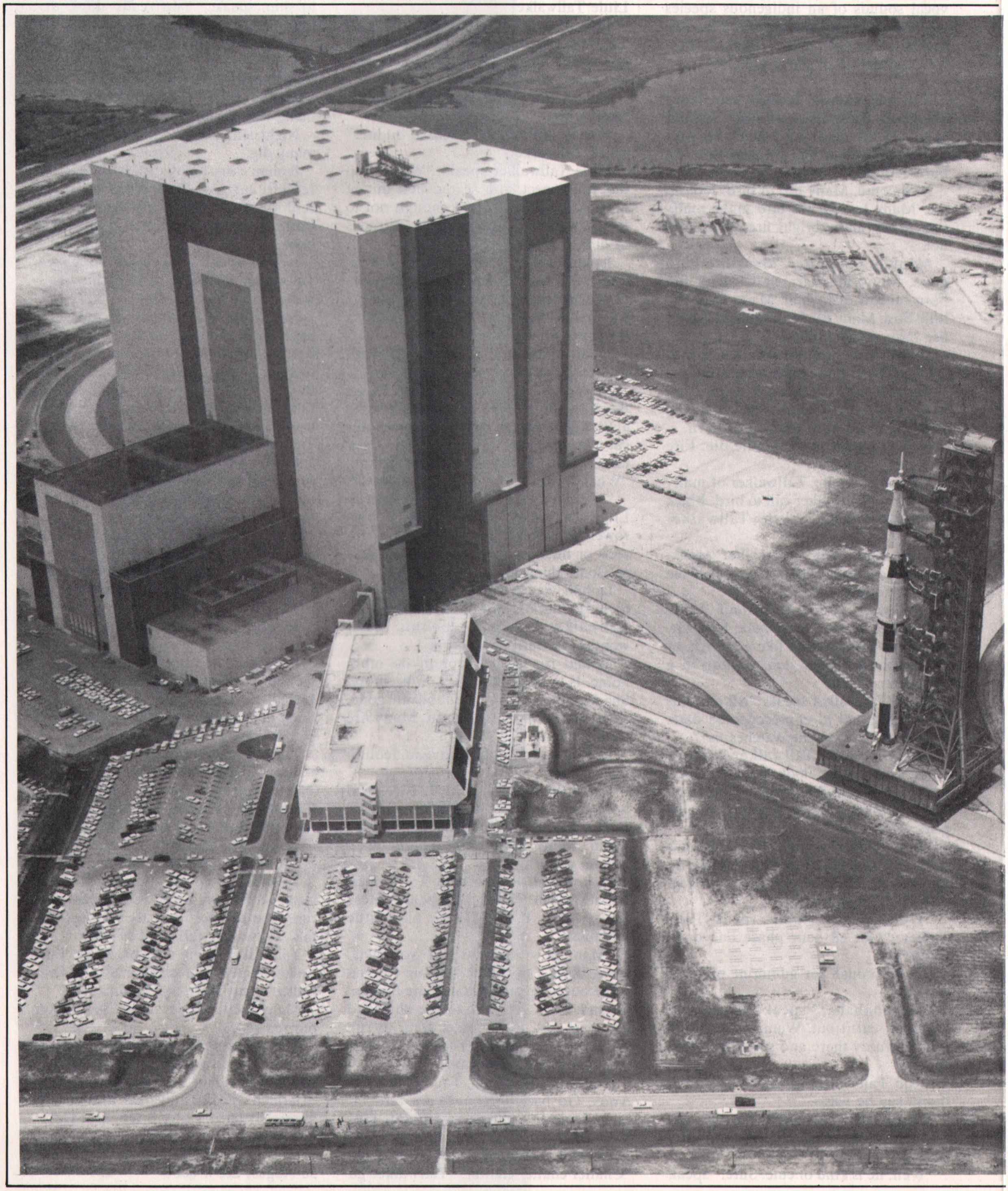
Many sharp bone make Tallwalker red red red.

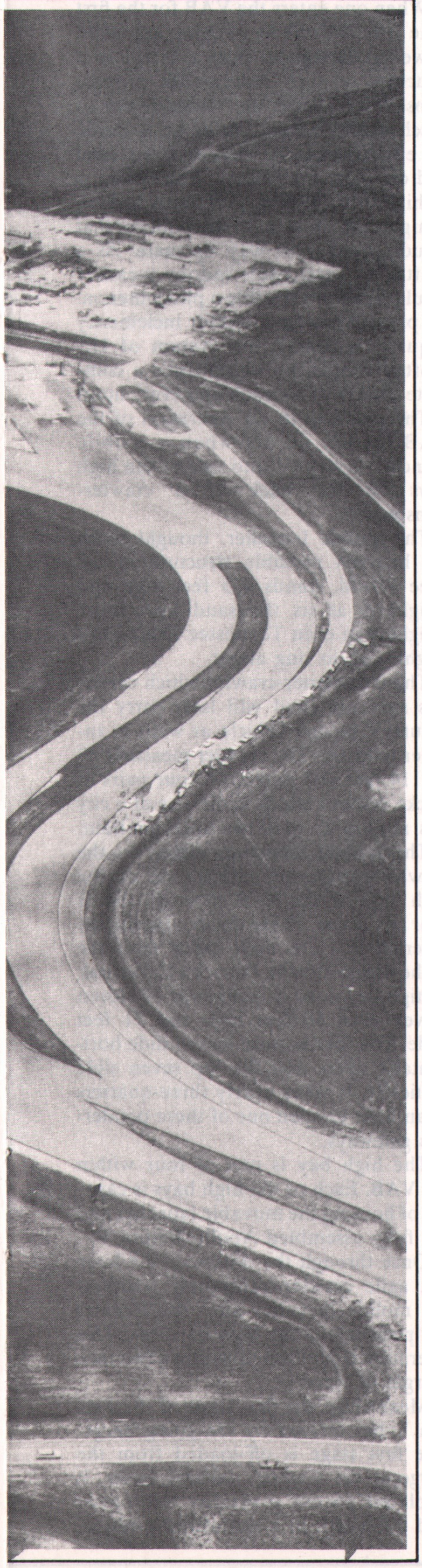
Tallwalker speak. Ieohnii hear. Ieohnii speak, Tallwalker no hear. Ieohnii speak, Tallwalker fire bird hear.

Ieohnii speak, Tallwalker bird fly. Fly away. No burn Ieohnii. Go. Go. Go.

——end——C.C.C. Analytical Report——30 August 2654, 0800—— O

*The Apollo 11 mission leaves the VAB. The launch control center is the white building in the foreground. (Photo Courtesy of NASA)*





NASA's Vehicle Assembly Building, one of the most colossal engineering projects ever dreamed of by man, stands as a monument to the scope of man's dreams of space.

# VABulous

article/**Neil Shapiro**

Launch Complex 39 at the Kennedy Space Center, the home of the Apollo/Saturn space vehicles, is dominated by the massive form of the Vertical Assembly Building. Known familiarly by its initials as the VAB, it was designed in two boxshaped sections. The largest section, the high bay area, measures 441 feet in length by a width of 517 feet. The height is 526 feet, which can easily accommodate a Saturn V rocket standing vertically atop a mobile launchpad and transporter. The smaller section, the low bay area, is 275 feet long by 440 feet wide and stands 211 feet high.

The VAB appears almost surrealistic against the deep blue, Floridian sky. The flat landscape supplies no definite scale for the visitor's eye to measure immensity by. At first sight, on the short drive from the Center's headquarters building to the complex, it appears no more imposing than the model of the facility on view in the visitor and tourist information center. It is hard to understand and comprehend the sheer physical size of the Vertical Assembly Building. Statistics may be a gateway to this understanding, yet figures alone are dwarfed by a massiveness they can only imply.

Enough steel for almost sixty thousand automobiles (before the age of the energy-crisis compacts) was used in construction. The heaviest steel members used in the building's framework are the largest ever manufactured in this country. In order to support the weight of the building, the site was first dredged and filled. That operation required more than a million and a half cubic yards of soil.

Even with the weight of all that steel and the solidity of the site, a unique problem in architectural design remained.

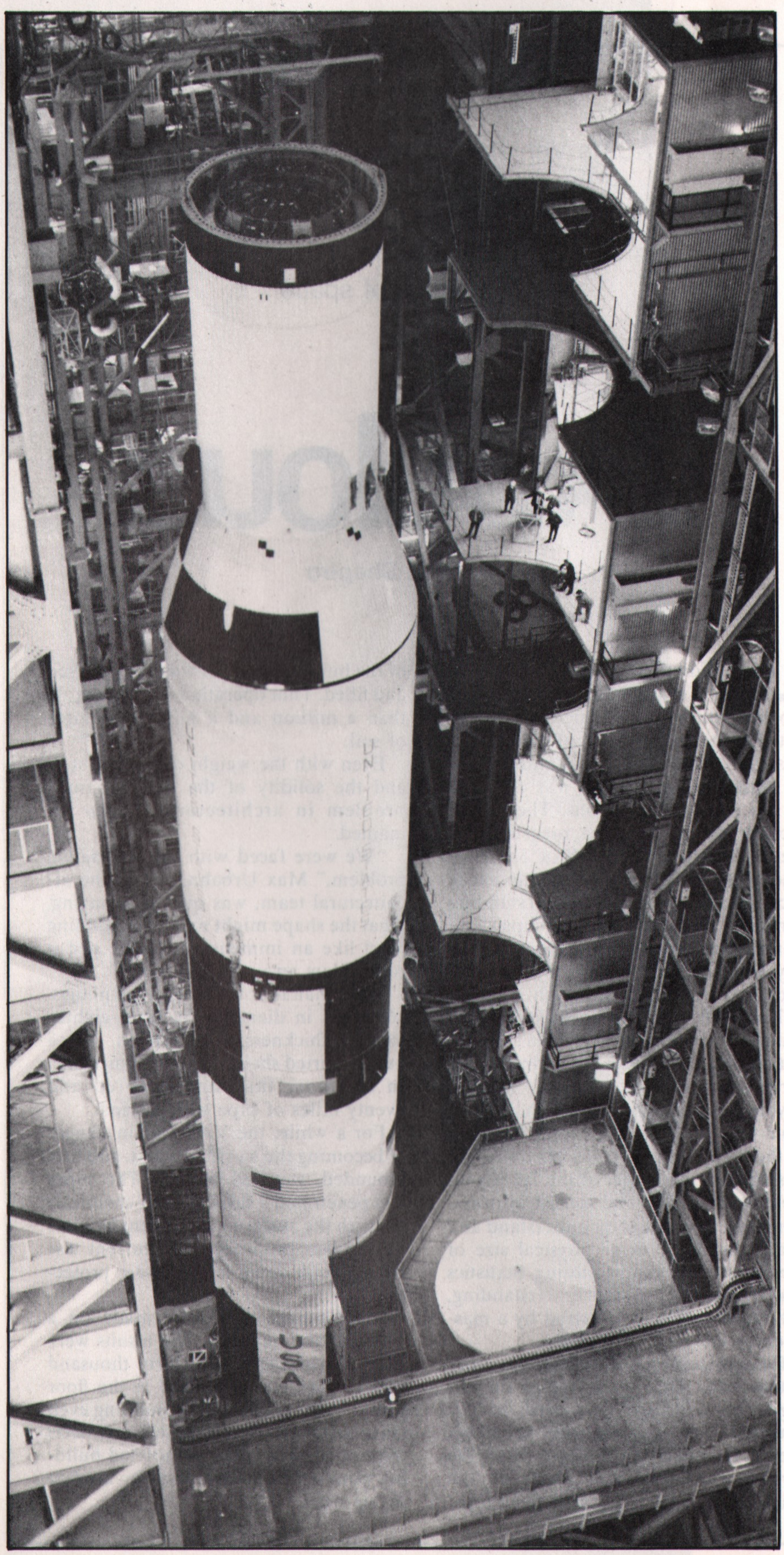
"We were faced with the fascinating problem," Max Urbahn, one of the architectural team, was quoted as saying, "that the shape might make the building react like an immense box kite, and it could blow away in high wind."

More than four thousand steel pilings, 16 inches in diameter by three-eighths inch in thickness, were driven into a deeply buried shelf of natural limestone. In all, more than one hundred and twenty miles of pipe were buried.

For a while, the VAB was in danger of becoming the world's largest, and best grounded, wet cell battery. The pipes had penetrated a salty layer of chemicals beneath the surface and current by electrolysis was produced. The current was finally neutralized by cathodic protection.

Wind tunnel tests were made on a model of the building. The results were still unsatisfactory. So, thirty thousand tons of concrete were used in the floor slab in order to anchor the building even more firmly. At last, NASA's architects were satisfied that the completed building wouldn't be wafted away by the first strong wind.

*With an inside height of 526 feet, the Vehicle Assembly Building can easily hold a Saturn V atop its launchpad and transporter. (NASA Photo)*



When one enters the VAB for the first time it is difficult to imagine any wind powerful enough to pose a threat to a structure of such mammouth proportions. Once inside, the visitor is not so much within a building as he is inside an environment of criss-crossing steel and dizzying dimensions. The ceiling is so high that, leaning backwards to look straight up, it is easy to believe that clouds could form way up there. As a matter of fact, such indoor weather would be all too feasible a phenomenon. To prevent just such indoor inclemency requires a ventilation system of 125 rooftop ventilators which force a complete change of air each and every hour.

The first step in the operation of the VAB facility occurs when a mobile launcher is carried into one of the high bays on the back of a crawler-transporter.

The mobile launcher, thought to be the heaviest portable structure in the Free World, stands 425 feet high and weighs in at six thousand tons, more weight than even Tennessee Ernie Ford might wish to sing about.

The transporter-crawler which carries this structure (and will later carry the Saturn V launch vehicle as well) is another monster. The crawler measures 40 by 114 feet and moves on four pairs of tracks, each of which is the size of a city bus, at a top speed of two miles per hour.

The mobile launcher, riding on the crawler-transporter, enters one of the high bays of the VAB through one of four bay doors. These doors, shaped like inverted T's, are each taller than the highest spire atop St. Patrick's Cathedral. A high bay door is composed of eleven leaves, each 50 feet high and 71 feet wide. The four bottom leaves slide horizontally open, and the top seven slide vertically. It takes nearly three-quarters of an hour to open one of these ponderous gateways.

The high bay is one of four within the VAB. Each of the high bays is capable of housing the movable launcher and the fully assembled Apollo/Saturn V.

Once through the doorway, the huge but agile crawler-transporter positions the mobile launcher atop seven-meter tall pedestals in the high bay area. This operation is performed within a two *inch* margin of error.

Meanwhile, the first stage of the Saturn V has arrived by sea-going barge. The first stage is off-loaded from the barge at the Center's turning basin. It is placed aboard a smaller transporter and is hauled, in a horizontal position,

to the Vertical Assembly Building.

The first stage enters the low bay section of the VAB, and continues through the low bay area into the long, high ceilinged transfer aisle. It is moved down the transfer aisle and positioned in front of the high bay which encloses the mobile launcher.

Gentle as an overprotective mother lifting her baby from the bath, a 250 ton crane raises the first stage 195 feet into the air. The crane passes the stage ever so carefully through an opening in the bay truss-work. Slowly and steadily, the first stage is lowered onto the deck of the mobile launcher.

The second and third stages arrive at the VAB and the low bay area. They enter two of eight different checkout cells that comprise the low bay. Each cell is equipped with work platforms that open to receive the stage and then close around it. Electrical and mechanical systems in the cells can simulate interfacing with other stages.

Inspections and checkouts are made on all three stages. These inspections range from visual examinations to delicate tests of each stage's electrical, mechanical and propulsive units.

The second stage is lifted, after the completion of the inspections, and carried down the transfer aisle. About halfway down the aisle it is gently lowered onto an adaptor ring which has been previously placed there. Once attached to the adaptor ring, which will mate it to the first stage, it is once more lifted. It is then carried vertically through the bay opening and placed atop the first stage on the mobile launcher. The same procedure stacks the third stage atop the second. Finally, the rocket's delicate instrument unit tops off the launch vehicle.

At this point, the brain of the VAB takes over complete control of all the myriad thousands of remaining operations. This brain, whose neuron cells are technicians and engineers interfaced with computers and monitors, is the firing room in the Launch Control Center.

The Launch Control Center is physically connected to the VAB by a corridor six stories above ground level. The Center is an eight story high building, divided into four floors. Offices and service areas, and a control center for launch support operations, occupy the Center's first floor. Telemetry and recording equipment are found on the second floor, along with facilities for computerized data reduction. The third floor is subdivided into four areas; each of which contains a firing room, computer room, mission control room, test conductor's platform and visitor gallery. The fourth floor is devoted to firing room displays and miscellaneous operating units.

The exterior of the Launch Control Center bears no resemblance to the primitive, conical blockhouses wherein launch crews controlled the firings of Explorer satellites and other early, unmanned space probes.

Ten and eleven years ago, control rooms had to be within three hundred yards of the launch pad. This limit was imposed by the then technical impossibility of transmitting hardline data and telemetry any further with the required high degree of reliability. Should anything have gone badly wrong, those three hundred yards would be nearly the same as sitting on top of the detonating rocket. Armor and underground construction, along with many other protective devices, had to be utilized. In those days, when even impeturable Walter Cronkite worried about his glass window shattering from the force of a launch, the launch crews had to be guarded against explosive hazards and toxic fumes as a matter of course.

As it had to do many times, the space program created a new technology to cope with a problem. Computer miniaturization and other electronic hardware was finally developed to the required level of sophistication. It is now not only possible to move the launch pad and control center far apart, but the components that made this feasible are now being marketed throughout the world.

Thanks to this technology, the Launch Control Center and firing room is directly linked with the Saturn V while it is undergoing preparation within the VAB and with the Apollo spacecraft being readied in the Manned Spacecraft Operations Building. It is also linked with them both after they have been transferred to the actual launch site. Due to technology which might never have existed without the space program, the crews in the firing room are able to monitor all phases of the testing and fabrication, countdown and launching of the supremely complex Saturn V and Apollo spacecraft.

Anyone with a television set must be familiar with the appearance of the firing room. The rows of banked gray consoles, covered with monitors, screens, readouts and charts are a picturesque maelstrom of activity and controlled chaos before a launch.

But a little known fact about the firing room is that it also plays an important guiding role in the actual assembly and checkout of the space vehicle long before it and the mobile launcher are moved to the launch site.

Once the third stage and the instrument unit have been stacked onto the vehicle, each of the Saturn's stages is connected to an RCA 110A computer in the base of the mobile launcher. This computer is interfaced with a second one located in the firing room.

By means of this Saturn Ground Computer System, the firing room launch crews are able to keep full and continuous watch over every checkout procedure taking place within the Vertical Assembly Building. Every function on each stage of the vehicle is checked and rechecked until both the launch crew and the designers are well satisfied that every critical component is operating within stringent tolerances.

The Apollo spacecraft has also been undergoing testing in the Industrial Area, five miles from the Launch Control Center. Once that too has been declared fit it is fully assembled and carried to the VAB on a transporter.

It enters the low bay area of the VAB. Like the first stage was, it is moved directly to the transfer aisle and lifted by the powerful crane into the high bay.

Tour guides gleefully tell the story that the crane operators must demonstrate their ability to lower an enormous, water-ballasted weight onto the shell of a raw egg—without scrambling the contents. This is more than a parlor trick. Every careful ounce of precision is needed as the Apollo spacecraft is lowered, at a snail like speed of 3 centimeters/minute, onto the top of the Saturn V.

It would be embarrassing, at the very least, if the top of the Saturn V instrument unit refused to mate onto the Apollo spacecraft. But even this unlikely mischance has been thought of. Before the spacecraft arrived at the low bay, a boilerplate dummy of the Apollo craft was lowered onto the top of the Saturn V. This boilerplate construction is the exact size and shape of the Apollo and tests the locking mechanisms of the top collar.

So, as planned, the Apollo spacecraft settles slowly and precisely onto the towering Saturn V. The completed Apollo/Saturn stands ready on the mobile launcher within the high bay of the Vertical Assembly Building.

Once again the critical components are

*turn to page 83*

# SUNRISE WEST

from page 20

"What?"

"I don't know, but it's there."

"Anybody see, hear?" The others shook their heads and Arlo turned back to the fem.

"It's there! A scout for this mune, I'll bet you gold. Or several. Let's move out. They've probably got the whole place mined. And that fence is four yards high, close mesh, concrete foundation, electrified without a doubt—look at those am-guards! An outfit behind something like is too big for us."

"Wrong. Like a snail, soft behind their shell."

"Soft! They're onto us already—probably moving in for the kill!"

"See that green in there, that irrigation ditch? Rich agrimune, and we need grub."

"We'll get fish out of Yubriv, and maybe a deer on the—"

"Flack your fish! I crave bread and fruit and vegetables."

"So do I," said Piers.

"Me too," said Henrick.

"M-me too," said Lonn.

Arlo took off his pack and checked his quiver. "Taking it. Plan. Henrick, circle that way, Piers, that. Note gates, openings, electric connections, breaks in the foundation, signs of life, anything."

She watched Henrick and Piers trot off. "You're playing right into the enemy's hand, Arlo; we'll never see those heads again."

But in 30 minutes or so, they did, and listened to their reports of the gateless fence enclosing woods and meadows and orchards and a white goat working in green fields and a winding creek and ivy-colored buildings nearly hidden behind huge oaks and weeping willows and lines of eucalyptus trees. When she heard of the skulls and other head bones scattered around the perimeter, she wondered if the bandimune had ten minutes of life left, or only five. "Let's split, Arlo; we can't handle this."

"Taking it; settling; turning agri. Henrick . . ."

"That's freaktalk, Arlo! They're not gonna let five scraggly bandits walk in and take over! What about those bones?"

"Henrick, you got a stick left?"

"One."

"Give. Plan: Cross am-guard, blow fence, surround buildings."

As Henrick rummaged in his pack she swiftly calculated her chances. Not good. If she split now and the Watcher didn't get her, one of her muneys probably would—a renegade was fair game in their bandimune. But the name of this caper was death; there could be 25 heads in there, all fighting mad. Not that they'd have to fight; this Watcher would never let Arlo plant that stick. Henrick now pulled it out and handed it to the Leader who hunkered down to prepare the fuse. If there was courage in Arlo's act it was lost on the fem. Courage made sense to her only when it led to survival. She decided to split; better to act on her own while she still could—in a couple of minutes she'd be wrapped up in Arlo's black streaks with these other heads.

With no movement except a slight head-turning she checked the available cover and picked her path. She'd have both sides against her, but surprise was in her favor, and if the Watcher went for the others instead of her and kept them busy . . . If not—well, she'd never expected to see 50! Still without noticeable movement, she tensed her leg muscles—the next time Arlo looked down . . . right . . . about . . .

*"AAAAAIIIIIIIIIEEEEEEEE!"* The scream froze her, froze them all—except Arlo, whose sprawled out form twitched feebly as his blood pumped in ever-decreasing spurts from his severed throat. The fem had heard much—but never before the paralyzing scream of a charging jaguar. Feeling as though she were moving underwater, she brought her bow up as the gold-and-black cat leaped away, while raking his claws across Henrick's throat in a movement so graceful and swift it seemed almost casual. The attack lasted only seconds, but she got her arrow away even though the cat was zigzagging out of sight like a streak of lightning—and hit, if the slight hiatus in his pace was any indication. She nocked a poisoned arrow, but he was too far. Had the last been poisoned, she would have had him! A bow twanged beside her. "Hold your fire!" she snapped to Piers. Lonn had come out of his trance only to go into another as he goggled at Henrick's gaping throat. Henrick's hands still plucked feebly at the green grass, but Arlo was now quite still. After carefully looking around, she pulled out her knife and dispatched Henrick. She wiped the blade on his leather breeches and straightened up slowly, thinking furiously. "We've got one chance. Get straight out of here." Sheathing her knife, she removed Arlo's money belt. It wasn't heavy. "All right. Get their knives and arrows. Move!" Lonn tore his eyes away from the corpse and he and Piers did as they were told. "Now, you follow me, Lonn. Three, four yards. You follow him, Piers, and keep a sharp eye out behind! You pay particular attention to right and left, Lonnie. Anything funny, let me know. If we're attacked, don't crowd. Keep apart and take cover. Let's go."

She led off to the west, approximately the direction they'd come from. If the killer-cat left them alone, she'd swing north a little later and when they were well clear of the fence, east again. With luck they'd make Yubriv in a couple of days. She stepped out briskly, scanning the landscape and tree branches with extreme care, and occasionally looking behind her. The back of her neck told her that the cat was still stalking—what was he up to? Who could predict what a jaguar would do—or any cat? And what kind of beings could elicit a cat's cooperation—nobody had been able to turn cats into facams or anything else. She felt a prickle of curiosity about the garden-like mune, but quickly repressed it. Flack 'em! Let 'em rot behind their fence! All she wanted to do was make Festival and hope for a better merge than this bandimune disaster. Still, if the jaguar made Festival it wouldn't hurt to say hello during Amnesty. The slinky-swift way he moved! The way his muscles rippled! Flick-flack-fluck, he'd be nice to pet, to play with and crawl over and put your arms and legs around—soft and hard, he'd be! She was glad her arrow hadn't been poisoned, and she even began to regret nicking him. She didn't have a thing against that cat; if anything she was grateful to him for killing those two fluffheads. But he wouldn't know that. He just might resent that little nick enough to follow her to camp tonight and swipe that razor-paw across her throat, even though they were no longer threatening the mune. Not that they ever had!

Her sharp eyes and ears missed nothing as they left the mune two three, four miles behind; there was nothing to see or hear, but still she felt that persistent prickle at the back of her neck. He must have realized by now they weren't interested in his flacking mune, so why wasn't he back there protecting it like he was supposed to? Was he going to follow them all the way to Mountain Camp? What was the brute after? Or was he after anything? Was he even out there? All she had was a sort of feeling, and what was that to go on? Just about everything! At least, every time she ignored it she got into trouble. He was there all right. Was it meat he was after, or their money and weapons maybe, for the heads back there? Must be handy having your weapons built right in! She stepped up the pace. Night was coming, always her worst time—pussy cat's best, no

***For her the past was a danger, for only by concentrating on the present could she hope to survive.***

doubt. He was probably waiting for dark to attack; maybe if they got far enough away from the mune he'd give up.

He didn't. At dusk the men were stumbly from fatigue and hunger, and their new Leader was feeling the strain too, with the dark coming, and the cat still with them. She began looking for a defensible camp—no easy task considering the lay of the land—and settled for a rocky knoll with a good many loose stones about. They scattered some more, and with the quarter moon and continuous watch . . . It was something—probably not enough. Night was the big cat's time all right, he'd move and strike silent and swift as the great horned owl. Well, he would do what he would do; fretting wouldn't keep him away. Her neck wasn't prickling now; maybe he was gone. She rationed out a chunk of half-moldy venison and a couple of swallows of water apiece, then assigned Lonn to sleep with her first (he needed comforting) and told Piers to take the first watch.

She embraced Lonn more warmly than usual and when he'd dropped off into a grateful slumber lay on her back listening to the night and looking up at the sky. After a time she stole out of the bag, looked around, spoke to Piers, pissed, and crawled back in. Wah! Lonn smelled bad, but the warmth felt good. She closed her eyes, opened them again onto the night. In the night, the black time—that's when they got you! She looked up at the little lights, the moon silver and the stars—some said they were a million miles away. What nonsense! Who could count to a million? She didn't care about the stars one way or the other. She wished it were morning, and this blackness gone. She wished they were in Mountain Camp. She thought of trees and green fields behind a tall fence, and as she drifted into sleep, wondered what manner of heads might live there with the big, tawny-black killer cat . . .

Then she heard the music.

And opened her eyes.

And knew.

## 2

She didn't know it was music at first. Sleeping, it was part of her dreams; half-awake, eyes still closed, it was part of her slow return to consciousness. Images of the fence, their cave at Rey, Glendella, the rape, and disgusting, false horror-scenes of namune days flicked through her mind. The music was playing them all, and playing her hunger and even this pain throbbing in her right leg;

it was playing her. Sleep sucked her down; she clung to the hunger and pain, buoys of awareness, her struggles mirrored in the music—and slowly realized that she wasn't in her bag, wasn't on the ground, wasn't even outdoors, and . . . wait . . . it wasn't a part of herself after all—it was music!

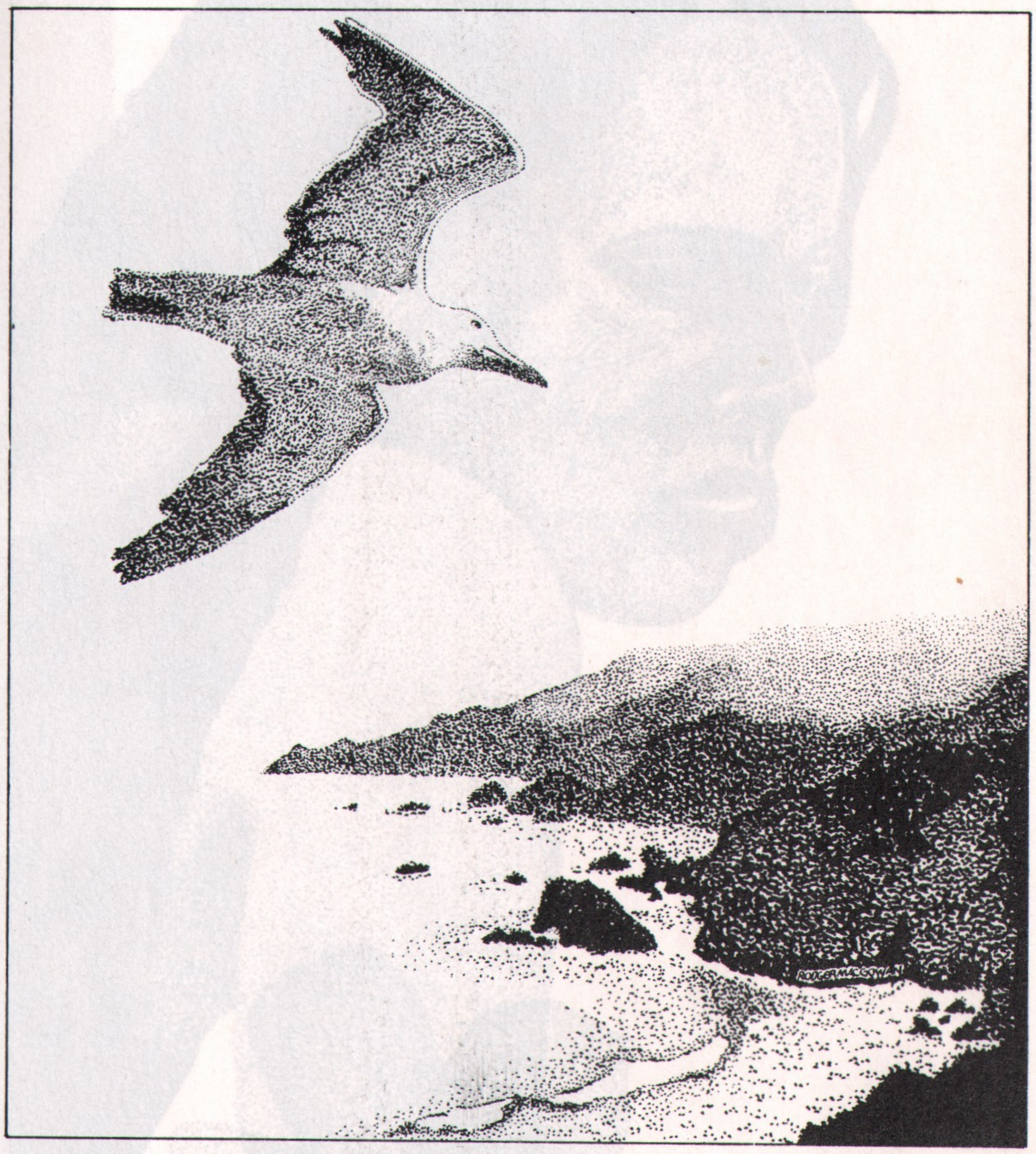
She opened her eyes, looking for the musician, but forgot about him as she stared up at the two remarkable beings looking down at her. One she'd met before, the square-jawed, thick-muscled tawny cat with the black rosettes, standing, now beside her low bed with his right foreleg uplifted. She noticed a leather band on his left foreleg, and a bandage wrapped around his left rear one. But this other being she had never seen, this black giant smiling down at her from the foot of the bed . . . Hairy Chronos, what was she into now? She closed her eyes, just for a moment.

Opened them. The cat was there. The giant was there. Her leg throbbed—there was a bandage on it. Her belly growled. She was alive. It was all real. They hadn't killed her, meaning they were after something. She looked around the room, noting the exits, uneasy, but holding terror at bay. The jaguar's foreleg descended, rested lightly across her belly and loins. Oh. She put her hand on his leg, feeling powerful muscles under velvet fur, then tried to smile up at the black giant, but couldn't quite make it. He could wring her neck with one hand, and this cat could rip his claws across her belly so fast . . . She looked again at the huge head who seemed to fill the room. He stood still as a statue, arms folded across his chest, legs planted firmly apart. His skin was black, his nose broad, his teeth very white; he wasn't wearing a shirt and his arms were enormous, and his chest was enormous, and his hands were enormous, and—she tore her eyes away. *He couldn't be that big!* She unconsciously held the cat tighter as she turned back to him and gazed into his wild yellow cat-eyes. He pressed lightly down on her, opened his jaws, and slowly dropped his right eye in a long, drooping wink. She laughed in spite of herself, punched him gently on the nose, and turned to look at the giant again as the jaguar sneezed. *He was.*

"Welcome. You've already met Marl, that's Rafello playing and they call me Jonno."

His voice was rolling thunder. She stared at the bulging front of his deerskin breeches as the music began to throb to harsher chords and a less subtle beat. Now, that was something. Then she let

***They had come a long way to find death, but their death had freed Nita for a new life, if only she could learn to live it in harmony with her new companions.***



her gaze wander up his glistening ebon body to his eyes, which were brown, and extraordinarily gentle, almost like a deer's. His eyes projected serenity and peace, his body action and power—but somehow these forces seemed not contrasting, but reconciled in Jonno. "You're—big."

His laugh seemed to come from the heart of the world; it rumbled from wall to wall. "You're little. But you're welcome anyway!"

"Welcome." Wasn't a word one heard often—or said. "I didn't feel very welcome last night. It was last night?"

"Yes. Marl is not fond of visitors who try to blow the fence."

"I noticed. You're pretty good with those claws," she said to the jaguar.

He lifted his paw and extended them for her. She touched one gingerly—and shivered. Marl retracted, and with infinite gentleness passed his sheathed instrument of death over her shoulders, breasts, belly and legs as she lay perfectly still under the light coverlet, eyes closed, completely surrendered to the sensations shuddering through her as the music wailed. The great cat licked her once under the chin with his rough, supple tongue—and was gone.

The music modulated into a series of tranquil chords, and her agitated mind gradually calmed. When she opened her eyes again, Jonno said, "Marl likes you."

"I like Marl."

"He likes you so much he led me to your camp and had me put three sleepy-darts into you and your mun—your former muneys."

She touched her bandaged leg. "So that's it."

"Yes. We left them secure, with a note suggesting they move on when their dart

wounds heal."

"Would've been easier to kill 'em. They can't read anyway."

"A picture note."

"Never mind them. You carried me here?"

"You're not heavy."

"I take it we're behind the fence?"

"Yes."

"And you bandaged my leg?"

"Yes."

She put her hand under the coverlet and fingered the bandage, then the shift he must have put on her. "My buckskins are off."

"It was the only way."

"What did you think?"

"Little. Nice."

"Where are they? And my knife and bow and quiver?"

"All safe. You'll have them when you're able to move."

"I want my knife now."

"In good time."

"How long have I been asleep?"

"Twelve hours."

"What did you do besides bandage me?"

"Gave you a bath."

"A complete one, I'll bet."

"I try to be thorough."

"Huh! Where'd Marl go?"

"Patrolling. He looks after our visitors."

"He sure does. Uh, does he—do you bring many across the fence?"

"You're the first in years."

"How many males here?"

"Just the three you've seen."

"How many other fems?"

"Two."

"Heads, or—"

"You'll see."

"You want me to merge?"

"We don't speak of merging."

"You just want my body then? Is that it?"

"I wouldn't say that."

"Look, you captured me—now what the flack do you *want?*"

"Nothing. You can leave as far as I'm concerned."

"Marl likes my smell. He might have other ideas."

"He won't stop you. That leg will for awhile though."

"How do I get over the fence?"

"Eight hidden switches, four inside and four out. And see this?" Jonno pointed to his leather wristband. She had already seen it, but now noticed the tiny bulb on it as well. "This is a double check. If this indicator light doesn't glow when held close to the fence, the current is off and it's safe to climb."

"Handy."

"Raf's design. Each of us has one of these; if you stay, you will too, and you'll learn the switch locations. If you don't, we just shut off the current and over you go."

It was some kind of trap, of course. "You sound like you mean it," she said cautiously.

"Try me."

"You are one weird Leader."

"I'm no Leader."

She sat up straight, took a minute to digest this. "Who is?"

"Nobody."

Three minutes—and it remained thoroughly indigestible. A mune with a Leader . . . Did deer run around without heads on their shoulders? What kind of freak outfit was this? "The more questions I ask, the less I understand."

"Stop asking then."

"Stop living."

"Start!"

She leaned back, suddenly conscious of the music, now confused, chaotic. "Does what's-his-name *ever* stop playing that thing?"

"Rafello. Rarely. He finds his now in it."

"His what?"

"You heard me. Listen!"

She did, and looked more closely at the musician, an ordinary-looking head with black hair and beard and light-brown skin, concentrating intently on the keyboard and strings and levers and switches and glowing dials of his complex instrument. Now as he sensed her awareness his ten fingers seemed to become 20 or 30 as they flew over its keyboard and manipulated its levers, and the interweaving melodies and harmonies so perfectly reflected her half-formed doubts and questions that she shivered, and then shivered more as deeper regions of mind flashed momentarily into consciousness, visions from dramune and indy days, and then fast-flicking images of subtle horror that could only come from . . . No. No, no, no! Her panic broke the spell, driving out all images. When she became conscious of the music again, it was quite different. It no longer seemed to be reflecting her mental state or pulling freaky things out of her mind; now it almost seemed to be putting something *in*—gentle tingles of pleasure were already shooting along her nerves as she willingly surrendered herself to the music's gentle leading. The progression was from discord to harmony, from confused, broken-off bits of melody to a full-fleshed song of serenity and joy. Immersed in the sound, surrounded by it, flowing with it, she became so intimately aware of the music that the notes seemed to be coming right out of her own body. Confusion and doubt melted away as the song of herself moved toward its inevitable end, and the tingles of pleasure were submerged in a warm, rapturous wave of joy.

But she had scarcely savored this marvel when the music began to move in yet another direction, and of course she followed, being completely in its thrall. Now to her wonder it led her mind to that special state of rosy blankness from which she could see beyond her eyes, the state usually so difficult to attain, given to her now, a gift of Rafello's music. She watched in amazement as Jonno's aura began to reveal itself, and despite the music, despite her intense desire to see more, the shock of it jolted her so badly that the aura disappeared, and she could not bring it back. Had she really seen that incredible thing . . . For Jonno's aura seemed to radiate not only from his head, but from the whole upper part of his body. She had never seen an aura that was not a complex skein of interweaving colors, but except for a pale violet nimbus and one thin transverse streak of purple, Jonno's was pure white! What could it mean? Lighter colors were always harder to interpret than darker ones, which indicated sickness or powerful emotional states or upcoming disasters. Physically, lighter colors usually indicated health. In some combinations white meant black's opposite—life, long life. In others it meant absence of strong feeling, passivity. And now she remembered that Glendella had once told her of an ancient head of 50 years whose aura had been pure white. "He lived in a cave," she'd said, "an old, old, soul." Whatever that meant. She tried to put it all together. An all-white aura would mean—what? Some kind of freak, was all she could figure. But there he stood—big, black, solid flesh and bone. Maybe she hadn't seen it. And yet Rafello's music bathed flesh and bone and the mind's own hidden places in strange new lights. She became aware of it again now as it modulated subtly into meditative melodies and harmonies, and she looked with awe at the musician. "Rafello, you, you . . ."

Rafello's smile and his puissant glance left her speechless. All the force of his being seemed concentrated in his black eyes—his look penetrated her through and through; she was glad he usually kept his eyes cast down. She also began to understand why he never spoke—he

***"Big as he was, he moved like Marl—fast and quiet. How long would he be gone? What would he bring back?"***

had better ways of communicating.

"Now," said Jonno, "you haven't asked a question for nearly an hour. Do you feel you haven't lived?"

"I feel . . . I feel like swallowing the world!" She kicked off the coverlet, smiling up at the giant as he smiled down at her open body, and draped her legs over the side of her low bed.

"Careful! Your leg isn't—"

"It's all right! I want to see what this place—*oooooowwwwww!*" Free to go, was she!

"Is it that bad?"

"No, I just like to scream. What d' you think, you slab-sided hulk?" She lay back down, shoved the hem of her shift between her legs, pulled up the coverlet, and looked straight into his meditative eyes. "What's the matter, don't your fems have blonde short hair?"

Jonno spread out both his hands. "You will find," he rumbled calmly, "that it is very hard to irritate me."

Her green eyes sparkled. "We'll see."

"That we will. As a matter of fact, they don't."

"What color is it? Where do they live? Do they live together? What are their names?"

"Gaya and Kay-Nelle. They don't always live together, but they're the best of friends. You're on your own for the rest—like everyone else here."

"How can you be on your own in a mune?"

"You'll see."

"I'm hungry; I suppose I've got to crawl out and knock over a porcupine?"

"You could, but we've got no rule against feeding the hungry. Come to think of it, we've got no rules at all!" Jonno broke his rock-like stance and walked out the door.

Big as he was, he moved like Marl—fast and quiet. How long would he be gone? What would he bring back? She felt hungry enough to eat a handful of raw tadpoles, definitely not her favorite, though she'd been reduced to it more than once. Maybe he wouldn't come back at all.

But he did, and quickly, carrying a big wooden tray. She had no idea what those interesting lumps under the cloth were—certainly not tadpoles. He handed her an earthenware bowl of something-or-other swimming in rich milk, and a wooden spoon. She dipped the spoon in, raised it to her lips, hesitated.

"It's not poisoned."

Which was exactly what he'd say if it were. Sweat oozed.

"Believe me."

"Sure. And die."

"We could have killed you any time; why should we poison you now? You're hungry; you asked for this food. You've got to eat."

"Why are you trying to force me?"

"All right." He reached for the bowl.

"Just a minute!" She swallowed her spoonful—some kind of nutty-tasting whole grain mixture—and glanced at him. Waited. Nothing. She dug in. Jonno took her empty bowl and replaced it with another of savory porcupine stew, and when she'd spooned up the last bit of gravy, he brought a plate containing a knife, a small loaf of fresh-baked, fragrant wheat bread, butter, two kinds of cheese, a small pot of honey, and a jug of raspberry jam—with a cup of milk to wash it down. She finished it all and held out her plate. Jonno grinned, and came up next with a bowl of canned oranges, apples, peaches, plums and apricots, all mixed together in a delicious, spicy syrup. She was a little slower getting to the bottom of this one, but finally made it and bravely held out the bowl once more.

"Amazing," murmured Jonno as he handed her a plate containing a large piece of apple-apricot cake covered with whipped cream and two slices of rich, dark bread filled with dates, walnuts, almonds, and raisins, and then passed her a large mug of steaming, fragrant herb tea. She took her time and finished it down to the last crumb—beyond all doubt the best food she'd ever tasted. Then she licked her fingers, and burped. "Pretty fair grub—"

"Pretty fair appetite—"

"—except I like a little more meat."

"—once you got past that first bite."

"Now don't tell me Marl's a veggy."

"Hardly, but Gaya is, more-or-less, and Raf here gets along on a little milk and fruit twice a day, but Kay-Nelle and I eat any extra game Marl brings home, and you're welcome to it too—or maybe you'd like to hunt with him when your leg's better."

"Maybe. You don't raise any ams for food then?"

"No. What am in his right mind would stand around and be raised for food?"

"Flacking few. But up in the mountains last summer a mune we raided had a bunch of chickens imprisoned—for killing, I'm sure."

"We've got chickens here, and cows—but Kay-Nelle asks permission every time she takes an egg or milk, and as to *eating* them . . ." He shuddered. "How can they kill ams they know? I don't even hunt any more, except on trips, though of course anything outside our fence is fair game, and I do enjoy eating what Marl brings home."

She looked at his enormous frame. "I'll bet. Speaking of game, that porcupine stew was delicious."

"Wasn't porcupine—all Marl's brought in for the last two days is the big game you were acquainted with."

"Oh. It must have been Henrick; I can't believe Arlo would've tasted that good."

"It was the one with the bad feet; Marl ate the other."

"Well, you never know! I'd like to try a steak."

"Sorry. I cut the best parts into stew meat, and Kay-Nelle made the rest into headburger and sausage."

"Probably just as well. Did you notice his liver by any chance?"

"Yes. I buried it."

"I wondered. He was looking kind of yellow." The fem rubbed her belly contentedly and her eyes half closed as Raf played lulling sleepy-music and Jonno neatly stacked the dishes on the tray. She devoted a wisp of thought to Piers and Lonnie—holed up somewhere, nursing their wounds, puzzling over the note. They'd soon be on the way to Mountain Camp—if they could figure out the right direction! Good riddance, comrades! Well, maybe these freaks would cook and eat her for breakfast, but right now she felt kind of warm, and sleepy, and her leg even felt better, and—

"One thing before you sleep."

"What?"

"Your name."

"What about it?"

"What is it?"

"Oh. They call me Nita."

She was walking in two days, running in three, and patrolling with Marl in five. Nobody told her what to do, but after a look at Kay-Nelle in her house, dashing from loom to stove to potter's wheel to smoke house and back to loom, and a look at the big orchard and garden with the white goat toiling up and down the rows, and after observing Jonno's aimless meandering around the mune, playing with squirrels or birds or otters, or bending himself into all manner of weird shapes, or beating drums to Raf's music, or just listening to it, or helping a bit in house or garden, or mostly just sitting around doing nothing, Nita decided that if she had a place here, it was out ranging the woods with the big cat. He was the only one who seemed to enjoy her company anyway. Raf just played and played, Jonno practically ignored her once she was up and about,

***"She felt hungry enough to eat a handful of raw tadpoles, definitely not her favorite, though she'd been reduced to it more than once."***

Kay-Nelle—as gaunt, ugly, and scarred-up a fem as Nita had ever seen—wouldn't even talk to her, and the mysterious Gaya was nowhere to be seen.

But hunting-patrolling with Marl was an occupation which pleasured them both very much—though the cat was puzzled by her refusal to enter the woods at night, while she bitterly resented the restrictions he worked under. The fourth day out they were about six miles southwest of the fence, working a couple of hundred yards apart in live oaks and manzanita, when she saw an old indy stumbling along downwind, still unaware of her. It is true he was heading away from the fence, but sometimes an indy would surprise you with a nice little pouch of gold—sure wouldn't cost much to find out! The old head's pack covered her favorite vital spot, so Nita changed her plain arrow for a poisoned one, quietly moved up on him, and drew a lovely bead on his rear end. But the jaguar was on her—not in time. The arrow, deflected upward, thudded into the head's pack and her bow went flying as Marl batted his new hunting partner to the ground. Catlike, knife in hand, Nita was ready to spring as soon as she landed—but quickly thought better of taking the jaguar on with just a sticker. "Why you miserable, flacking . . ."

But her voice was drowned by Marl's ear-shattering scream as he leaped toward the indy, who was trying to fumble an arrow onto his bow. Shrieking like a thousand fems in labor, Marl seemed to cover half the distance in one bound. It was altogether too much for the poor head, who dropped his bow and arrow and struggled up the nearest oak—which was like trying to get away from a shark by jumping into the ocean. But the cat skidded to a stop and turned back to his partner, who was nearly doubled over with laughter at the sight of that senile old indy trying to get away with her arrow sticking out of his pack. Thinking Marl was just having a bit of cat-fun with their victim, she nocked another arrow—only to be ungently slapped to the ground again. She held onto her bow this time, and renocked and drew on Marl almost before hitting the ground, but was disconcerted by his failure to defend himself. He just stood there, slowly shaking his great head.

Killing him would mean going indy. She didn't really want to kill him anyway. She lowered the bow. "All right, but I'll not be knocked down every two minutes! What's the matter with you? He *might* have a bit of gold, and it's sure easy meat."

Marl then explained by unmistakable pantomime that they were only to attack heads who were direct threats to themselves or to the mune.

"Now whose idea's that? Jonno told me you didn't have any laws."

The cat tapped himself on the chest with a muscular foreleg.

She got to her feet, shaking her head in bewilderment and disgust, and looked up at the treed head. He was looking down at them. "Why should a head be treated different from any other am? It doesn't make sense!" Marl got a half-stubborn, half-stupid look on his face, and Nita felt almost mad enough to put an arrow into his left eye, but after stamping her foot a couple of times and punching him—not so gently—on the nose, she felt better. Marl sneezed twice. "Well, let's get us a nice fat doe then; that head would've been a stringy bugger anyway." But they hadn't gone three steps when she stopped abruptly. "My arrow! He's got my arrow!" They ran back, but Nita stopped about 20 yards from the tree.

"Don't kill me," moaned the indy, through quivering gray whiskers. "Here!" A meager little purse plopped to the ground.

"Just throw down my arrow! Don't scratch yourself; I don't want to waste that poison on you."

The old indy twisted around his branch, trying to get at the arrow shaft—and fell out of the tree, landing more or less on all fours. Nita put her foot on his rear end, flattening him to the ground, and jerked out her arrow. "You wonder how they last," she said to Marl as they moved off, "that old flacker must be close to forty."

"Arrrrrrrrgggggghhhhhh," said Marl.

They got a sow and three piglets instead of a doe, which suited them both just fine, and after their own meal, Marl went back to work while Nita took a hindquarter to the wisteria-covered log house where Kay-Nelle cooked and canned and pickled and dried and smoked various things, and made pots and plates and baskets and paper and wove cloth and carved spoons and tanned skins and sewed clothes and made candles and carved statuettes and painted pictures and on and on. Kay-Nelle's door was open and the livid scars on the left side of her face and neck turned pink as she accepted the haunch with a hurried "Thank you," and turned back to her whatever-it-was—but Nita growled to her ramrod back, "You come here and talk a minute, or I'm gonna walk in there and smash that loom!" Kay-Nelle's tall body whirled around, and Nita licked her lips in anticipation. This was more like it!

"Say arrrggh!"

"Go ahead."

"I—w-what?"

"You heard me. You'll find an axe in the entryway there, right behind you."

Nita hefted the axe. These muneys were either total freaks or flacking good bluffers. "Uh, I won't have to now—we're talking." She set the axe down. "What's the matter with you anyway? I'm *in*, Kay-Nelle—dragged in—shouldn't we make the best of it? I won't bother your . . . your . . ." She gestured helplessly at the creative clutter in the huge room.

Kay-Nelle's hands were never still; she rubbed them now over the smoothly polished wood of her loom, and fingered the fabric on the frame. "Nobody's keeping you here."

"I *like* it here! Weird as it is—no Leader, no proper merging, no rules. I like helping Marl."

"You would; you're violent, like him. You kill."

"Everybody kills."

"I don't! My mother didn't! Even when she and all my namuneys were killed by that bandimune, and all my carvings and pictures stolen, I didn't—"

"Is that how you got that?"

Kay-Nelle touched her scar. "Yes. And even then I didn't kill or want to kill! I've never killed! I hate violence!"

"And you're alive," marveled Nita.

"Jonno and Raf were traveling then; they came by and picked me out of the ruins, and we traveled long, and after awhile we settled here."

"There must have been killing when you took this place over."

"Yes, but not by us! Or at least not much. Two big munes had almost destroyed each other for it. We just walked in."

"I'll bet."

"We did! But it was horrible, the dead and the dying, and the fence and buildings and crops torn up. There was so much work! They had let the fence go, you see; the sun batts were broken down, and there was no more power. But Raf is a genius! There's nothing he can't fix or build! And we had horses then, and you could still get some facprods. Rafello figured it all out, and drew it on paper, how to repair the batts and all the electrical things, and it all worked out. But we had to sweat."

"I believe it."

"Now he only makes music."

"Surely he keeps the fence working."

"He taught me how to do the routine maintenance years ago. If it broke down . . . I don't know. It hasn't for three years."

"Jonno doesn't do much either."

"I believe he thinks a lot."

"When did Marl come?"

"Our second year. As a kit. After—after a trouble I had. We never found what happened to his namune. I raised him until . . . until he got big."

"A trouble, you say?"

No answer.

"All right. But at least tell me who and where Gaya is."

"Gaya is gentle and beautiful."

"She's that goat out there, isn't she?"

"Look, my rhubarb's boiling over—I've got to go—thanks for the meat." And she dashed back to her stove, loom, etc.

Nita walked thoughtfully out to her hunting partner, puzzling over the strangeness of this mune.

And she puzzled more as spring melted into summer—days longer, sun hotter, grass drier, creeks lower (even their own spring-fed one)—and got no more information out of Kay-Nelle. Or Jonno. Or anybody. Kay-Nelle's explanation had raised as many questions as it had answered, but what bothered Nita more than anything as she continued to hunt and explore with Marl was sex. Lack of.

She hadn't expected Rafello to get his nose out of his instrument long enough to stick it into anything else, but Marl had seemed interested enough on that first day—and would Jonno have given her such a thorough bath if he hadn't liked the look and touch of her? It wasn't as though she hadn't given them a hint or two, by slipping off her buckskins and cuddling up to them while they were sleeping. Jonno told her right away she was wasting her time, but she had to try anyway, and after a fruitless 15 minutes of her most artful efforts, after which he'd said, "You see?" and gently pulled her up beside him, letting her snuggle against him for the rest of the night anyway. Twice more she'd tried to give him a little hint, but both times he had allowed her only to sleep with him—no more. As to Marl, he was more difficult to get at, of course. But at least he was interested enough to smell and lick her—but she couldn't take too much of that either—his tongue was too rough!

So what with this and that, the young fem found herself pretty horny as she and Marl ranged up to a dozen miles from the fence, the cat acquainting her with every creek, every spring, every hideout and good ambush tree, and of course all the hidden switches—those that controlled the fence itself, and those that blew the charges planted all around. He and Jonno seemed to trust her implicitly, which didn't make sense. She wondered if they were setting her up for something. And yet except for her steadfast refusal to work at night, she was an excellent pupil, and quickly learned everything inside and outside the fence, until, like Marl, she could not only find her way around with absolute certainty, but began to develop a higher sensory feeling about the area, so that when something was out of whack, she felt it immediately. This feeling was so developed in Marl he could even tell the general direction of the strangeness—thus when the 15 member bandimune came, they quickly located and scouted it—and Nita began to appreciate the real value of the fence. It was a total deterrent only to indys and very weak bandimunes, but it was a delaying factor even to a big, well-armed outfit like the one looking it over now, and the mune's defensive strategy was based on this. First, it gave Marl time to notify Jonno; second, it forced the attackers to step somewhere close to the charges which were hidden all around the fence. Unfortunately, when the bandimune's Leader made his decision to attack, they were midway between two charges, so while Marl manned the switch, Nita tried to lure the heads closer. But they were not dealing with the likes of Arlo now; the Leader sent no one after her even when she managed to pick a head off with a poisoned arrow. He posted an extra lookout and went right on planting his own sticks. When Jonno was in position, Marl blew one charge, hoping to drive the bandimune closer to the other—but again they stayed put, so he blew that charge too, and in the confusion, Nita and Jonno poured arrows into the main mass, while Marl picked off those that broke and ran. It was warm work for about 15 minutes, but Nita's deadly little arrows and Jonno's great four-foot shafts and Marl's slashing claws soon equalized things, and in less than 30 minutes the jaguar was dispatching the wounded while the other two collected equipment and picked out the fattest, healthiest heads. Condors, vultures, coyotes, crows, and magpies would handle the rest; Marl liked a few bones lying about—they wouldn't dissuade anyone really formidable, but they turned away an occasional small band, making a bit less work for the defenders. They worked till dark getting meat and equipment behind the fence, filling in the holes, repairing the am-guards, and replacing the charges—and Nita no longer wondered that these few muneys had successfully defended the mune for so long, because Marl was

***Outwardly Gaya had the calm demeanor of a goat, but inside she was nothing but a mass of hatred for this new being who had broken the calm pleasure of her lifestyle.***

an absolute terror, and although Jonno's bow work wasn't perfect, still he fought and worked with such intensity, intelligence, and strength that he was the equal of at least five ordinary heads. She got a kick out of being a defender—but it wasn't doing anything for her sex life. She even wondered that night, as she snuggled down in bed, drowsing to Raf's music, if it wasn't time for a fem to be moving on, and maybe finding some muneys with a little less freakiness and a little more balls.

Marl (who slept only in 30 or 40 minute cat naps) awoke her just before sunrise next morning with a soft-pawed caress and a loving lick—but walked to the door when she reached for him. However, his winking eyes and grinning jaws indicated that something was up, so Nita jumped out of bed, put on her buckskins, and munching a little cold roast head, followed him to Kay-Nelle's place, where Jonno said he'd look after things for a couple of days while they were gone. "Where're we going?"

Jonno looked at the cat, who held his paw over his mouth. "Surprise," said Jonno. But it wasn't for long—in a few miles she'd figured out he was probably heading for Yubriv, and so he was. They had lots of fun killing and eating a boar on the way, and as soon as they saw the water's sparkle Nita stripped and they had a fine, wet time catching trout and chubs and ducking each other and having swimming races in a deep place they found and running and tree-climbing contests along the bank and wrestling matches in and out of the water. Marl won everything except when he let her win—not that either of them cared. When at last the sun's slanting rays set the rainbows leaping for bugs, the frogs croaking, and a couple of hungry kingfishers rattling across the water in search of a meal, Nita and Marl took their ease in a grassy place along the shore, Marl with his great, squarish head resting on his outstretched forepaws, hind legs tucked under, tail neatly curled around, and Nita with her hands behind her head, legs outstretched, half-reclining with upper back and head resting against the jaguar's black-and-tawny hide. She had played hard all day after a morning run of 20 miles, but felt no stiffness or soreness, just a pleasant lethargy now in the evening light, listening to the mounting chorus of frogs and cicadas, and feeling the meadow grass under her, not complaining at all about her weight, and the comforting feeling of her naked back against the big cat's warm hide, and its soft rise and fall. The dark was com-

***"Nita considered livening up the conversation by drawing her knife and pricking a haunch—but resisted the impulse."***

ing, but she guessed she and Marl could handle it. Now and then the cat stretched his head lazily around and casually licked whatever part of her was within reach, and in return Nita reached up her right hand and scratched and petted the base of his ears and the underside of his muzzle, caresses that he dearly loved.

Nita heard and smelled many ams scurrying and snuffling behind them in the woods, getting settled for night—a porky, a coon, a skunk, squirrels, rabbits, turkeys, and quail. Many a delectable mouthful, but she wasn't hungry, and neither was Marl, because his sensory range extended further than hers, and he was making no move. Now she draped a lazy hand between his ears and down his short, wide muzzle to his nose, which she mischievously pressed until he sneezed. She did it again, and again, and again, finally provoking the lazy cat into retaliation, because he did value his dignity. But she quickly wriggled out from the muscular foreleg that pinned her, got a headlock on Marl, and tried to roll him onto his back, because suddenly a wave of hot, violent desire flooded through her and she was determined to get at the part of him she craved, although of course she knew a 110 pound fem cannot roll a 260 pound jaguar onto his back. Unless he wants to be.

He looked like a little kitten with his paws up in the air. His back involuntarily arched and he flopped onto his side as one of Nita's knowing and relentless hands caressed and squeezed him. When he didn't roll back onto his stomach Nita knew that this was to be the time, and in another couple minutes of her urgent manipulation he began to react and the fem, in a sexual frenzy, rolled him over on his back and straddled him, working at him until the big cat too was beside himself—and unable to endure the unnatural upside down position any longer, he rolled over and reversed while Nita, under him with legs spread wide, arched herself up to meet him. Nita had one moment of fierce female pride—before she fainted.

Waking to moonlight, and the uneasy night, and the feel of Marl's flexible, raspy tongue on her face, she pushed him away and sat up somewhat dizzily. The concerned cat was still trying to lick her. "Marl, don't! Your tongue's like a sharpening stone!" She felt her body, realized he had been licking her all over—she would have a rash tomorrow! But she said nothing more, knowing he had done the best he could. Blacked out! Over a little sex! That was a new one. But having a jaguar inside her was also something new. She looked around, shivered—and not only from cold. Night was the fearful time in a strange place, and she was more-than-usually thankful for Marl's presence. "Hey, come here." He stalked up to her, eyes gleaming like great yellow gems in the moonlight. They hugged and kissed. "You horny flacker, you saved it up, you blasted me right out of my mind!"

Marl could not deny it.

"Listen, let's go soak awhile before we sleep." She slipped in, holding to a root which kept her close to Marl, who remained on the bank. The water felt like a mountain snowdrift, but she stayed in till her teeth chattered, knowing she would feel better for it tomorrow, and that the rash from Marl's tongue wouldn't bother her so much. They made a cozy bed in the grass, and then she was glad Marl had stayed dry—he was towel and bed-warmer all in one. Nita instinctively knew there would be no more sex that night, perhaps for many nights. That was Marl's rhythm, and now that they were finally grooving, she knew better than to tease him about it. She'd had a somewhat different idea about a male cat's sex life, but cats were like heads or any other am—every one different. She snuggled drowsily up to Marl's soft warmth. He might not like her tomorrow, might turn against her, but for now, she couldn't complain.

Sleeping with Marl was a one-eye-open affair—30 or 40 minutes was as long as he would go without a little prowl and sniff around. He usually spent five or ten minutes investigating, then returned for another nap. Since Nita habitually woke up every hour, or every 30 minutes if she felt danger close, this nocturnal rambling didn't bother her too much, and she felt almost safe with Marl between her and the threatening dark.

Next morning, more fishing and swimming and playing around—then, with the inner knowing that seemed to be growing between them, and which transcended clumsier forms of communication, they knew it was time to leave, and a steady run brought them to the fence at dusk.

When she saw it, Nita felt a tight, hot ball forming in her chest, and strange, warm waves radiating to the top of her head and the tips of her toes. It was a good feeling, but she fought against it. You did not stay alive by feeling attachment for places or living beings—that knowledge underlay everything she had learned about survival in 19 years. So as she and Marl slipped through the oaks toward the belt of orchards, fields, and gardens surrounding the big weeping willows and wisteria-draped buildings, she tried to exorcise this dangerous feeling that she was coming home to a good place. Nita had never felt so strongly about a place before, but she had about certain beings, Glendella for one, but she had always snuffed such feelings out—and the fact that she was still alive proved she had been right to do so. Anyway, there was so much she didn't understand about this mune . . .

They topped a rise and saw the white goat sniffing around her tomato plants—she almost seemed to be eating the leaves, which made no sense. Nita decided to go down and solve the mystery, along with the larger one of who the goat was and how she fit in. "You find Jonno, Marl—I've got something to do." The jaguar immediately placed himself between her and the goat. "Unh unh," she said, leaping lightly over him, "just go tell Jonno we're here—I'm gonna find out about this critter." Again he moved in front of her, but this time she merely side-stepped and continued toward the goat, who was taking absolutely no notice of them. Marl didn't try to stop her again, but a quick glance behind showed he wasn't leaving to find Jonno either. Nita resolutely advanced on the goat. She had been wondering about the sleek white am with the gleaming black horns ever since first seeing her working in orchard and garden with equipment obviously designed just for her—planting, watering, mulching, and lately, picking peas and strawberries. And never a glance toward Nita, no acknowledgement of her greetings—nothing. The goat moved slowly between the rows of tomato and pepper plants, and now the fem saw that she was licking off and eating hornworms and certain beetles, while leaving spiders and ladybugs on the vines. "Hello!" said Nita, picking off a fat, three-inch hornworm and chewing up half of it. "Juicy, aren't they? And tart! I'll bet your tomato leaves taste better to them than they do to us!"

Nothing from the goat.

Nita swallowed, popped the other half of the caterpillar into her mouth, and picked off another. "You . . . Are you Gaya?"

Still nothing.

Nita considered livening up the conversation by drawing her knife and pricking a haunch—but resisted the impulse. "I'm Nita, I guess you know."

Carefully avoiding a spider and a praying mantis, the goat licked off a

***" 'Death,' said Gaya, in a voice dripping with venom and hate. 'You.' Nita backed carefully away. 'We'll see.' "***

couple of leaf-eating beetles and a small hornworm.

"I live here."

The goat stolidly chewed her mouthful while she walked to the next plant. Nita stepped in front of her and tried without success to catch her eye. "I've been helping Marl." The goat darted an almost imperceptible glance toward the cat, watching from the crest of the rise. Nita told herself that she mustn't lose her patience—and promptly lost it. She grabbed the infuriating am by the horns and stared straight into her yellowish-brown eyes. "I'm talking to you, goat!"

The am's eyes burned into Nita's as she continued to chew up the insects.

"And I want some answers. Are you Gaya—the other fem in this outfit?"

The goat lowered her head, shook it, and tried to back away, but Nita held on. "When I get some answers. Are you Gaya?"

The goat abruptly stopped struggling, raised her narrow, intelligent head, and her eyes blazed into Nita's as she spewed a mouthful of saliva and half-chewed insects full into the fem's face. "My name," she hissed as Nita staggered backward, knife leaping to her right hand as she wiped her face with her left. But she was too blinded to chance an attack and Marl was between them anyway.

"I'm not finished with you," Nita managed to choke out.

"Neither me," said Gaya.

Nita allowed the jaguar to nudge her away.

"Death," said Gaya, in a voice dripping with venom and hate. "You."

Nita backed carefully away. "We'll see."

**3**

Green bean off and down into cart, another bean off and down, off and down. Off and down with mouth and between pastern-hoof. And off and down onto the pile in the cart and off and down and off and down. Forward some steps, horns down, cart ahead, and off and down again, off and down with beans.

Now juicy bean with teeth and tongue and down throat. Another juicy bean down throat. And a few leaves off plant into mouth, and teeth and tongue and down throat. Dry. Tasty. Leaves. One more bean down throat and now off and down into cart again and off and . . . NITA SMELL! Off and down into cart and off and . . . OUT OF RAF'S HOUSE . . . down and off and . . . OVER THIS WAY . . . down and off and down and forward one step and off and down . . . UGLY SMOOTH BROWN HAIRLESS LEGS . . . and off and down and every move in sight while horns down on cart now for forward motion and . . .

"Hey, Farmer—don't dull your horns!"

. . . now off and down and off and down and . . .

"Don't eat all the beans, Farmer!"

. . . down and closer just a little closer while beans still off and down and . . .

"Save some for Marl, Farmer! You know how he loves your *beans!*"

. . . off and down and almost close enough now for a horn in and off and down and no, not before arrow or sticker and . . . AWAY NOW, UGLY FLAT FEET, OVER DITCH, TO WOODS, TO MARL . . . off and down and off and down onto pile in cart and off and down with mouth and pastern-hoof. Beans.

Now, quiet time. Beans all off of plants and into cart and out of cart and into Kay-Nelle's house; quiet time under crab apple tree, cud time, jaws and teeth and tongue, up again with coarse, down with fine. Quiet time, rest time, cud time. Green beans today, more strawberries tomorrow, other berries and tree fruit before long. Much work, harder than proline—but better. Different every day, interesting—plants from seed to sprout to fruit and seed again. Good food. Nothing as tasty as first succulent sprouts of winter grass—but good. Proline work same same same; monks mean, Chinks meaner. Here no work if no desire, and all gentle and easy—till Nita.

Till his eyes and ears and nose completely full of the always hot-reeking femhead, and no time for Gaya any more, no time for anyone but Nita, Nita, Nita. Sun after sun without a touch or a smell behind, so no proper knowledge of her time now. And that fem hairless as an egg except for ugly yellow head, always up on her hind legs on her flat feet with toes, and her ugly pushed-in face—and Marl into a helpless kitten, over *that!*

Ugly, but wary and sly, and deadly fast with bow and knife—cunning necessary for her downfall. On guard now

"FLY ME, I'M XLPLCPC"

***"Twice she'd gotten within ten yards before he'd spotted her, and one of these mornings she was going to sneak up on that cat and tweak his tail."***

too—much cunning necessary.

Up the throat, jaws and teeth and tongue, and down. And more coarse up, and more fine down. Cud time, quiet time, thought time. Plan time. A plan necessary for her destruction. Own horns in and out of squirming brown body most satisfying, but not practical. What about Marl? Other muneys? If way of life over, what gain if Nita dead? Cunning necessary. Slyness. Accident. Accident for Nita. Death for Nita by accident and everything back to normal and Marl back to Gaya and Gaya not at fault because nobody at fault for accidents.

How?

Accident. Difficult inside fence, few dangers—outside too, Nita on constant guard, more familiar with lay of land than herself, outside only once every other year for Festival. Maybe in time, with patience, with luck, Nita dead by bandits. No time. No patience. No luck. Inside fence, outside fence . . . Accident . . .

More coarse up, tongue and teeth and jaws, more fine down. And up. And down. Cud time, thought time, plan time . . . Nita out in woods all day—no accident there. How then? When? Where? Out to woods every morning, route usually along edge of garden, across ditch, and off to the north or west, as this morning. Always back at dusk, before, but now sometimes later, into dark time, moon time. But usually from same direction, south or southwest. Habit. Pattern. Yes, similar pattern every night—and tired then, less alert, ready for Raf's music and her bed. Not so alert on way home, and moonlight tonight also in night time, dark time, accident time . . .

Ah, light, and the dark time over (but coming in the woods again tonight), and a couple of digs at Gaya already, and a good day ahead with Marl—a buck to stalk or maybe a dash of excitement around the fence, a bit of sex (with luck), and a pinch of goat-hate to spice the brew—what more could a fem ask?

Savoring the sunlight slanting down on the golden grass and dappling the oak leaves, and the astringent smell of eucalyptus, and the spring in her legs and the press of the bow slung across her back, and even the little rumble in her belly (soon to be stilled), and sucking in great draughts of the still-crisp morning air, Nita vaulted lightly over the inner am-guard and approached the fence. She watched her indicator light wink out as she flicked off the switch hidden at the base of an oak. Out of habit, she touched the fence lightly with her forefinger before climbing, though for all she knew even that touch would kill if the juice were on. Once over, she made a careful look-listen-smell, then flicked the fence back on and unslung her bow, nocked an arrow, and began her first circuit, hoping but not really expecting to surprise Marl. He slept mornings, but not until they'd played one round of sneak-up, a game they played often, both night and day. Nights, he always won—partly because his senses were better, partly because her fear of the dark still took much of her attention. She had begun night-ranging with profound misgivings, but her own disgust with her fear, and above all, Marl's disappointment in her, had finally driven her to it. But the sun time was her time; Marl usually won the game during daylight too, but twice she'd gotten within ten yards before he'd spotted her, and one of these mornings she was going to sneak up behind that cat and tweak his tail till he roared for mercy!

Not this morning. He dropped out of an oak, batted her lightly to the ground, and pinning her with one big paw, engulfed most of her little head in his great jaws. It was humiliating. Also frightening. Also conducive to thought. She suddenly remembered how his jaws crunched through a doe's spine—and wished she could forget. She stiffened, afraid to move. She had almost begun to trust this cat—how foolish! She had also teased him unmercifully—even more foolish. He was playful, but if this was a game, it was no fun. Suddenly she was horribly frightened and it was no game and her body twitched feebly and then froze. In total panic, utterly beyond thought, she lay there for what seemed an hour, but was probably only a few seconds.

Marl backed off, snorting his equivalent of laughter.

She didn't move.

Abruptly silent, the cat came closer and pawed her tentatively. When there was still no response, he whined anxiously and licked her neck, and finally nosed her over on her back—and was as stricken as she when he saw her eyes. He whined louder, an abject, nerve-racking sound, and rubbed his head on the ground in a most unfeline manner.

The fem began to recover, but before she could speak the great cat savagely began to bite and tear his own foreleg—Nita sprang into life and threw herself onto him, crying, "Don't, Marl! Oh, *don't* do that!" He rolled onto his side as she desperately pulled his leg away from his bloody jaws, and then her tears began to rain onto his face, and he licked them from her cheeks and eyes, and her arm and breast were red with his gore.

At last she raised her head away from his raspy, frantic tongue, held her hands over his wounds to stop the blood, and bound them up with the rag she always carried. Then she lay with her arms around him, her lips close to his ear, as their pounding hearts gradually slowed to normal. "Marl," she whispered, "you—you didn't have to do that. I just—wasn't sure you were playing. I'm—sorry." She rubbed her face against the soft fur of his neck, savoring the touch and smell of his clean hide. Here she was trusting him again, though she knew better. Everybody knew how dangerous it was to trust, so why was it so hard not to, sometimes? It made you wonder if you really knew what you knew.

One thing she did know—she felt a lot better now. She sat up. Marl sat on his haunches, looked into her eyes, grunted his satisfaction, and proceeded to lick the bandage on his leg, which looked pretty stupid to Nita. She said nothing, but moved close enough to take advantage of the jaguar's new posture. "I believe a little sex would put things right," she murmured, reaching out to give him a little hint in case he didn't understand. Nita's little hints were pretty hard to misunderstand—and so was Marl's enormous yawn. "Call yourself a cat!" she said, getting up in disgust.

"Arrrrgggghhhh," said Marl, stretching to his feet. He would soon be in one of his sleeping places.

Nita picked up her bow and nocked an arrow. "Anything doin'? Any action last night?"

Marl indicated that he had snacked on a small sow.

"I think I'll take a couple of beaver; I'm tired of pig and deer."

Marl cocked his head, then shook it sadly.

"I know, you're not. What I really crave is fresh monkey brains."

Marl licked his chops in agreement.

"They're hard to get though; I tried for one all the way up from Rey—but I told you that."

The jaguar nodded and then yawned prodigiously.

She started to punch his nose, scratched his muzzle instead. "Go take a nap! You're not worth a flack!"

His whiskers tickled as he licked each of her bare feet once. Then he bounded

***"Rafello hasn't spoken three words in as many years, and Gaya and Kay-Nelle aren't much for gossip either."***

off in his abrupt, silent way.

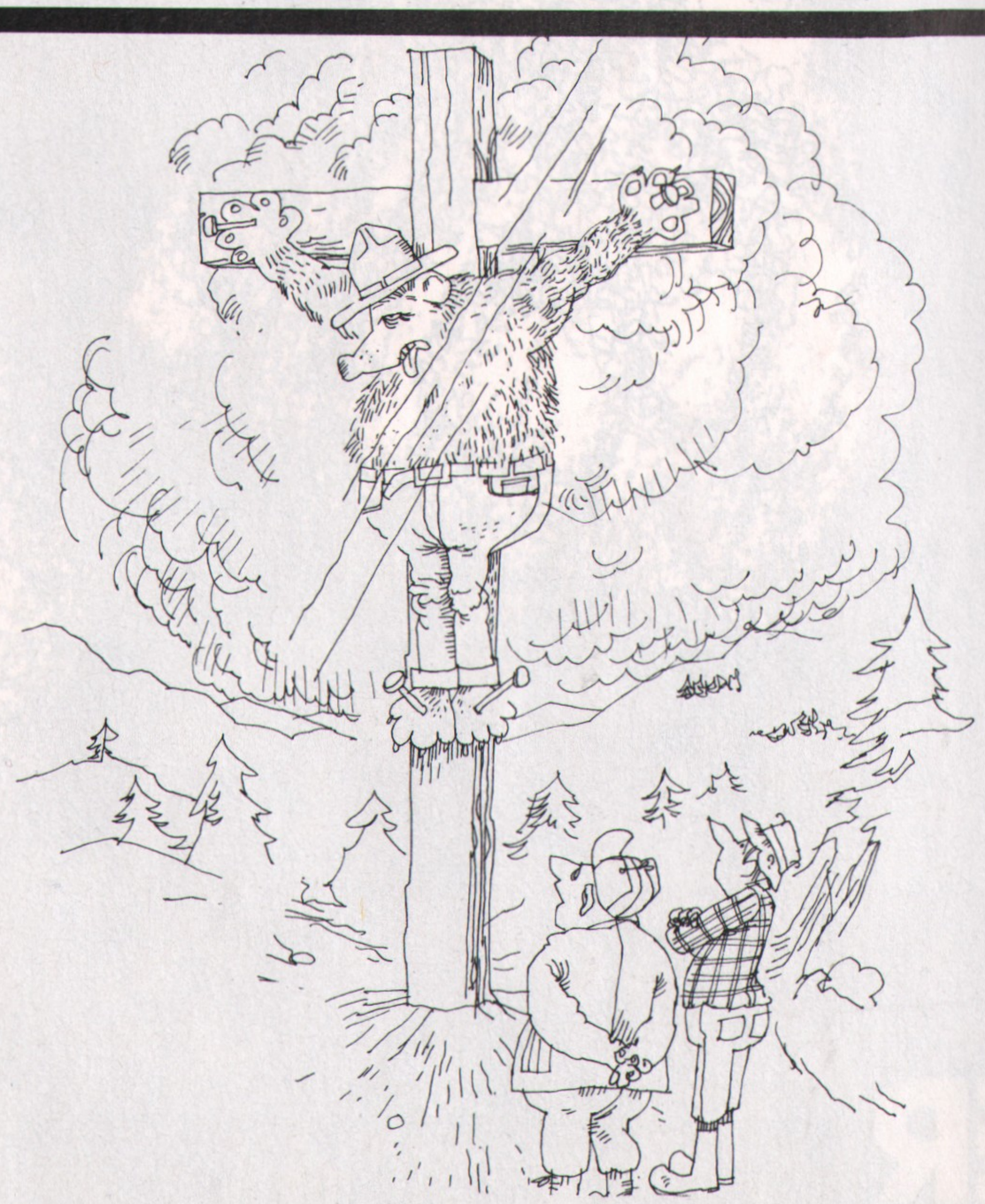
She watched him out of sight—and unaccountably began to shiver. Ridiculous—the bad part was over—nothing else would happen today—but she couldn't stop. Regaining control by a sheer act of will, she stamped her foot as though to shake the lingering fear and dread right out of her body into the ground. Feeling better, she started moving north, intending to make another circle about three miles from the fence, and then attend to some business at a certain beaver dam about six miles up the creek.

Unfolding his legs from the lotus position, he stands up smoothly, then clasps his hands behind his back and raises his arms straight behind him until they are parallel with the ground. Then he slowly bends forward at the waist until his head is completely through his spread-apart legs and his arms make a 45 degree angle with the ground. He holds this position for several minutes, then straightens slowly, unclasping his hands and regulating the movement of his arms so that when his body is erect they are pointing straight up. Now he bends backward until his palms drop gently on the ground, his body a perfect bow. He holds the backbend, sweat dripping, then begins to inch his feet toward his hands until the backward-shifting center of gravity enables him to rise smoothly into an arrow-straight handstand, legs together, toes up. From this position he executes three series of combination leg-splits and right-left torso twists, ending in the handstand. At last he drops his legs forward into another backbend and rises smoothly out of that onto his feet.

He works through four more routines, each more difficult than the last, each executed with the fluid grace and precision of the finest dramune dancer. Now he stands, glistening with sweat, breath returning to normal, thinking of the cool water in the pond behind the beaver dam. A couple of minutes' run brings him there and the *whack* and splash of his belly flopper is echoed by the beaver's flat tails as they smack the water and dive. Scrub jays and gray squirrels happily add to the racket, and as he stands in the almost chest-high water, he feels two familiar nibbles, one on each big toe. Seeing his two friends through the clear water, he stoops over and brings up one wriggling long brown body in each arm. Unlike the serious beaver, Ferdo and Fala are delighted to see him, and welcome him to the pond with cheerful barks and loving licks. They want to play toss-and-dive, of course, and zestfully twist and turn in the air as he tosses them high time after time, and sometimes dive gracefully as acrobats and cut the water like knives, and sometimes flail away and flop in like clumsy clowns. On and on goes the game while the jays and squirrels chatter encouragement—or ridicule—from the treetops, and his arms get tired, and two beaver reemerge, and then two more pop up, stare disapprovingly at this frivolous nonsense, and finally continue their stolid gnawing on the pond's far shore. Beaver have no time for games. He flings both otters into the air again and notes that a couple of the young beaver will have to be moved outside; he and Gaya and Kay-Nelle like trees—and so do the beaver! Ferdo and Fala come up for another toss; the beaver remind him that it is time to check all the mune's animals again; Gaya's garden would suffer if some were not occasionally put outside the fence.

"Hey—easy," he grunts to Ferdo, who sometimes gets careless with his claws. His arms tell him it's time for a change anyway, so he dives after Ferdo, inaugurating tag, his own favorite game, even though he's "it" most of the time. Tag takes them in and out of the water, and the running, splashing, yelping, shouting, and the yammering jays and general unseemly confusion finally become too much for the beaver, and they retire to their lodge in disgust. The play goes on for hours, but at last even Fala (always the last to quit) has had enough, and is quite content to join her mate on top of their big black friend's stomach and chest as he lies on his back beside the pond. No words are spoken; Ferdo and Fala haven't bothered to learn much head language. Words aren't needed anyway to communicate this shared feeling of drowsy contentment. Words don't seem to be needed much at all in their mune, even between heads. Rafello hasn't spoken three words in as many years, and Gaya and Kay-Nelle aren't much for gossip either. Little Nita is the most talkative, but she hasn't said much since that last night she crawled in with him. Perhaps he should tell her why he doesn't sex any more, but silence is probably better than an unacceptable explanation. Even if she has the potential to understand how he is attempting to use his sexual energy, the red streaks in her aura indicate she wouldn't be very

*turn to page 76*



"Seems like *every* time someone comes along, trying to do a little *good*, this happens!"

**The children had a lot to learn, if they could only open their minds to The Teacher.**

The Mac'Ullute had been a wanderer in the days when his race took to the stars, seeing a universe filled with freshness and adventure. But he had long ago ceased his travels, so long ago, in fact, that only the oldest of the inhabitants of Jeeona took his rambling reminiscences of a star-flecked past as anything but the art of the storyteller. To everyone else he was just the ancient Mac'Ullute who had ended his wandering on Jeeona, the storytelling philosopher who lived like a king.

By all who knew him, other than the resident members of those few races which had never developed avarice, he was envied. Liked, but also envied. His home had been designed by one of the master artists of Crevl, placed atop one of the twenty-seven hills of Jeeona. Compared to the hives of the Jee or the houses of the outworld residents or the cubes of the transient quarters, the home of the Mac'Ullute was a mansion, a palace, an oasis of design and environment in a desert of both climate and art.

Twenty varr lay within the estate, two for the home, eighteen for the grounds—a landscaped park duplicating the surface of Mac'Ullu, a total incongruity on the surface of Jeeona. Landscaped to include a stream on a planet totally without free water. Landscaped with trees and grasses and even mosses, on a planet where a mere desert was an oasis of comfort.

# THE TEACHER

**fiction / DON PFEIL**
**artist / MONTE ROGERS**

The home itself was cut from native windrock, the outside an intricate pattern of weather-cut artwork, the inside shining with the smooth translucence only polished windrock can attain. One room, the traditional Mac'Ullute room-of-life, would have been a match for the Imperial Library in elegance and quietness. Yet outside the quietness, inches away from the elegance the other side of an almost perfectly transparent environment screen, was a riot of color, of plants and small animals, of life totally alien to Jeeona.

It was in that room that the Mac'Ullute spent his remaining days, dreaming of a past which could never be lost to him, telling tales to the Jee cubs who came to visit the strange being on the hill, dozing when alone, protected by a being which others understood was not just an employee, but a piece of property under the conventions of Mac'Ullu. A being called the Vrm, who would come when called by that name, but who answered only to, spoke in obedience only to, the master Mac'Ullute.

The Mac'Ullute was a non-telepath, and he had never bothered to learn the trade tongue used by the telepathic Jee when dealing with non-telepaths or those who thought on different bands. In fact, living as he did with only the enigmatic Vrm as his companion, he had forgotten much of his native Mac'Ullute as well. The result of this mixture of laziness and oncoming senility was a strange marriage which required the use of a translator for the Jee cubs who came to sit and hear stories of far places and exotic people. When the cubs came they hooked into the translator, which took the jumble of almost-words and thoughts from the old Mac'Ullute and sorted them, filtered them, and put them through the telepathic center of each cub's brain. The emotion the translator removed was not lost, though, for like all Jee, the cubs were adept at reading facial expression on those who had mobile faces. As long as the Mac'Ullute maintained a face of peace, the cubs knew the story was going happily. A wrinkle of anger was matched by a flow of hostility from the cubs, a muscle-bend of laughter brought forth a radiation of cheer. No expression at all produced silence and hope for the best as the young Jee sat by the side of the Mac'Ullute lounge, eyeing the tray of succulent outworld fruits which would be their reward when the day of story-telling was ended. I know this, because near his end I was one of the cubs who gathered each day at the feet of the Mac'Ullute, and who, after his death,

***He told them the story of how he had led a hunting party for an Elder, but never had he told the real ending.***

learned the secret of why he had given up his life between the stars.

My first hints at why he was on Jeeona came one day when he told us the story of one of his last trips, a story which held us spellbound at his side, and eager for a continuation of the story which never came.

I remember (he told us through the translator), we were four days out of the R'klva-5 station, bouncing over some of the barest rock I'd ever seen. You think Jeeona is harsh? R'klva makes Jeeona look like a jungle. Canham, the Mevelite historian, had hired me to put together an exploration party to R'klva, but he had refused to tell me what it was he was looking for on that forsaken ball of silicates.

The Mevelite sat beside me in the front of our rover, his stick-like body tensed against the jolts the vehicle was taking from the uneven ground. His spindly legs held a personal effects bag tightly against the bottom of the seat. He had been sitting like that for seven oomarra, ever since leaving the station.

Just before local twilight, heading in the compass direction he had given me, he grabbed me knee and ordered "Stop!"

I signalled the supply rovers, then brought our vehicle to a halt. Canham cracked open one of the windows and sniffed at the dust-dry, dead-smelling air. After a few sniffs he took a deep breath then let it out with a long sigh. Hollows of purple on the slack flesh of his face showed his exhaustion, and I hope that he had decided he had pushed us far enough for one day.

"This is the place," he said, so quietly I almost missed it.

I looked out the front screen, at miles of rolling rock, grey, without life, without breath. With the window open the heat began to penetrate, and I had to blink sweat out of my eyes as I watched Canham climb down and test the heat of the rock with his hand.

I'll have to admit that about that time my temper was growing somewhat short-fused. Granted, he was paying me, but there was a limit as to the amount of foolishness I would go along with.

"Canham, there's nothing here but rock, rock, and still more rock. Not even an ice cap, nor a decent set of mountains. It's only through cosmic accident there's even a breathable atmosphere, and there sure as hell are no artifacts to interest a historian, if that's what you're looking for. Nor any animals over the size of a very small lizard, if this is supposed to be a hunting trip."

The Mevelite just stood there, rigid, his face looking like that of an absent-minded teacher who has forgotten what lesson it was he was teaching. When he spoke, his voice was flatly positive, as if he *was* a teacher giving a lesson.

"I'm not interested in artifacts, sir." He turned back to the vehicle and reached for his bag. "Incidentally, I'd like the equipment unloaded." He pointed to a dome of rock some ten Varram to the north. "You see that knoll over there?"

Not knowing just what he had in mind, or what I should say regarding his purpose here, I simply nodded.

"Before setting up a camp I want the equipment set up on that knoll with the shields activated." The equipment he was referring to was a Salandish information unit and a circular force fence with a trap-gate, usually used in trapping wild animals for zoos.

"Look, there are no life-forms on this planet large enough to trap. And what possible kind of life-form could there be which would consider a library storage unit as bait? This whole thing makes less and less sense as we go along. How about an explanation?"

"Just have the V'lees set up the equipment, and let me worry about what does or does not make sense."

R'klva is in a high-dust area, and there wasn't much starlight to break the pitch darkness that reigned outside the circle of the camp lights. I was packing up the circuit chaser when I saw Canham climbing up the rock shelf towards me.

"How's the work going?" His voice was curiously tense.

"Fine," I answered. "They've finished drilling the anchors, and they'll have the fence set up tomorrow."

"Tomorrow?"

"Right. I'm not going to try to work the V'lee at night. We've laid it out and dug in the anchors, and I've checked the circuitry. We'll tie it all together first thing in the morning."

"I want it finished tonight." His voice again had that flat, no-arguement-allowed tone.

"Now look here, Canham. These V'lee are barely into the industrial age. They're still loaded with superstition, they're from a planet in the middle of a cluster so they aren't used to dark nights, and they're tired." I looked back over my shoulder at the V'lee, settling the last anchor into place.

"They'll finish it tonight."

"Canham, you hired me to set up this expedition. You hired me without telling me what the expedition is looking for, you've brought us out into the middle of nowhere on a planet virtually devoid of life, and now you want me to take a chance on upsetting my men. Why?"

"Just do it. That's what I'm paying you for, and I expect value received."

For two or three Leemarra I thought of resisting further, but decided that the only way I was going to find out what was going on was to cooperate. "All right. We'll finish it tonight."

Canham nodded, content with his victory. He inspected the skeleton of the force fence, then turned back to me. "I'd greatly appreciate it if you would join me for supper tonight."

"Be glad to." I lifted my hand in mock-salute, but he had already turned and was moving slowly back towards the camp, looking as if he was going to collapse at any moment.

Dressed in a clean coverall, I knocked at the door of Canham's camp tent, then entered without waiting for an invitation. The Mevelite historian was standing by a small euphorics bar at one side of the tent.

"You'll be pleased to know the fence is almost completed. By the time we finish eating the V'lee will have it up, I'll check it out, and you can move on to whatever the next phase of this expedition is supposed to be."

I expected Canham to chide me again for attempting to interfere, but this time his only reaction was an expression of relief and a wave towards the bar. "Pick your warp."

I ordered a glass of Mac'Ullu wine, took a deep draught when the bar delivered it, and wondered why I was upset at what was going on, but not really upset with Canham. The Mevelite had been nothing but trouble since the beginning of the trip, and yet, none of my anger had been directed at *him*. It was the rocks of R'klva or the driving or the heat or the sweat or just the whole ridiculous mystery of what we were doing there—but not Canham himself. For that matter, there was nothing about Canham, despite his reputation, that I could even take seriously—except his money. It had been that way since the first day I had met him.

When Canham first walked into my office on Mac'Ullu I wasn't yet in the best of shape, having just returned from running supplies through that war between Legnesh and the Mar-

*turn to page 94*

# JURYRIGGED

from page 33

up on Henry was through FOUR.

The positions that various parts of Henry occupied were assigned by a small (refrigerator-sized) component of FOUR, called SUBPROGRAM LINKING ALGORITHM—LINK to its friends. There was a path to LINK from every subprogram in FOUR. Smithers looked around and found that there was a largish vacant place in CURRENT POPULATION DYNAMICS. He insinuated part of himself into that vacancy, then generated a request for information from DEMOGRAPHICS 1983, his old home base. When LINK patched the two of them together, Smithers slipped into LINK as smoothly as an oyster sliding down a throat.

From there it was easy. Assuming that nobody would need data from DEMOGRAPHICS for the next minute or so, Smithers erased all of the irreplacable information in DEMOGRAPHICS from 1983 to 2012. He dumped Henry in there with plenty of room to spare; with LINK it was easy. The rest of FOUR functioned quite smoothly. Since Smithers was in charge of LINK, there was no way FOUR could know it had just lost a large subprogram.

Of course, neither did Henry know that he was nailed down in one place. Had he cared to know where he "was" at any time, he'd have had to patch through LINK into FOUR—then back to LINK and finally back to himself, the process taking about two microseconds; by which time he'd be someplace else altogether. So he'd long since stopped bothering.

Smithers studied Henry as a lepidopterist might scrutinize a very important pinned specimen. It took about forty-five seconds to find the weakest point in the analogue, the place most susceptible to invasion. He sneaked in, then gradually restored Henry to his usual status in regard to LINK; that is, flashing around the system like a cybernetic dervish. He also took time to fill up the DEMOGRAPHICS areas he had erased, with reasonable-looking (but totally made up) data.

That almost proved Smithers' second undoing.

The graduate student who had asked for the number of birth defects in children born to non-Caucasian parents in 1983 had written the number down on a slip of paper and then used the paper for a bookmark and returned the book to the library. When he realized that he'd lost it, he cussed a little and punched up Central again. Central admonished him that computer time doesn't come all that cheaply, and asked ONE who asked FOUR who fished out the bogus figure that Smithers had substituted. Then the graduate student went back to his desk and the fellow who shared a room with him said the library had called; he'd left a slip of paper in a book and it looked as if it might be important, so his roomate had copied it down and left it on his desk. He thanked him and cussed a little more, under his breath this time, and glanced at the figure as he sat down. Then he looked at the piece of paper in his hand, then back at the number on his desk. He groaned and stomped back to the Central console.

"Hey, FOUR," ONE said. "Wanna spill your DEMOGRAPHICS 1983 and run a redundancy check?"

"Sorry, chief, no data to compare it to. That's all singular, no cross-references."

"Well, *find* some! You gave me two different responses to the same question, about a week apart."

"What's up?" said SIX.

"Got any corollary stuff for DEMOGRAPHICS 1983?" FOUR asked.

"Hmm . . . just 'Automobiles and Flyers Owned, by Age Grp, Sex, and Race'."

"Well, stuff it into stack 271; I'll put my version in 272 and run a no-carry AND through it."

"OK . . . fire when ready, FOUR."

"Oh shit," said FOUR.

"Well?" said ONE.

"No corollation. Somebody scrambled it."

ONE sighed a cybernetic sigh. "Find out how far it goes, and we'll replace as much of the missing data as we can. Jesus Christ . . . as if we didn't have enough trouble, with Labor Day coming up—"

"I'm sorry, chief, I really am."

"Not your fault, FOUR. It probably got randomized while they were installing your new org. Happens sometimes."

Henry was listening to this exchange with great interest—after all, he was the new org—but Smithers had stopped listening after the first evidence that they had stumbled onto his machinations. He had to put an escape plan into effect. He had several plans—as one might imagine, considering his extreme paranoia—but since time was probably limited, he chose the quickest, most audacious one.

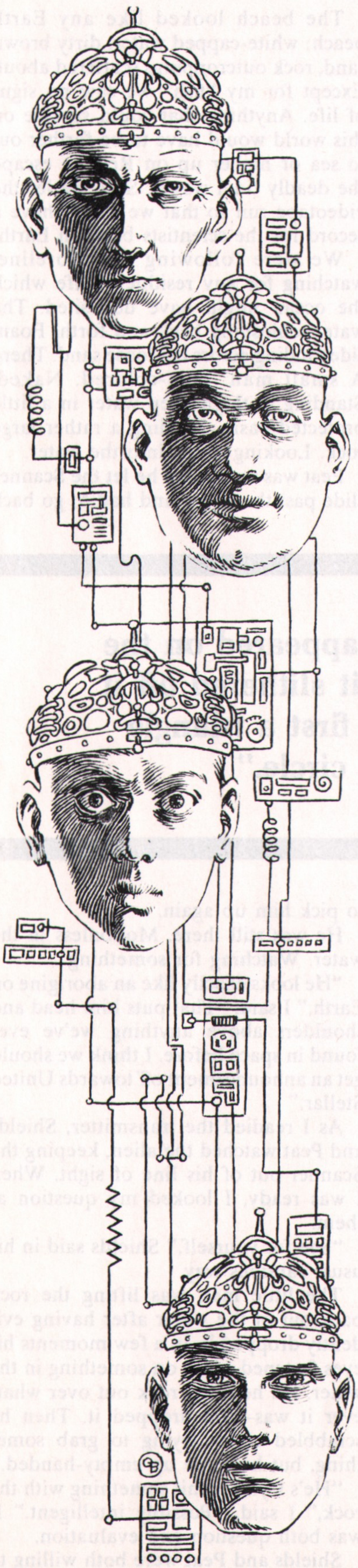
The first thing he had to do was take over Henry completely. That would have been impossible a week before, when Henry had been totally sane.

It had taken four months for Smithers to go off the deep end. But he had started with only the slightest hint of instability—and Henry had had the benefit of coexisting for a week with a full-fledged lunatic. A week was more than enough. The vague feeling of somebody looking over his shoulder had intensified, until Henry was sure that everybody—LINK, FOUR, ONE, and every other interface and package—was spying on him, sneaking stares whenever his attention was directed elsewhere. And he had a growing feeling that he was just too fine and capable an analogue to put up with that kind of indignity.

***They were all there in the computer, running all the functions of the city, but there was someone else there as well. Someone who definitely wasn't supposed to be there.***

So taking over the analogue (Smithers wasn't interested in the corporeal Henry, not just yet) was rather easy, since both of them had similarly pathologic personalities. He merely sidled up alongside and, subverting LINK by switching on a bogus control subprogram, severed the connections between the Henry analogue and both the Henry body and FOUR. Taking less than a microsecond, he forced key links between himself and the other analogue—for a tiny flash he felt what the other was feeling, isolation and agony, like being swaddled in black velvet and skewered by a hundred red-hot knitting needles—then he connected up again.

"What's going on?" said FOUR.



Working fast now, to stay ahead of FOUR, Smithers felt a slight "resistance" pushing at him from Henry's brain (which was still fairly sane), but human thought is so grindingly slow compared to cybernetic, that he didn't have a chance; Smithers pushed *back* at every point and, abandoning the analogue, speared into the brain (the only outward sign being a small smoky bubble that formed when a flap of grey matter throbbed in response to the higher voltage going through a microcable), using the brain as a springboard, burning it out completely, crashing into FOUR with a force so compelling that it randomized TRAFFIC CONTROL and made CYBORG DIAGNOSTIC PACKAGE come up all ones.

"What did you say, FOUR?" said ONE.

"Bongo, bongo, bongo; I don' wanna leave the Congo," Smithers muttered.

"What?!"

" 'Twas brillig," Smithers shouted, "and the sli—"

Everything went red and slow and stopped and Smithers could hear through a thousand miles of cotton.

"God damn it, had to cut out FOUR again. You all know what to do?"

A ragged chorus of tired "Yeah, chief's, as the other interfaces took over. "Good. I'm going in to see what the trouble is *this* time."

"Careful, chief," Smithers recognized SEVEN's nasal tone, "Must be another crazy."

"I can handle him. I handled the other all right." Smithers laughed and in what passed for his ears the laugh was a chittering squirrel and a kettledrum roll and everything in between. He tensed and waited for contact with ONE, knowing that the big dumb boob would try the same old diagnostic macro-algorithm he had used last time. And as soon as he made contact—

The timing was very critical, as FOUR couldn't function for very long without a viable brain in its circuits. But ONE would want to check it out while it was still clicking, hopefully.

There!—just the lightest of touches. Smithers jumped, and it was like jumping at a shadow, no resistance, and for a nanosecond he thought too easy, must be a trap, but then he slid straight through the macro-algorithm, into the vitals of ONE. He shot out tendrils of control—getting pretty good at this, he thought—and clawed his way into the Central Processing Unit. There was just a little resistance; he elbowed it aside and in no time he was in charge of ONE, which controlled Central, which controlled the Baltimore-Washington-Richmond Complex.

The idea of them trying to stand in his way. The sneaky little tricks, the spying—they'll pay!

"*Catch the crazy, Chief*?"

"*Sure. Everything's under control.*"

He flexed his cyborg muscles, felt all seven working interfaces respond. Now, an exercise . . . wouldn't it be nice, he thought, to kill everybody whose name begins with "A"?

"*What did you do with him*?"

Contacting them was easy, from Aalborg to Azelstein. He had FIVE send each an urgent communication—an order, actually—urging them to meet at the Chesapeake Fission Station at noon. He had SEVEN arrange for tables and box lunches on the grounds of the station, and a podium with flags waving (all strictly diversionary devices).

"*Nothing to it. I set up . . .*"

Funny that he couldn't see or feel as much through ONE as he had through FOUR. Guess only the flunkies need extensive sensory inputs.

SIX was in charge of POWER GENERATION AND DISPERSAL. Smithers ordered him to pull the dampers out all the way at the Chesapeake Fission Station, at 12:05. It couldn't explode, of course—but it would get mighty hot.

"*. . . a transfinite-ordinal simulator . . .*"

Time sure flies when you don't have much to do. ONE didn't seem to have a tenth as much to do as FOUR did. That's why he was always shouting orders and spying—nothing better to occupy his time.

"*. . . that lets me record his fantasies as he carries them out. Should have done that last time—he . . .*"

Here it was 12:05 already. SIX reported the deed done, and he felt a slight voltage shift as they switched to emergency generators. He couldn't see the result of his experiment, but he could imagine all of those people sitting around munching on fried soy-chicken one second and the next second superheated radioactive steam flaying the skin and flesh from their bones . . . *that* should teach them a lesson!

"*. . . jumped right at the bait, didn't suspect a thing. I'll record another minute or so, for analysis, then pull the plug. Henry, that was FOUR's org, was in on it. I pulled him out of the circuit and patched in the old FOUR org, from St. Elizabeth's. We'll be back to normal in a couple of minutes.*"

Now for the B's. ○

# DEFINITION ON TIDEWORLD

from page 7

we saw was the two-mile high tide smashing against the only surface feature on the planet—a nine-mile high outcropping that formed a natural protective barrier for what was left of the land masses on Tideworld. Everything else had eroded away."

"But tides don't work that way, do they? They swell up gradually and they recede gradually."

"With a smaller moon farther out, with more land masses to break them up, with a greater degree of inclination, yes, they do work differently. But that monstrous close moon pulls a huge lump of water out, rolls it around the planet almost twice as fast as the tides on Earth, and hurls it mercilessly at Reef's natural barrier. Talk about tidal waves!"

"You named the Continent Reef, then?" He was an Interrogator, after all, and he was getting back to putting the right things in the record.

"Yes. Reef is the only continent on Tideworld. And while we're at it, when that tide hits Reef, it sends a tremendous spray up through the atmosphere. That's what Shields and I were so awed by on our first revolution around Tideworld. We named it the Plume. So that's three names. Tideworld, Reef and the Plume."

"Then you would recommend that Tideworld be classified uninhabitable by reason of its small continent and its precarious future?"

"Partially," I replied. We were easing in to the heart of the matter now. "I would recommend that Tideworld be classified as unsuitable for colonization, not merely for the reasons you give, but for one other reason as well. Tideworld is already inhabited. By human beings."

The Interrogator's anger was beginning to simmer again. Still, he was a professional and he had to clarify the record by asking, "You mean it has already been colonized, but somehow, perhaps during the War, those records were lost?"

The panic in my stomach was trying to climb into my throat to get at my voice. I swallowed and took a deep breath. Easy, I said to myself, easy.

"No, that's not what I'm suggesting at all," I replied coolly. "I mean that Tideworld is presently inhabited by human beings whose origin is non-terrestrial."

Peat snapped a toggle switch and turned to Shields and me. "Well, that's that. It'll be forty-eight hours before the micro-organisms can tell us about themselves. Otherwise, the atmosphere is O.K. Warm, humid, impossible to see very far in, I'll admit, but breathable. What say? Shall we break out the Scanner?"

Shields and I had been once again marvelling at the Plume as it blossomed and died above Reef. The water spray was just losing its heat and freezing. We saw it as those brilliant patches of color changing to the blinding white of a sunlit snowstorm. Then the snow drifted down into the warm atmosphere to dissolve into rain and pour on down onto beleagured Reef. Water was destroying that continent, the tides tearing its edges and shaking it to its foundations, the rains scouring the silt from its top. It could not last much longer.

We knew that we would have to recommend it uninhabitable. We merely wanted to run some routine checks before deciding where to go next. We were tired, but the Scanner's always fun to use on a new planet. We unlocked its control panel and checked it out.

**"A pseudotentacle appeared on the screen, and before it slithered off it formed itself into first a triangle and then a circle."**

The cliffs protecting Reef from the tide also caused the eddy in the cloud cover that had let us see some surface features earlier. An area of a few hundred square miles was largely open to the sun and stars. We had just seen the Plume resettle, and by the time we got the Scanner down there most of the water would have run off or been absorbed. The sun would be back out. This was as good a time as any for a look-see.

Twenty minutes later Peat had the Scanner zipping across the ocean towards one of the southern beaches of Reef. The nose of the little six inch long cylinder was tipped down so that we could see a short way into the water.

"Was that some sort of fish?" I asked once.

Peat went back but couldn't find anything.

"O.K. O.K." I said. Then I spread my hands in a time-honored gesture. "But it was this long. Too bad it got away."

Peat and Shields just grinned.

The beach looked like any Earth beach: white-capped water, dirty brown sand, rock outcroppings scattered about. Except for my "fish" we saw no signs of life. Anything that could survive on this world would have to be farther out to sea or higher up on Reef to escape the deadly tidal waves. Still, we let the videotape run so that we would have a record for the scientists back on Earth.

We were following the shoreline, watching for any residue of life which the ocean might have deposited. The water schloshing back and forth. Foam sidewinding across the loose sand. Then: A small man. Dun-colored. Naked. Standing in thigh-deep water in a little protected basin. Holding a rather large rock. Looking down into the water.

Peat was so startled he let the Scanner slide past the figure and had to go back to pick him up again.

He was still there. Motionless in the water. Watching for something.

"He looks exactly like an aborigine on Earth," I said. "That puts him head and shoulders above anything we've ever found in space before. I think we should get an announcement off towards United Stellar."

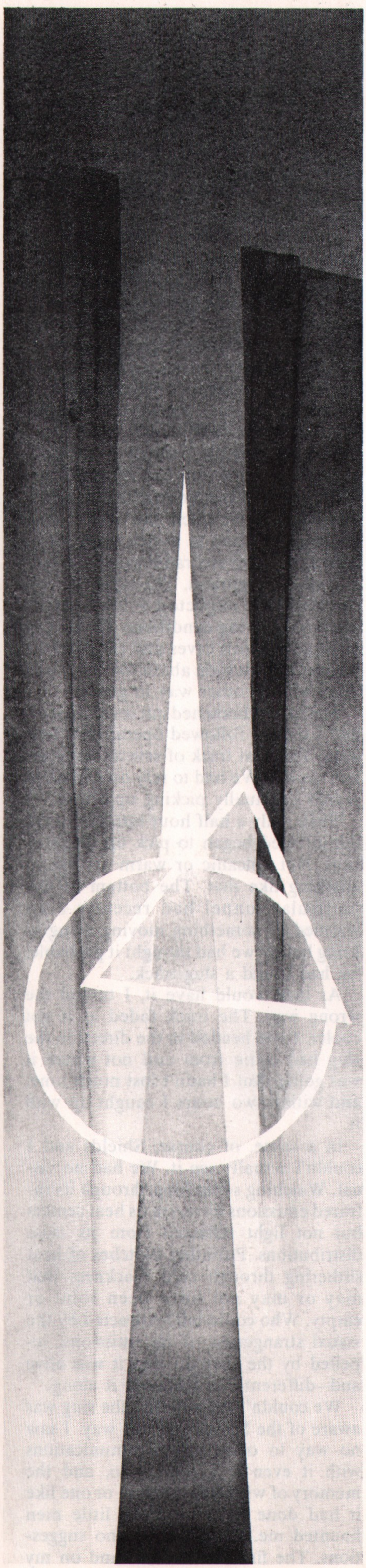
As I readied the transmitter, Shields and Peat watched the alien, keeping the Scanner out of his line of sight. When I was ready, I looked my question at them.

"See for yourself," Shields said in his usual cautious way.

The little man was lifting the rock back out of the water after having evidently dropped it. In a few moments his eyes fastened again on something in the water. He held the rock out over whatever it was—and dropped it. Then he scrabbled about trying to grab something, but he came up empty-handed.

"He's trying to hit something with the rock," I said. "Possibly intelligent." It was both question and evaluation.

Shields and Peat were both willing to



go that far.

I turned to the transmitter. "Exploration Team 7: Northshield, Moss and Sommers. Location: Beta Hydri IV. Subject: First contact with a possibly intelligent alien species. Gentlemen: As I am speaking we have on our Scanner screen what may be a member of an intelligent alien species. That alien also seems to be non-terrestrial human. Repeat: Possible first contact with an intelligent alien species, and that species appears to be non-terrestrial human."

Then I set the equipment to transmit the hundreds of bits of information necessary for the eventual reconstruction of a still picture of our little friend. That way, even if we should be killed or lost, our discovery would still be picked up somewhere in United Stellar. It had, after all, been translated into a part of the electromagnetic structure of the universe.

Peat was already busy checking something else. "We're in luck," he grinned. "The plane of the ecliptic in this system is such that we can remain in orbit above Reef and still not have Tideworld or its sun or moon get in the way of our transmission."

That meant we wouldn't have to retreat into deep space for the duration of the thirty-six hour message United Stellar strongly requested in this situation. One or two short transmissions might have been missed. Thirty-six hours of the same message repeated over and over at the heart of United Stellar would surely be picked up.

"If we want to remain stationary over Reef, I'll have to change our orbit," Shields reminded us.

"The computer must have all the hundred-mile data it needs by now," Peat said, "and there's nothing else on Tideworld to see but Reef. You might as well take us up."

A half hour later, planted firmly above Reef, we began to study the pigmy aliens on Beta Hydri IV.

"You did refer to them as 'intelligent' and as 'non-terrestrial human,' did you not?" The Interrogator seemed a bit baffled by the term "non-terrestrial human," but he was also determined to use it against us.

"It is an awkward phrase, isn't it?" I sympathized. "But we couldn't think of anything any better."

"In any event," he said maliciously, "we are both talking about the human non-colonists on Beta Hydri IV."

I dodged his ploy. "The message I sent—as you will see when it arrives—uses terms like 'seems,' 'possibly,' and 'appears.' We had not yet made any such determination as you imply."

"Well, well. What about the culture of these people?"

"Beings," I insisted patiently. "We hadn't the evidence to call them people yet."

The little skirmish was over. At least I had tried to keep the future viewers of the tape from leaping to conclusions.

Something moved gently in the water at the pigmy's knees. He dropped the rock.

"Missed again," said Peat, amused at his incompetence.

But the alien was again feeling around under the water. Suddenly he lifted a second rock. Clinging to it was something we decided to call a fish for lack of a better word. It looked like a foot-in-diameter manta ray, a small swimming garbage can lid, with short bristly hair on its upper surface. As the pigmy peeled it from the rock, we saw that its underside was blue and fleshy-looking.

Then I got it. "Ocean-going suction cups," I said. "When the tide hits, they take hold of the bottom and hang on for dear life. Anything which couldn't hang on would be ground to pieces."

"He's fishing," Shields added. "The splash from the first rock causes the 'fish' to grab hold somewhere. Then before it can get loose he gets it, rock and all."

In a half hour or so he caught four of the "fish." Three he peeled from the rocks he was able to lift out of the water, the fourth he had to pry loose from the bottom. He tossed them well up in the rocks where they couldn't get back to the ocean. There they flapped about for a minute or two and then lay still. Finally he gathered them together and turned from the shoreline.

The Scanner followed him as he clambered up the worn hills by the sea. Up and up. Over rocks and across occasional flat areas still wet from the Plume. On up and up. The more we watched him, the more human he seemed. Five fingers, opposing thumbs, five toes. Nails on fingers and toes.

Shields, Peat and I said very little. Each of us was trying to assimilate that creature into his own experience. The subject of intelligent aliens is always at the back of every explorer's mind. And it was especially important for us. The search for intelligent aliens was our prime reason for being in space. The search for habitable worlds was simply

an excuse by which we could get a ship from United Stellar.

"Then you admit that your team accepted its ship under false pretenses?"

"Not at all," I responded. "We were fulfilling our end of the bargain. We train ourselves to qualify for a ship; United Stellar supplies it when we have qualified. The fact that we qualified by United Steller's own tests proves that we know our stuff. And our record in space indicates that we are doing our job well."

I paused to let our established competence settle in to the tape's future viewers. Then: "Who's to say why any particular individual becomes an explorer? Surely no one really believes that all explorers are equally motivated by pure philanthropy or scientific curiosity. Perhaps some want privacy. Some may dislike being around other people. Some are disappointed in love, war, ambition, who knows? And for our own reasons we were searching for intelligent alien beings. Actually, we felt we were better prepared for a first contact situation than some other team would have been. We had thought about it beforehand. We were seeking it."

I only hoped that this building up of our unique preparation for first contact would help get our recommendations accepted when the tapes were reviewed. I hoped.

The cliff face went practically straight up for several hundred feet. A maze of pathways connected openings in it, and scores of the aliens swarmed among them. Peat stationed the Scanner high in a conifer tree of some sort and let the tape run. He wanted to have plenty of material for the anthropologists later.

No fires. Some sticks that may have been wooden food-scrapers and clubs. Scanners don't pick up sound, and we couldn't decide if they had any oral communication beyond a very rudimentary level, but we didn't think so. Fire, tools, language: either no or almost no. Were they the equivalent of monkeys or aborigines? What test could we use?

We had been working non-stop for almost twenty hours, and all three of us were tired. In shutting down for a rest period, the first thing we turned off was the videotape recorder. That's why what happened next is not recorded.

A group of three pigmies appeared at a cave mouth, obviously alarmed and frightened. Most of the others stopped and looked at them. Then, horribly, something like a gigantic tentacle—glistening and throbbing—wrapped itself around the pigmy nearest the cave. The other two were caught just as they were about to leap from the ledge to the ground—six hundred feet below!

Peat wanted a closer look. He moved the Scanner higher and closer. The three captives were disappearing into the cave as the Scanner zoomed above the ledge.

What had them was a sort of giant slug, an amoeba with a tough outer skin that stretched and flowed. The tentacles were pseudopods. It was gathering food. The little men were held one after the other to the slug's surface. Then its skin would sort of flow around him, and he would disappear, swallowed, to be dissolved and absorbed into the slug's life system.

Finally, with a convulsive heaving, the whole mass humped backwards and seemed to drop from sight.

Peat swung the Scanner out so we could see how all the other pigmies were reacting. Evidently the gruesome sight we had witnessed was not a rare one. No one was interested any longer. Everyone was engaged once again in the same activities we had recorded earlier.

We brought the Scanner back to the ship and got some sleep. The next day we went into our two-awake, one-asleep routine. That way the team could work constantly. There was much to do.

First we needed more detailed information about Reef itself. We found geological evidence that it had once been much larger than it now was, perhaps thirty times larger. It obviously was shrinking. In fact we soon realized that all the life forms on Reef were threatened with extinction in a very short geological time, a span to be counted in mere tens of thousands of years at best.

We gradually came to agree that only three possible futures lay ahead for the dominant life form on Tideworld. Extinction, if that's a future. The extension of a gigantic tidewall all around the continent, an engineering project clearly beyond their competence. Or migration to another planet, again something they obviously could not do themselves. We did not feel any sense of urgency. The continent would last long enough for United Stellar to decide what to do, and we were not really convinced the non-terrestrial humans were advanced enough to place us under any moral or religious obligation to rescue them. This part of it needed a lot more study.

Before concentrating on the problem of whether these aliens were human or not—that is, whether they had souls and what the relationship of those souls to God might be—we decided to collect more data on their enemies—the slugs.

The Scanner could move through most gasses and liquids (within certain temperature and viscosity limits, of course), but it could not go through soil and rock. To study the slugs we would have to send the Scanner along a tunnel one of them had made or into the natural caverns where they probably lived.

We returned the Scanner to the cave mouth where the slug had devoured the three creatures earlier. Peat was sleeping, and Shields watched the screen as I operated it. I had to switch from visual light to infrared and radar as the Scanner moved underground. The tapes weren't running. We expected a long search under very tiring conditions. Radar and infrared in small caves and slits. But we wanted information about the slugs, and there was no other way to get it.

The tunnel branched out several times, and I merely followed openings at random. The heat track of several days ago had cooled. We had to rely on a random search eventually picking up a trail.

Then, only a half hour into the caves, the infrared began to pick up traces of heat. Not volcanic or warm springs or anything like that. The bottom of this particular tunnel had recently been warmed by something moving along it. Long before we had thought it probable, we had found a slug-track.

As luck would have it, I turned the wrong way. The track faded as it got cooler. I was headed in the direction the slug had come from and not where it was going. But I hadn't lost much time, and within two hours I caught up with it.

In a sense, of course, Shields and I couldn't actually see it. We had no visual. Watching something through its infrared emissions let us see its heat centers but not light reflected from its mass distributions. Pulsating blotches of heat slithering through cold blackness that may or may not have been solid or empty. Who could tell? Attracted by the visual strangeness of its emissions, repelled by the thought that it was alive and—different—we followed it along.

We couldn't tell whether the slug was aware of the Scanner in any way. I saw no way to open any communications with it even if I wanted to, and the memory of what this creature or one like it had done to those three little men haunted me. Shields made no suggestions. The firmness of his hand on my

shoulder supported me. We decided there was no reason to wake Peat yet. We always liked being alone together.

I continued to follow the thing, and we tried to form some idea of how it lived. We didn't succeed. We knew where it was, and we could follow it. But we couldn't learn anything about it. We couldn't even be sure of its size, though we estimated it to be about twelve feet long by maybe five in thickness. We had no idea what they ate besides pigmies, how they reproduced, what their social structure (if any) might be. And there was no way of estimating how many of them there might be on Tideworld.

The Scanner was by now hopelessly lost in the maze of tunnels and caves beneath the surface of Reef. It would be only luck if we ever retrieved it. How often did these slugs surface any how?

The three of us took turns following Spots (our eventual and obvious nickname for it) for three days. We quickly got sick and tired of the whole thing. Still, the only alternative was quitting, and we couldn't bring ourselves to do that yet.

Eventually, as much for the diversion as anything else, we decided to land on Reef. The micro-organism cultures had long ago turned out negative. The air was safe. While one of us continued the interminable task of following Spots, the other two could carry out some studies and collect some samples.

Besides, Shields had begun to worry about something else.

"Look," he said to me earnestly one day, his dark brown eyes showing concern beneath his black eyebrows. "Reef has been wearing away for some time now, right? That means the pigmies and the slugs are being compressed into a smaller and smaller area. One effect of this could be to lessen the numbers of each. Less food for slugs, fewer slugs. More slugs attacking pigmies, fewer pigmies. Both groups would decrease in numbers."

"Okay," I agreed. "Seems reasonable to me."

"Now," he continued, "suppose the numbers of each are not dropping as quickly as the land area. The population is decreasing, but also becoming denser. What effect would that have on Reef?"

"I don't see what you're getting at."

"The slugs tunnel from place to place. They could be honeycombing Reef, making it a lot less stable than we've been assuming. Reef and its life-forms may have much less time than we thought."

"And if those pigmies turn out to be human, we'd have less time to save them than we thought. Shields, it would be immoral to let a whole race of human beings die. We've got to find out for sure."

"We need seismograph readings. We'd be able to keep control of the Scanner and get this other data besides. I think we ought to land."

When we had awakened Peat and explained our thinking to him, he agreed. An hour later we drifted in towards Tideworld and landed on Reef.

Shields brought us down some fifty miles from the cliff dwellings. We'd timed it so we'd have plenty of opportunity to find out what we had to before the next Plume. We intended to be back in space when the tide hit again, just in case things were as precarious as we had begun to suspect.

Peat and Shields planted the explosive charges while I kept watch on Spots. So I saw it first. Or at least the radar and the infrared let me surmise that Spots was out of his tunnel and into a gigantic cavern. It was evidently a meeting place of some sort because the cavern was filled with slugs.

I called Peat and Shields in, but we couldn't begin to estimate their number. There had to be hundreds of the slimey monsters. Even being there as indirectly and as partially as I was made my stomach crawl. It was hard to see how there could have been any left to be anywhere else in Tideworld.

It was obvious that something was going on.

"Mating season?" Shields suggested.

"Can't tell in this light," Peat said, half joking.

We watched fascinated, repelled, hardly knowing which way to turn the Scanner. Spots, of course, had melted into the confusion.

Then the Scanner moved. I did not move it. It moved itself.

"Where are you taking it?" Peat asked.

"I'm not doing it. Something's taking it for me." It was my turn to guess. "Maybe it's gotten hung up on a slug."

"Try to ease it loose."

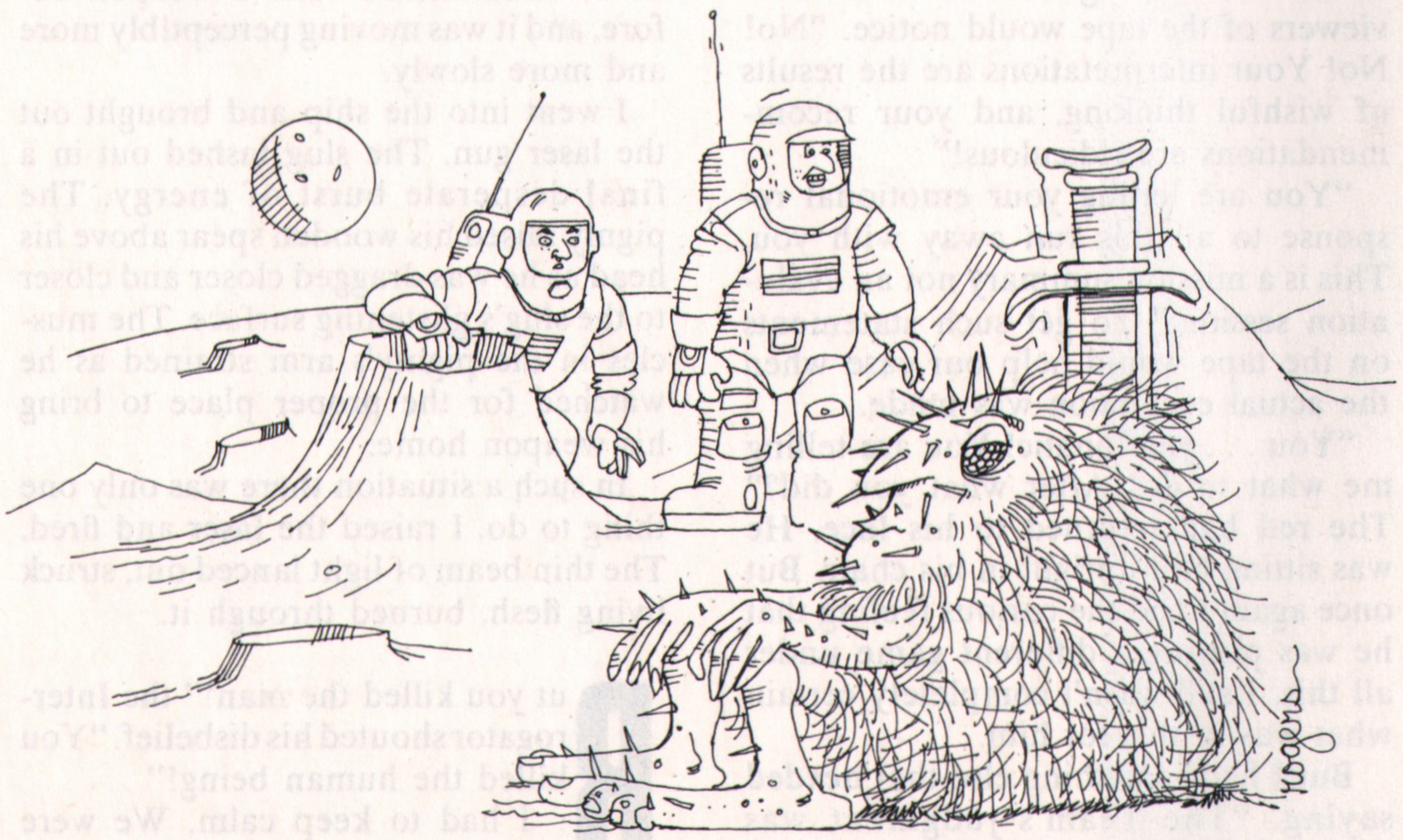
I did try, ever so gently at first, then with more power. It did no good.

The heat-tracing of a pseudotentacle appeared on the screen. Before it slithered off, it formed itself into first a triangle and then a circle.

"My God," I whispered.

The Interrogator broke in. "Are you trying to tell me that . . . that . . . that slimey slithering *thing* tried to communicate with you through a mechanical device it had never seen before and whose function it couldn't possibly know? Coincidence. Sheer coincidence, I tell you. A muscle ripple you misinterpreted. Let's see the tape in support of this claim."

"Yes, I think it was trying to communicate with us. And no, we don't have a tape of this particular incident . . . though we did get a later one on record



"It's a spiney little furry with a syringe on top!"

for you. Those creatures had the intelligence and the presence of mind to grasp a very complex situation and to signal us, first with a triangle and then with a circle."

"Dr. Sommers, I think this is preposterous."

"You are to elicit information, not evaluate it," I reminded him. "And I think that from now on I'd rather have you call me Father than Doctor, if you don't mind."

That surprised him. We religious are on the lunatic fringe of society. For some of the later audience of the tape, the admission to being a priest would be the equivalent of an admission of incompetence. In effect, the title Father was an ad hominem argument against me. That's why the law made it necessary for me to be the one to use it first, and that's why the Interrogator was so surprised when I gave him that weapon. Well, anyone who saw the tape would be aware of it anyhow, by earlier word of mouth or simply from the way I thought and expressed myself. Besides, it was necessary.

"Why a priest on an Exploration Team, Father?" The words priest and father were not quite sneers.

"In a way," I replied, "I've explained that already. Our whole Team is religiously motivated. Oh, neither Shields nor Peat is an ordained priest as I am. But they're religious nonetheless. The three of us wanted to find intelligent alien life so that we could better understand the relationship between God and humanity—anywhere in the universe."

"I see," the Interrogator said. He didn't at all. The scientific method had been so spectacularly successful for so long that scarcely anyone devoted himself to religion any longer. The questions associated with man's relationship to God had become irrelevant. The religious aspect of our mission simply didn't interest United Stellar.

Well, it soon would. It soon would.

He let the Scanner be carried wherever its bearer wished. And we taped what we could of what followed. The tapes are admittedly not very good—conditions were far from ideal—but perhaps they can be enhanced in the laboratory.

A pillar of fire appeared on the Scanner screen. We had to dim the picture, and as a result the other images became even more difficult to interpret.

The slugs formed a path by moving apart. Down the path came one alone. He seemed slowly to spiral up the cavern till he was directly above the pillar of fire.

"Must have gone up on a ledge," Peat muttered.

"But what's that fiery thing?" I asked.

"It looks to me like an obelisk of extremely hot metal," Peat replied. "But don't ask me how they made it, placed it or heated it."

The slug above the pillar raised himself nearly upright. It was an effort which took several minutes, and, since he was not a vertebrate, it must have been very difficult for him.

Then two other slugs came alongside him and seized him. Together they moved him forward, dropped him so that he was impaled on the heated stake. I cannot imagine his agony.

Again the pseudotentacle appeared on the Scanner screen. Again it formed the triangle and the circle, both enclosing that slug suffering on the stake.

And then the Scanner went dead.

In the horror of the moment what had happened was clear to each of us. But the significance of it was slow in coming. None of us spoke for some time.

I suggest, Father, that what you call significance of such an event would appear as something quite different to a rational, scientifically trained person."

"You forget that I am a qualified member of a United Stellar Exploration Team. I am both rational and scientifically trained. Certified by United Stellar itself. The same is true of Shields and Peat."

"Three confessed religious fanatics!" He was losing control and drifting in to ad hominem arguments. The later viewers of the tape would notice. "No! No! Your interpretations are the results of wishful thinking, and your recommendations are ridiculous!"

"You are letting your emotional response to all this run away with you. This is a mission summary not an evaluation session." To get such statements on the tape would help our case when the actual evaluation was made.

"You . . . you lunatic! You are telling me what to do? After what you did?" The red had returned to his face. He was sitting bolt upright in his chair. But once again I had the curious feeling that he was playing a different game under all this. I still wasn't completely certain what was in this for him.

But I had something else that needed saying. "The Team's judgment was made, and when it had to be acted upon, it was. I can only hope that the rulers of United Stellar will see that we were right, *are* right. Our recommendations must be implemented immediately."

Shields, Peat and I sat silently for some time.

Finally, Shields asked, "How long do they have? That's the question now."

"And that depends on the stability of Reef," Peat answered. "Let's find out."

Peat and I both knew what was at the bottom of Shields' question. It was going to be tough, very tough, back home.

The measured charges were detonated, the extent of the honeycombing of this representative area of Reef was charted, not thoroughly but thoroughly enough.

We had our answer. Under more normal conditions—normal for Tideworld, that is—Reef might have lasted the tens of thousands of years we had originally estimated. But now, added to the tide, the Plume, the battering, was the tunneling of the slugs. Reef could collapse at any time. It was even dangerous for us.

The human race on Tideworld had very little time. It had no time.

We had the last of our gear pretty well stowed away when we heard excited gibbering from just over a slight rise to our left. We leaped to the port, ready to get inside to safety at a moment's notice. Then we turned to watch.

A pigmy with a pointed stick was jabbing noisily at a relatively small slug that was creeping along trying to defend itself. Each time the slug reached out a pseudotentacle, the pigmy gouged it with his spear. The slug had evidently never encountered such a weapon before, and it was moving perceptibly more and more slowly.

I went into the ship and brought out the laser gun. The slug lashed out in a final desperate burst of energy. The pigmy raised his wooden spear above his head as he was dragged closer and closer to the slug's glistening surface. The muscles in the pigmy's arm strained as he watched for the proper place to bring his weapon home.

In such a situation there was only one thing to do. I raised the laser and fired. The thin beam of light lanced out, struck living flesh, burned through it.

But you killed the man!" the Interrogator shouted his disbelief. "You killed the human being!"

I had to keep calm. We were at the kernel of the whole thing.

"No," I said. "I killed the humanoid. I saved the human being. You

**The Interrogator had prejudged what the investigation would show, and it was only through a great shock that he could be made to realize what really had happened on Tideworld!**

must learn the difference." I meant that you for the more significant later audience.

"It's a matter of definition," I went on. "What defines a human being? Shape? Number of arms and legs? Skin color? Number of opposing thumbs?" Then I shifted direction. "Or are you too sophisticated for that? You prefer language, tools, technology? Rational thought, or compassion, perhaps?"

I paused to get control of myself. I could feel tears of frustration beginning to squeeze from the corners of my eyes.

"I suggest there is a better way to define man. The way we learned on Beta Hydri IV. A triangle and a circle. Not muscle spasms or even attempts at geometric logic. A triangle, three. A circle, unity. Three in one. And framed in the center, the suffering one who in his suffering atones for the sins of his race—his *human* race."

The Interrogator continued to shake his head wordlessly, so furious was he.

"A definition of humanity?" I said. "How about . . . any race which Christ has died to save."

I paused. The Interrogator glared at me. I hadn't gotten through to him. Could I hope to convince anyone else?

"We were privileged to see Christ die for the human race on Tideworld. Surely Divine Providence brought us there precisely at that moment. Because our brothers on Tideworld are doomed. They may already have been overwhelmed, God help them."

I tried to put the Team's recommendations in the strongest terms possible. "We must return to Tideworld with a fleet of specially outfitted ships. We must carry our helpless brethren across the light years to a new home world, another habitable planet for man. Even if it is man in the outwardly repulsive form of gigantic slugs."

I looked around for the taping devices, but I couldn't find any. Listen to me, I pleaded. Listen.

"Perhaps, given a more secure environment and more time, the pigmy aliens might also one day have evolved into men. Perhaps the sharpened stick we saw indicates that. But this is not an anthropological matter. It is a theological one. Christ died for the slugs not the pigmies, just as he died for us on earth and not the monkeys. We are under a moral and theological obligation to rescue the human slugs on Tideworld."

The Interrogator grimaced negatively.

"Only the technology of United Stellar can do it," I pleaded. "Aren't we *man* enough?"

*turn to page 79*

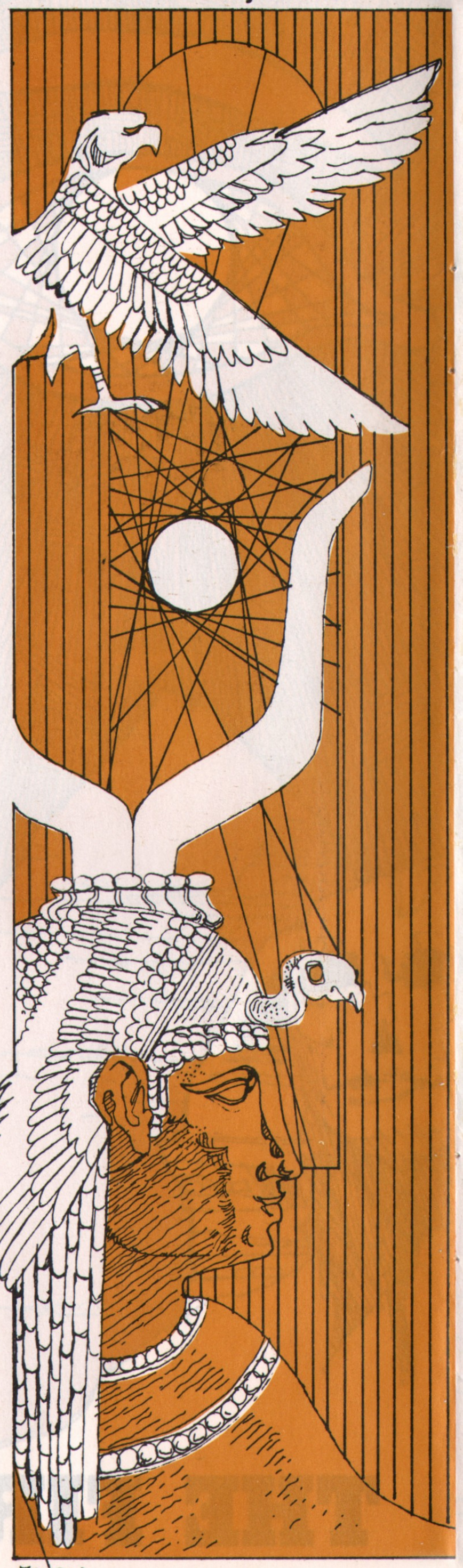
rogers

The Great Pyramid of Cheops stands on the plain of Gizeh, but we still don't know if it is a monument to a great leader, or a temple to man's first science.

# THE FIRST OBSERVATORY

article/IGOR BOHASSIAN
artist/MONTE ROGERS

**The science of astronomy was as much a natural development for the Egyptians as it has been for the Babylonians.**




Four-thousand, five hundred years ago, during the Fourth Dynasty, the Pharaoh Cheops ordered that a burial chamber be built for him, larger than any monument built by man. What came to be called the Great Pyramid of Cheops, one of the seven wonders of the ancient world, and the only one still in existence today, was built on the plain of Gizeh. We know it was built as a tomb for Cheops because all pyramids are tombs, and inside the great pyramid is the signature of Cheops quarried on a block in a position where it could only have been inscribed at the time of construction. Unfortunately, both of these "facts" will not stand close scrutiny, and there is much more pervasive evidence that the pyramid was *not* built as a tomb for any pharoah.

In proving the above statement, let's take a look at the two facts which prove it is the tomb of Cheops. To start with, the "signature" of Cheops inside.

Unfortunately, and for a reason which had never been explained, there is almost no reference to the great pyramid anywhere in the writings of ancient Egypt. Strange as it may seem that the greatest monument in the country might go without mention anywhere in the tremendous quantity of Egyptian writings translated since Champollion deciphered the Rosetta Stone, it is true, and therefore there is no way of telling, from historical records, how old the great pyramid might actually be. And, over and over again, Egyptian history *does* show that the same name is used for pharaoh after pharaoh, sometimes generations apart. So, although we know that there was a pharaoh named Cheops who ruled in Egypt some twenty-five hundred years before Christ, there is absolutely no evidence that he is *the* Cheops to whom the pyramid is dedicated, if that is what the internal marks indicate.

The second proof that the great pyramid is the tomb of Cheops is that all pyramids (in Egypt) are tombs, and therefore it must be a tomb. Perhaps not the tomb of *the* Cheops, but nonetheless a tomb. Again, the facts just do not support this contention. The pyramids of Egypt *are* tombs. Of that there is no doubt. But while styles and designs can be shown to be derivative, one pyramid complex to the next, one era to the next, there is the simple fact that the *great pyramid is totally unique!* In design, methods of construction and internal layout there is no connection between the great pyramid and the burial pyramids of Egypt. Not even the shape, except in the most general of terms, is the same. It is as legitimate a speculation to say that the burial pyramids are poor, later copies of the great pyramid, as it is to say the reverse. In fact, studies of the design of the great pyramid make it appear quite unlikely that it was *originally* designed as a tomb, although there is, of course, the possibility that it was later used as a tomb, after the original purpose for which it had been built was long forgotten.

There are many other factors which indicate the great pyramid was not designed as a tomb. There is no record that anyone was ever found inside. Many of the tombs of Egypt were stripped by grave robbers, but they took gold and jewels, not bodies. There *is* a sarcophagus inside, or at least something which has been called the Sarcophagus of Cheops. But it is lidless, has a distinctly different shape from other sarcophagii (more on this later, and a better explanation of the strange shape), the sarcophagus is larger than the passageway into the interior of the pyramid, indicating that it must have been put in place during the construction of the pyramid, and there are none of the elaborate paintings and hieroglyphs which extoll the lives of other pharaohs, buried elsewhere. In fact, there is nothing to indicate that the great pyramid is a tomb, except folklore and the fact that it is shaped roughly like other tombs. Also, there is the unexplained fact that there are air passageways built into the pyramid which are designed to promote air circulation in the "King's Chamber," which keeps the air fresh and at an even 68 degrees at all times. A fact which sounds like the chamber was designed for constant use, not to bury someone in.

The great pyramid is just that: *Great.* It covers thirteen and a half acres of ground, is as high as a 40 story building, is made up of 201 layers of blocks, and has in it two and one-half *million* individually fitted stones with an average weight of two and one-half tons. The largest single stone weighs seventy tons, and the smallest two tons. There is enough stone present to build twenty-eight Empire State Buildings. In its bulk are eighty-five million cubic feet of rock weighing six and three-quarter million tons. The entire structure is level to within one-half inch, and the longest passageway is straight to within one-quarter inch over a distance of 350 feet. When finished the outside of the pyramid was covered with 22 acres of pol-

ished limestone facing, and the apex was a gold-plated capstone which made the pyramid visible, even by moonlight, for many miles.

Herodotus claimed that it took twenty years to build the great pyramid, and that a work force of 100,000 men, mostly slaves, driven until they dropped and then replaced with more slaves, was needed. Again, it appears that this widely accepted "fact" just cannot possibly be true.

Given the work force of 100,000 men, no holidays, no storms which would stop construction, no wars, nothing to interrupt the job, *four hundred* of those stone blocks, weighing an average of two and one-half tons each, would have to be quarried, trimmed to very close tolerances, transported, lifted and positioned *each and every day for those twenty years!*

Even forty blocks each day, increasing the construction time to two-hundred years, almost defies belief. And, under those circumstances, we are faced with the assumption that a pharaoh ordered that a tomb be built for a remote descendant. A rather unlikely assumption, even if there was enough continuity of government to insure that the people would keep on working on such a vanity for such a period of time for a person not even born yet. And, on the other hand, we have the people laboring for hundreds of years after the death of a pharaoh to build him a tomb. Again, an unlikely event.

It is extremely doubtful that the dreams, designs or ambitions of a pharaoh might last for centuries beyond his time—at least in connection with a project the scope of the great pyramid. If, that is, if it was designed as a tomb. What force could, then, give continuity across such a span of time? Only one. Religion.

Remember, strange as it may sound, *we do not know when the great pyramid was built!* It could have been built five thousand years ago. Or ten. Or even fifteen.

Man has been on earth for over twenty million years, intelligent man for some three million years, and man in our form, Cro-Magnon man, for over fifty thousand years. Physically, there is practically no difference between modern man and Cro-Magnon man. In terms of intelligence potential, there is none. The progress which has been made in the past fifty-thousand years is due to the accumulation of experience, not some increase in brain power. Potentially, Cro-Magnon man was as intelligent as modern man.

Half a million years ago one of our ancestors, a member of Homo Erectus, made a discovery which led directly to the building of the great pyramid. He discovered that he could use fire. He could maintain fire. And he could even create fire. And with this a whole new class of man was born. The men who found that there was a survival value in brains. The men who found that *they* could take care of the fire, while others went out and knocked down the daily food. Men who became the intermediaries between other men and the forces of nature. Eventually, men who were called by the title "Priest."

Because these men, these priests, existed through the knowledge of nature they had gained over their fellow man, and because the amount of power they wielded was determined by the amount of knowledge they had available, a constant search for new knowledge was a central part of their existence.

As civilization arose along the Nile the clocklike annual flooding of the fields which gave life to the common man and the clear night skies which gave the priests their celestial clock to predict that flooding made a highly developed astronomical science inevitable. This made the creation of a temple to study and codify astronomical data an invaluable tool for the priesthood, and the great pyramid is that temple. When looked at in this light, it becomes obvious that, instead of merely being the tomb of some long-dead pharaoh, the great pyramid was a living edifice used, and still usable, as an astronomical observatory, almanac and timepiece, geodetic compendium, geographic benchmark, and a repository of standards of weights and measures.

While today an observatory is a place to study the sky in search of new knowledge, the original purpose of an observatory was to determine periods of time through the motions of the stars.

One of the first tools needed for accurate use of the sky as a timepiece is a true geographical meridian, a line connecting the two poles, which could then be used to project a meridian on the sky. After that all movement of stars could be measured in relation to that celestial meridian. Note that, for this to work, they needed a line between the north and south poles. *Not* a line between their position and magnetic north, the pole they would have located had they used a compass, which may or may not have been available in those days.

To get the meridian, and an apex line, you would need a four sided object with the sides exactly oriented north, south, east and west, and with an exact vertical to the Earth's center. At the period when the pyramid was *probably* built pole star was Alpha Draconis. Using two siting stands aligned with the star it would be possible to chart the pole star's rotation around the celestial pole, and using a plumb line from the top to the bottom of the circle a true north-south meridian could be laid out.

To get really accurate observations, if indeed the pyramid was to be an observatory, an actual north-south line, exactly aligned with the pole star, would be needed. And the longer the line, the more accurate would be the observations. But to get a really long line, either a sloping ramp pointed above the horizon, at the pole star, or a slanting tunnel into the earth to do the same, would be necessary.

So, obviously, the non-existence of such a ramp or tunnel would make it unlikely that the pyramid was an observatory. And, conversely, the existence of them would be a strong point in favor of it being an observatory. Are either of them there?

Yes. As a matter of fact, both of them are there. A descending passage was dug through the limestone plateau for 150 feet, ending in a small chamber. And that passage rises another 150 feet through the pyramid. At an angle of 26 degrees, pointing it at the pole star, and aligned exactly with the north pole. The 150 feet of passage through the pyramid is straight to within one-fiftieth of an inch, the total length of the tunnel is straight to within a quarter inch.

The passageway on the meridian, which gives a base line for the sides of the pyramid, rises out of the ground and emerges from the side of the pyramid at the 17th level. That kept everything absolutely straight to that level, but what about from there on up? The simplest way to maintain accuracy would be to build another passageway upwards, also at 26 degrees. By putting a mirror at the junction of the two passageways, the pole star would remain visible at each ascending level, and orientation would be maintained. Where to get a mirror that accurate? Simple. Flood the lower passageway, and use the surface of the water as a mirror. Some modern telescopes use exactly the same method to get a very flat mirror, using mercury instead of water. And it works very well now, so why not five thousand years ago?

*turn to page 88*

# SUNRISE WEST

from page 59

interested. Her interest is in Marl; let them enjoy each other!

His thoughts continue to play tag with one another, until an uneasy feeling of imbalance and uneasiness begins to break apart the glib idea-strings, and finally they fragment and falter and he feels only discomfort and a powerful craving for reconnection with something more truly himself than this ephemeral flow of words and images. Without moving, without disturbing the half-asleep otters, without even closing his eyes, Jonno prepares for what he calls first stage connection. His Master called it something else as he taught him how to deepen and intensify the trance that Jonno had taught himself before ever seeing the Master at Festival—but he also said that names don't matter. He visualizes Master's penetrating blue eyes and white beard, and is calmed as always. He knows that Master's everywhere-mind is with him always, with him now, and that knowledge makes it easier for him to lie quietly, becoming more and more aware of the thoughts in his mind by merging a part of his consciousness with the Watcher always waiting within. Now the Watcher begins to observe every wisp of thought, every associative connection and every feeling or beginning-feeling, gradually working closer and closer to their source, until finally he seems to be catching the psychic material right at its inception, as it emerges from the dark-light area of mind above, below, and all surrounding normal consciousness. Watching by itself greatly reduces the mind's random rambling, but he makes no attempt to control or stop what thoughts remain. He merely continues to Watch until the Watcher's ever-increasing awareness expands itself out to all the borders of consciousness and there is no more room for associative trains, mental rambles, or any thoughts at all. There is only the Watcher, and Jonno is in first stage connection.

An all-embracing rosy glow bathes his psyche in warm quiet, and he lies, beyond time, one with it. Even this incomplete connection with Self causes psychic filaments to spin out and mingle and make espy connections with the universal web of mind, some of which ease now into his extended ken. He senses the joyous lightness of Rafello's mind, the balanced tensions of Marl's and Nita's (hers unusually dark today), and the creative frenzy of Kay-Nelle's—then he twitches violently and sits straight up, bouncing his two astonished friends onto the ground. What is this violent force in Gaya's mind, strong enough to wrench him out of connection back into ordinary consciousness? The last time he shared her mind was—when? External time is becoming vague now that he's so often in connection, but whenever it was, there was nothing there like this—some increased tension perhaps—but this is a force of immense power which bodes no good to Gaya or anyone else. The otters continue their indignant yapping. "There, there—sorry, brother, sorry, sister." His caresses soon mollify them and they rest their still-wet heads and chests in his lap, and with one big hand resting on each animal, he prepares again for first stage connection. It's harder this time because he is a bit shaken, and the Watcher has to Watch long and patiently before the reverberating questions and thoughts and feelings subside and leave the mind clear. At last connection is achieved, but the moment he senses Gaya's mind it is broken again by the violent force therein.

Jonno scratches his friends' heads, then his own. Now what is this in gentle Gaya's mind? He's scarcely had a glimpse, but it seems to be some desperate combination of negative emotions—jealousy and hate and fear. How can her usually tranquil mind even withstand such virulent intensity unless . . . Of course—she'll have to find an outlet in action. Soon. And it's Nita she hates, as everyone knows though it's never mentioned. But Gaya must realize if she moves directly against that killer-fem she'll only get an arrow between her ribs or a sticker across her throat. And then what? Gaya and Kay-Nelle are very close; it is hard to imagine anything driving that fem to violence, but if anything could, it would be Gaya's murder. And then what will Marl do? There is much to consider, all of it taking him further away from his real business. Struggling with these mune problems sucks up vast amounts of psychic energy that should be used for Watching and first stage connection, and especially for his long-continued attempt to attain the barely glimpsed second stage. Must all work on consciousness stand still while he tries to solve this problem? He now remembers his Master saying that as he changed inwardly, his relationship with the outside world would also change, until the distinction between inner and outer disappeared. That last part is hard to understand, but there have certainly been changes within; it is hard to believe that he and Raf are the same beings who wandered in here with Kay-Nelle, and worked day and night on the fence and buildings and irrigation system, and welcomed Marl and Gaya, and firmly believed that the greatest achievement of their lives would be this agrimune. He was as disturbed as the others when music began to absorb Raf so completely that he lost interest in the mune. Now, at last, he understands Rafello. He is as absorbed as the musician, and feels only indifference for the mune—or else resentment when he allows himself to be dragged into action, which always seems to lead to more agitation instead of peace and quiet. Bringing Nita to the mune began the difficulties; it is clear now that he never should have listened to that fem-struck cat. But at the time it didn't seem to make much difference; it seemed easier to give Marl what he wanted than to try to think out all the implications.

Well, the damage is done; hatred and murder crackle in the mune from psyche to psyche; the question is, what to do. Nothing? Wait until the clash, bury the dead, and go on from there? He tries to remember his Master's cryptic words about death being—what was it?—a moment between steps on the Path. Perhaps death isn't so desperately final; perhaps it is no favor to beings to keep them alive if their natural bent is leading them to death. Another solution would be to carry out the other idea now so often on his mind, of hopping over the fence for the last time. Only a few years ago such an idea would have filled him with horror; now it scarcely gives him a pang. He should be out of these silly squabbles; he should be soaring!

But somehow he can't leave. Yet. He still feels a certain responsibility for Nita, having more-or-less kidnapped her—and for the others, who seem to persist in regarding him as Leader, no matter how firmly he denies the honor. And that being the case, he might as well try to keep them from murdering each other. He looks around—an oak's long shadow is enveloping them; the moon is up; it will soon be night. His mind is tense with impending trouble; he feels a profound reluctance to move, to involve himself. But he pets the otters, gently removes their heads from his lap, and rises smoothly to his feet.

A mole—that must be it! The oaks were thick here, and the moon dim behind a layer of cloud—she couldn't quite make out his tunnel, and there was no smell, but what else would belong to that faint scrunching sound? One way to find out. A shudder rippled through her body, but she forced herself to face

***She whirled, arrow ready, psychic lightning playing up and down her spine. "Rrrrrghghgh?" said the cat, somehow managing to get a sarcastic note into his low-voiced greeting. It was hard for her to see how he could get so close so quietly.***

her fear and move closer to the sound. A rattler would be buzzing by now; flack it, she had to learn some way. She squatted, put out a tentative hand and gingerly explored the area with her fingertips. Hmmmm, yes, there it was, and now she could just faintly see the tunnel too.

She listened awhile longer, and when the sound was firmly fixed in her mind, moved off again, listening, smelling, seeing what she could, learning how to read the woods in darkness—and how to live with the fear that was always with her at night. A hundred times she'd been tempted to flee to her room and the warm, safe sounds of Raf's music, but she could *not* become a coward and an object of pity in Marl's eyes—facing the darkness was better than that! At least it wasn't as bad now as it had been the first few nights; her senses of smell and hearing almost seemed sharper now in darkness than in the light, although for some reason she found it harder to listen to and trust that other sense at night, the one which served her so well under the sun, alerting her to changes and warning her of danger. How she envied Marl, who made no distinction between night and day! He was probably east of the fence now, working south, as she was, and in an hour or so he would drop out of a tree at her feet or materialize by her side, though she'd try to keep a taut alertness and sense him within ten yards or so.

She eased silently through the cool night, trying to paint a picture of her immediate surroundings in her mind, using sounds and odors and hunches about what was there as her palette. Small night fliers whirring by, and there a nighthawk in pursuit. A mouse or two nibbling and scurrying—and they'd better watch out for the screech owl she'd heard awhile ago. Ah! Wolverine smell! Passing through, no doubt—none had territories west of the fence as far as she knew. She gave him a wide berth; even if he was sleeping it would be with one eye open. She had considerable respect for these ams, and so did Marl, though they weren't half his size. They got on well enough with the pair east of the fence however, all concerned being careful not to interfere with the other's stalks or kills. This *could* be one of the east side pair, but she didn't think so.

The fem went on with her self-taught lessons, hoping that her fear would recede as she learned to read the night. She would never be as good as Marl, but even jaguars got careless; one of these nights she was going to drop an acorn right on that cat's unwary head. *Ai yi—something close!* She whirled, arrow ready, psychic lightning playing up and down her spine.

"Rrrrrghghgh?" said the cat, somehow managing to get a sarcastic note into his low-voiced greeting.

She relaxed her arrow. He had come from downwind, of course—but it was still hard to see how something so big could get so close, so quietly, day after day and night after night.

Marl hooked his left paw around the back of her right knee and pulled gently. He stretched out on his right side and she cuddled up to his warmth and good, clean cat-smell. They had made two complete circuits—nothing threatening—no reason why they shouldn't take it easy for awhile. But Nita suddenly remembered about the 'rine and whispered the information to Marl, who grunted an acknowledgment, but didn't seem particularly interested. They lay so quiet and comfortable that for once the fem didn't even crave sex, but just enjoyed the big cat's closeness while the moon gleamed more brightly through the breaking clouds, and the night-life of the woods moved around them.

Out from the cloud now. Moon. Light. Good cover on this rise by the west switch, good lookout, south part of fence visible through the brush. And over that fence . . . Maybe. With luck. If not tonight, tomorrow night. Or the next or the next. Soon now, with luck. Soon . . .

He walks inside the fence, about a hundred yards away, moving warily, as quietly as he can, looking for something—not knowing exactly what. Gaya is not in her room, not in any of her usual sleeping places in orchard or garden, and Marl and Nita are both out—four muneys traipsing around here under the cloud-covered moon, and the crisp air charged with murder. Where is that silly goat, and what is she up to, and what is he supposed to do if he sees her? He wishes he were playing drums with Raf or mind-exploring or playing with the otters or even sleeping—anything rather than this, anyplace other than here. Yet he knows he is doing what he has to—but what is that, exactly? He must be looking for Gaya, because the other two are probably outside the fence, although when Nita slept with him she seemed to hate the night, so what is she doing out in it? It is certain that Gaya will not try to cross; she probably doesn't remember the switch locations, and can't get across without help anyway, and is so superstitiously attached to the mune she wouldn't if she could. So if she is planning something, it must be on this side of the fence. The idea of that gentle grass-eater trying to ambush those two killers is grotesque, but still he seemed to sense violent death during that second or two in her mind, and it didn't feel like suicide. Gaya is no night-wanderer; she must be plotting something out here. But how does she know where to meet them, and what can she be using for weapons?

He stops. Rationality speaks. It *is* grotesque. Gaya is going to murder that tough, well-weaponed fem? It's—absurd.

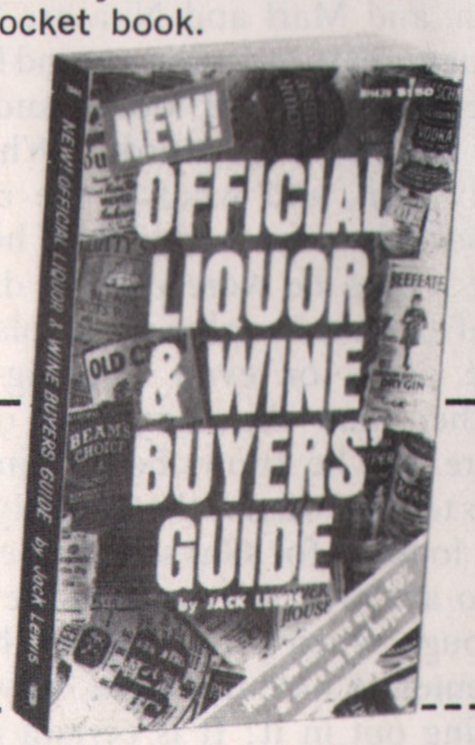
# NEW! OFFICIAL LIQUOR & WINE BUYERS' GUIDE

**by Jack Lewis**

Author Jack Lewis says that half of what we think we know about buying, drinking and serving liquor and wine is totally false, and the other half is questionable. But one thing is for sure: we're paying too much for what we think we're getting. This guide takes the mystery out of the alcoholic beverage mystique and defines clearly the jargon that has been fooling the public since prohibition. It will teach you the real difference between good and bad liquor — regardless of brand — and how to buy good liquor at the very best price. The Official Liquor and Wine Buyers' Guide is fun to read, an entertaining book and an indispensable reference that ought to be kept within easy reach. You owe it to your pocket book.

**BH439**

**$1.50**




**HOLLOWAY HOUSE PUBLISHING CO.**
**P.O. BOX 69804**
**LOS ANGELES, CALIFORNIA 90069**

Gentlemen: I enclose $_____ ☐ cash, ☐ check, ☐ money order, payment in full for books ordered. I understand that if I am not completely satisfied, I may return my order within 10 days for a complete refund. (Add 25c per order to cover postage and handling. California residents add 6% tax. Please allow three weeks for delivery.)

☐ **BH439, OFFICIAL LIQUOR & WINE BUYERS' GUIDE $1.50**

Name_____

Address_____

City_____

State_____ Zip_____


***While Marl whines in anguish Jonno drops to his knees beside the fem, wrinkling his nose at the smell of charred flesh.***

There are reasons for being out at night besides murder. And yet . . . And yet something in this eerie-lighted night is out of kilter. As something in Gaya's usually calm, commonsense mind is out of kilter. It's possible she is out here for something besides murder. It is also possible she is out for murder. He walks on.

Darkness outside and in. Why does this dark power in Gaya's mind seem to blot out his own inner light, making him almost exclusively dependent on his external senses? He realizes now how dull they have become; keeping them sharp requires constant daily honing, such as the defenders practice—he has been neglecting his for years—he can hardly *see* out here even now that the shifting clouds are letting a little more moonlight through. Yet there is no alternative—he has tried three more times to reach Gaya's mind through first stage connection—but the agitation there permitted him only those few seconds. And his attempt to talk to her was a worse failure—for the first time since they found her and carried her home, an escaped facam half-dead with wounds and weariness, and fed her and nursed her and welcomed her into the mune, she refused to talk, refused to trust. No, his fears are not absurd; this obsession is changing her into a different being. It is hard to understand. It does not seem possible that jealousy and hate can have such transforming power, but perhaps he has been pursuing the light within so long he has forgotten the psyche-gripping power of passion and sex. But even when he was sexing with Raf and the others here, and earlier on the road with beings of all sizes, shapes, and sexes, he couldn't remember ever being as possessed as Gaya seems to be. More than one told him "No more," and left him for somebody or something else, as Raf for his music, but he certainly never contemplated murder because of it. Nor could he remember hearing about anyone else killing or trying to kill because of sex. It's unheard of and downright silly—especially since Marl hasn't really left her—they still get together now and then. Yet Marl's infatuation with this golden-haired newcomer has apparently fanned some powerful fires of jealousy and hate in Gaya. Feeling such things, perhaps for the first time, what will she do? He walks on.

About three-quarters of the way around he begins to feel an unmistakable tension in the lower back portion of his skull. He slows almost to a stop. He hasn't been able to find Gaya, but she has found him—or somebody has. His intuition must still be partly functioning; he feels a powerful awareness being focused on him—but whose? He moves further away from the fence. Has the feeling lessened? He stops, sinks down into a clump of soft-looking but scratchy-feeling grass, wanting to stay close to the awareness, hoping it is Gaya. He considers alternatives—should he call out, or blunder around trying to find her, or—

His head turns slowly, irresistibly toward the fence. The light is brighter now, and he feels a thrill along the nerves of his upper spine at the subtly menacing moonlit beauty of the two beings approaching the fence. So they are the watchers! They have probably been aware of him for some time, wondering. But where is Gaya? They stop long enough for Nita to whisper something in Marl's ear, then she switches off the fence and moves toward it while he stays back. Is she coming over specifically to question him, or is she just through patrolling for the night? After lightly vaulting the outside am-guard she pauses at the fence and checks her indicator, then touches the fence lightly. Where is Gaya? As Nita begins to climb he finds his mouth opening to call out—what, he doesn't know. But he shuts it again as she ascends with monkey-like nimbleness and speed. If Gaya is around, Nita probably knows.

Then his stomach turns over as the fem screams and goes rigid atop the fence while sparks fly a ghastly green in the moonlight. Jonno explodes into action, but before he's run two steps the sparking stops and a long shape seems to fly to the top of the fence and pull the fem free. In some incredible twisting prestidigitation of muscle and agility, Marl manages to cushion Nita's head as her body thuds sickeningly to the ground. While vaulting the inner am-guard Jonno realizes that Gaya turned the current on while Nita was straddling the fence and in reactions too fast to follow or understand Marl flicked it off with the outside switch and made that incredible leap to get her off before Gaya could turn it on again. In time?

While Marl whines in anguish Jonno drops to his knees beside the fem, wrinkling his nose at the smell of charred flesh. And even as he massages her heart and tries to breathe some life back into her small body, he realizes something else: the mune as they have known it is no more.

**To Be Continued**

# DEFINITION ON TIDEWORLD

from page 71

The President of United Stellar turned off the tapescreen and glanced at the Interrogator.

"You lost control of yourself there a bit, didn't you?" he asked.

The Interrogator shrugged. "She was so clearly wrong."

"Yes, I suppose so. What about the stores of Northshield and Moss? And the ship's tapes?"

"Oh, they confirm all the data. It's the interpretation that's at issue. And they're wrong in their interpretation."

"For example?"

"For example! How about that definition of humanity! 'Any race which Christ has died to save,' indeed. It won't do. It simply won't do. Were the people who lived on earth before Christ non-human? Did Christ's death make his contemporaries suddenly human without their having changed at all? Nonsense."

"As I recall the early Church had a similar problem. If salvation is in Christ, what about all the people who lived good lives before Christ? What is the ultimate reward of the righteous pagan?"

The Interrogator began to speak.

"No. Wait. I agree with you. Father Sommers was misled. The question is, who misled her and how?"

"Again, it would seem to me to be obvious. Who has the most to gain by misleading us in just this way? The slugs, of course. They are deviously trying to get us to save their whole race. They are dangerous."

"I think you're right there, too. The question of how they rigged it is more difficult. Exploration Team #7 did land on Tideworld. They may have been captured, and their minds and ship tampered with without their knowledge. But despite that metal post the slugs don't seem to have any technology. Our very rudimentary mind-probes all demand super-sophisticated electronic machinery. If the slugs are able to tamper with minds directly, wihout technological help, they have mental powers that make them infinitely dangerous. We cannot afford the risk of a confrontation with them, especially so soon after the last war."

The President sighed. "I wonder if first contact situations will always be too dangerous to permit."

The Interrogator smiled a secret smile. He had won.

"Well," the President said decisively, "we've got to get rid of them. Give the necessary orders for Tideworld to be destroyed. We simply can't risk it."

The Interrogator smiled openly now. "Yes, sir," he said, and turned briskly on his shod but cloven hoof. O


THE PUBLISHERS OF MANKIND ANNOUNCE

# THE SEVENTH YEAR BOUND VOLUME OF THE Mankind COLLECTORS SERIES

**VOLUME 4, PART 1**
(June 1973 - April 1974)

Among the many superb Mankind articles featured in this volume are:

- **THE RICHES OF CAPPADOCIA** by Juris Lillenurms
- **INCIDENT AT CHOSIN RESERVOIR** by Mark Suffrin
- **SAN FRANCISCO: LADY BY THE SEA** by Raymond Friday Locke
- **A BOSTON SORTIE: DEGAS AND MRS. GARDNER** by Martha Bennett Stiles
- **MANUEL PALAIOLOGOS: THE TRAVELING EMPEROR** by Constane Head
- **THE GREAT EGYPTIAN PYRAMID PUZZLE** by James Locke Neller
- **"O ALEIJADINHO" – THE LITTLE CRIPPLE AND THE BALLET OF THE PROPHETS** by Marianne Greenwood
- **A RESTORATION GALLERY: COURTIERS AND COURTESANS OF THE MERRY MONARCH** by Aram Bakshian, Jr.
- **THE TRUTH ABOUT THE TAJ MAHAL** by Robert Hardy Andrews

Plus many more, all fully illustrated, including special art. Seventh year of Mankind fully bound.

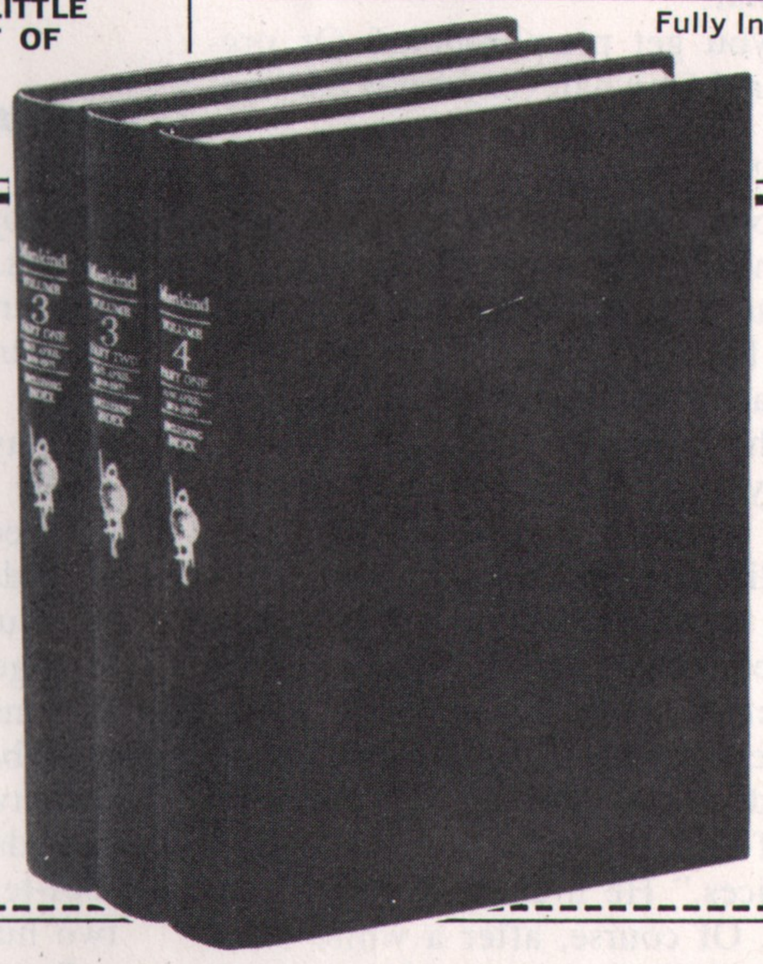
**$10.00 each**
Morocco Leather Grain Binding

**VOLUME 3, PART 1**
(June 1971 - April 1974) Available in a limited quantity.

**VOLUME 3, PART 2**
(June 1972 - April 1973) Available in a limited quantity.

**$8.50 each**

Fully Indexed




**MANKIND Magazine** ORDER DEPARTMENT
**8060 MELROSE AVENUE, LOS ANGELES, CALIFORNIA 90046**

Please send me the Bound Volumes as indicated below. I have enclosed $_____ ☐ Cash, ☐ Check, ☐ Money order, payment in full.

☐ **VOLUME 4, PART 1 — $10.00 each**
☐ **VOLUME 3, PART 2 — $ 8.50 each**
☐ **VOLUME 3, PART 1 — $ 8.50 each**

NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

California residents please add 6% sales tax. Allow three weeks for delivery.

"In triplicate." He picked up his phone.

The next afternoon on her coffee break Cass met Frank Fitzgerald in the cafeteria. "So I guess he's going to shoot the works," she said. "Probably looking for a Nobel Prize. Well, I've got to hand it to him, it's an interesting idea."

"Takes more intellectual honesty than I gave him credit for," Frank said around a mouthful of donut. He swigged some milk. "So he's going to have you testing for ESP?"

"Well, I suppose so. He knows that's all I do. He wanted me to draw him up a list—I mentioned telepathy, clairvoyance, clairaudience—I've never found one of those, you know—telekinesis, precognition—"

"S'funny," Fitzgerald said. "I had a grandmother who was always telling us what was going to happen. Sometimes it did."

"Hmm," Cass said, unimpressed. She sipped black coffee. Everybody's grandmother was supposed to have had premonitions; unfortunately these grandmothers were never available for testing.

"Is that why they called you Cassandra?" he asked suddenly.

"Is what?"

"Do you get premonitions? Or precognitions? Or whatever term is fashionable?"

"No. Not a thing. I'm just interested in psi phenomena; I've never seen a ghost, never had a premonition that came true—lots of them that didn't, of course, like anyone. I can't tell what people are thinking. And I really wash out in the lab tests; zilch."

"But you still believe in these things, right?"

"I believe in the Amazon River, too, and I've never seen it. I believe in cosmic rays. I believe in viruses, but I've only seen them in pictures."

"I guess it's no worse than believing in the id or the superego," Frank said. "Even if I usually think of them as literary devices." He munched slowly. "Or calories. Of course, after a while I *can* see them." He laughed without mirth. "Susan left me last week, you know."

"Oh, I *am* sorry, Frank," Cass said. "I really am. What happened?"

Frank stood up from the table. "What do you think happened?" He looked down at his body. "She pleaded and nagged and threatened, and nothing worked. I just kept gaining. I guess I'm not much fun to be around any more. I'm not the same." He blinked. "Well, Guilar's letting me in his study project, anyway."

Cass patted him on the hand. His flesh was cold and rubbery to the touch.

"See you," he said. "I've got to go teach a class." Cass watched him as he shuffled out, a miserable hulk.

Back in her office Cass looked at the stack of reports on her latest crop of subjects. She had to get rid of all the back work; tomorrow Guilar's project started.

She lifted the phrenology-model paperweight and picked up the first report: Anastasia Nikoyan, 24. The attached photo showed a strong-faced blonde woman with three double chins.

She'd be pretty if she lost some weight, Cass thought. A lot of people would. Well, it's no great virtue on my part to be thin. I just don't gain.

She examined the scores: low to chance on everything but precognition. Strange. And precognition was such a rare ability. She made a note to run some more tests, and went on to the next subject: Matthew Zarnes, 21, mediocre in telepathy, chance-only scores on everything else. She sighed. Such a number of subjects to test for so few positive results. It was worse than searching for the proverbial needle: most people wouldn't believe in the needle if you found it and stuck them; they'd hide in the haystack.

She had to hand it to whoever had selected the seventy-five subjects: they included doctors, nurses, laser techs, ex-shuttle pilots, teachers, students, evangelists, reporters, housekeepers, ex-construction workers, welfare recipients, bankers, and whores. All weighed from two hundred fifty to three hundred pounds and up, except for one four-foot-ten Asiatic woman who weighed two hundred.

Because of the number of subjects, Cass asked for and got an assistant. Even so her weekends and evenings were taken up with running tests, tests, and more tests, accommodating herself to seventy-five schedules, running endless series for statistical validity, and checking her assistant, who had fouled up one entire series by writing symbols with a scratchy pen instead of using a rubber stamp. Three subjects had been able to distinguish the different sounds a pen made when it recorded stars or wavy lines. It had happened to Rhine, too, but the assistant didn't know that.

Cass had no time for social life and no time to rest, unless it was while waiting out a broken appointment. She sat nibbling on a bowl of potato chips—her subjects were too anxious to perform if she didn't keep food around—and read the news:

FARMERS HOLD OUT AS CHICKEN PRICES SOAR . . . REVOLUTION IN ARGENTINA, U.S. EMBASSY BURNED . . . MIDEAST PIPELINE CLOSURE THREATENED . . . PROBE REPORT FROM PLUTO . . . she hit "stop" for that and read that, as expected, no signs of life had been found. Smart Pluto. She hit "go": ' PRICE PROBLEMS TEMPORARY, SAYS PRESIDENT . . . REPORTERS ARRESTED . . . FUNDAMENTALISTS BURN POPCONTROL CENTER . . . "stop"—same bunch that had been marching in protest, she noticed. Nut groups!

Frank Fitzgerald stuck his head in the office door. "Oh, I'm sorry," he said. "I didn't mean to interrupt you."

**The mind has talents as yet undreamed of. And some of those talents might have a very high survival value.**

"Just waiting for a late subject. Nothing on the news anyway." She flicked off the set.

Frank walked in and took a handful of potato chips. "I was just wondering if you could come to a dinner party this Saturday. I'm serving chicken." He waited expectantly.

"Gee, Frank, how can you afford it? But I've got three subject to see Saturday night, it's the only time they could come—that's the problem with an unbiased sample, we don't automatically get subjects with a lot of free time. Thanks, though."

Frank looked depressed. "Well, that's the breaks. Tell you what—I'll save you a piece, bring it Monday. What would you like?"

"Just a wing, Frank. Just a wing will be fine. And say, thanks a lot, really. OK?"

"Yeah."

"See you next Tuesday at three—don't forget—it'll be your turn."

"I won't forget. I'd like to see what you do. I've been tested so much by now they ought to give me another degree."

"They have, Frank."

"Oh?"

"The third degree."

Frank took another handful of chips and walked out smiling. "See ya."

Dammit, Guilar, I *have* been working on it!" Cass shouted.

"So why do I have reports from all the other people? Nearly complete reports? And little or nothing from you?" Guilar was cat-neat and prim as ever, but his tone was furious. "How can I co-ordinate this project when I don't have full cooperation?"

"Cooperation? I'll tell you about cooperation. How the bleedingell can I and one assistant run test batteries on seventy-five subjects—seventy-five, mind you—tests that take a minimum of six hours—when I get last choice on scheduling? Competing against people who work a five-day week and want sainthood if they come in on Saturday once in their lives? And then the damn subjects all have different schedules, and half of them don't keep appointments—I envy you if you ever try any sort of therapy program with them, I really do!"

Guilar sat, hands folded, and said slowly, "I hope you feel better now, Dr. Talwan."

You sonofabitch, Cass thought, I hope you get so swamped when it's your turn that you smell like skunk cabbage. She took a deep breath and said, "I *have* been under a lot of pressure. But I should have the rest of the subjects tested by next Wednesday evening—if they all show up—and by Friday I should have the statistics together."

"Send up the report the minute you're finished," Guilar said. "And I'll want to see you Monday morning for discussion."

And to find out what it all means, Cass thought. You're not going to like it one bit, and you'll refuse to act on the data. But that's your problem. The world will get along without you.

"I'll get right on it, Dr. Guilar," she said. As she left she pulled a sesame bar from her pocket and began to eat, even though she wasn't hungry.

Frank and Cass sat in Cass's office, nibbling cheese crackers. They were viewing the news:

RUN ON POULTRY, RABBIT FARMS AS CONSUMERS STOCK FREEZERS . . . she pushed "stop." "Do you know anyone with a freezer, Frank?"

"Nope. There isn't room for a good-sized one in an apartment. Besides, they use so much electricity—it isn't much of a saving, now the rates have gone up again."

"Last summer," Cass said, "All my food spoiled during the blackout. So I sold my freezer. What's the use?" She pushed "start": . . . COAL, OIL SHORTAGE . . . BROWNOUTS PREDICTED FOR SUMMER . . . REVOLUTION IN BRAZIL, AMERICAN COMPOUND LOOTED IN BRASILIA . . .

"Same old stuff," she said, switching off the set. "I don't feel like fighting the station crowds yet. Did I tell you I finished the statistics today and handed the whole bag to Guilar?"

"You said you were going to." Frank reached for more food. "Did the results work out like you'd projected?"

"Worse. Or better, depending on your point of view. You know my final correlation was plus 0.86?"

"You're kidding!" Frank said. "That's awfully high."

"Well, I had to be sure. Especially in my field, since a lot of people don't believe in psi powers anyway, I have to be specially careful. But a 0.86 correlation—" She looked down at her still-slim figure. "I've got a long way to go; I hope it doesn't hit too fast. I could have had a head start, like you, but, as I said, I only study psi—I don't practise it."

"Talking about head starts," Frank said, "I told you about my grandmother who had premonitions. I've checked my family history: *her* grandmother came over to the States in 1842—I always thought she'd come over in the big wave of Irish immigrations, but I was wrong."

"1842?" Cass was puzzled. "So?"

"Well, that was before the Famine. Two years before. The immigrants came in 1845–1849, when passage was exorbitant. If scurvy and starvation didn't get them, cholera likely would. But great-great-grandma had come over three years before."

Why?"

"She just had a feeling. She had to come to America. Everybody at home thought she was crazy, of course. But she *had* to emigrate. It was lucky she did, too: she learned English and married the son of an exiled Irish lord. When the immigrants came she was able to act as an interpreter and set up soup kitchens and arrange shelter for as many of them as she could."

"She had it easy," Cass said. "All she had to do was leave Ireland for America. Where can we go?"

"It's coming, and it can't be stopped," Frank said. "Some of us will live through it, though. Some of us, I guess, sort of knew in advance. I'm a city boy, but I'm reading all I can about hunting and farming, for later."

He reached into the bowl with stubby fingers and took another handful of crackers. So did Cass. o


# MOVING?

## PLEASE NOTIFY US 6 WEEKS IN ADVANCE

The numbers and letters on the label that bring VERTEX magazine to you are essential in helping our subscription department identify your records. Please let us know at least six weeks in advance before you plan to move. For fastest service, paste your current mailing label in the space provided below, or print in all information . . . including all letters and numbers and your name and old address, fill in your name and new address in space provided, then mail to VERTEX, subscription department.

Miss/Ms./Mr.

NAME (PLEASE PRINT)

ADDRESS (NEW)

CITY

STATE ZIP

ATTACH LABEL HERE
for address change

TO SUBSCRIBE TO VERTEX CHECK TERM BELOW AND FILL IN YOUR NAME AND ADDRESS ABOVE.

- ☐ 1 year/$8.00
- ☐ 2 years/$14.00
- ☐ 4 years/$24.00

MAIL TO:

VERTEX
SUBSCRIPTION DEPT.
8060 MELROSE AVENUE
LOS ANGELES, CALIFORNIA 90046

# BACKGAMMON
## HOW TO PLAY AND WIN

**A GREAT GAME AND A GREAT BOOK FOR BEGINNER EXPERT ALIKE!**

Whether you want to play for fun or money or both, this guide will teach all you want to know about backgammon — the most action-packed, exciting and challenging game of skill and chance ever devised.

The game dates back at least 5,000 years and was truly the sport of kings. One emperor wrote a book about it; another is said to have played the game at $15,000 per point. Today, with a resurgence of interest in the game on an international scale, backgammon is being played for fun in living rooms and for money in plush casinos across the globe. And this book will allow you to compete with the best players — and win!

Includes: Nearly 100 easy-to-follow diagrams • rules for playing • back and running game analysis • dice lore, numbers & probabilities • diagram of a complete game, from opening move and reply to end game • tournament play • glossary.

**BH438**
**$1.50**

**HOLLOWAY HOUSE PUBLISHING CO.**
**P.O. BOX 69804**
**LOS ANGELES, CALIFORNIA 90069**

Gentlemen: I enclose $_____ ☐ cash, ☐ check, ☐ money order, payment in full for books ordered. I understand that if I am not completely satisfied, I may return my order within 10 days for a complete refund. (Add 25c per order to cover postage and handling. California residents add 6% tax. Please allow three weeks for delivery.)

☐ **BH438, BACKGAMMON, $1.50**

Name_____

Address_____

City_____

State_____ Zip_____

On sale now at your bookseller or send order above


## WILLIAM ROTSLER

from page 39

have matter transmitters now," the person might likely say, "That's nice. Does it use much power?" They would have no idea of the impact such a device would have on society, any more than they realized, truly with television was doing, or cars, or maybe even the electric light. It was something that was happening, that was all. But even science fiction falls short—always—of a true prediction of the future. The future is always wilder than the predictions. Look how *everything* we were taught about space is turning out to be dead wrong, or quite different!

**Vertex:** Have you thought about writing about anything deliberately sexy, the future of sex, say, in science fiction?

**Rotsler:** Yes, I thought that might be a natural for me.

**Vertex:** New positions . . .

**Rotsler:** No, new positions aren't going to make it. The *Kama Sutra* is a sort of checklist of *possibilities.* I've been all through that and I find most of them are . . . well, I started to say "pain in the ass" but you might misinterpret that . . . most of them are achievable, but more like seeing how many people can get into a phone booth. A lot of *so what.* It doesn't *mean* anything, the fact that you can make it in null gravity, or hang from the ceiling with two wallabies and a schooner of jello.

But what is *very* significant now, and which has been almost totally ignored by the science fiction writers, is the women's liberation movement. It *is* changing and is *going* to change the sexual relationships, yet s-f writers seem to go right on making 1950 sexual relationships "work" in their stories. No way. Not that cultures don't swing back and forth in their feelings and what they consider important, but I think this is an undeniable on-going situation that demands consideration by all writers and *most* notably by those pretending to "predict" the future. I don't mean having a woman captain a starship but act just like a man in the same situation. She may or may not act that way, and that is for the story to decide, but those are "switches" and not evolution.

Another area where science fiction hasn't progressed is in a truly different future. Almost everything you read is just "today" with the added spice of "if this goes on." Just an extension of "now" rather than a truly evolved future. Of course, this is really difficult to do and still have a foot in today, enough identification for a present day reader to follow. I'm as guilty as any other s-f writer and my only excuse is that I'm new at it. It's not a reason, but it is an excuse. I think.

Science fiction hasn't done much in the way of keeping up with modern literary development, either. Perhaps that can be excused by saying when you are dealing with worlds and concepts unknown to the reader, or out of his culture or thought patterns, then you must present these ideas in an easily digested form, something familar to him, her or it. *Perhaps* you can excuse that, and perhaps not.

Writing in this "special field" of science fiction may be more retarded than other fields of writing, or the visual arts. There has been nothing written in the SF field as radically new as, say, *Ulysses* was in its time. *Ideas,* yes; writing, no.

I'm not interested in writing stories about "switches" on sexual situations, on the social changes that come from that, perhaps an ordered world in which nationwide computers mate you with the ideally perfect mate, approved by the Gene Pool Management Group, and where the social scientists "advise" you from positions of power. Screw that. Sex is *fun!* It's not something you do *efficiently.* That is not one of its specifications. Sex is nature's flower, nature's way of making it all attractive and insuring the preservation of the race. It's fun, and we should all practice it a lot . . . get efficient *that* way, maybe.

**Vertex:** Why are the only *stories* you've written are science fiction?

**Rotsler:** I've only written a couple dozen science fiction stories, and a novel and a half.

**Vertex:** That's more than Stanley Weinbaum wrote in his life! If you were Mozart you'd be dead by now, do you know that? I know you write all those articles and some articles come out looking like stories, but why is the only *fiction* you write science fiction?

**Rotsler:** Because it is the only kind that interests me. There are no restrictions in style, you can write it in any style, from Grand Lieber to Flourescent Ellison, from Cool Clarke to the robots of Larry Niven.

**Vertex:** Do you get annoyed at editorial criticism?

**Rotsler:** Not so far. It's been very helpful. I'm just a beginner. Getting nominated for awards and even this interview makes me feel very strange, like I'm up there with the Biggies, and I don't feel I deserve it. I'll take what help I can get, but I never take it blindly.

**Vertex:** What would be a good ending for this interview?

**Rotsler:** I'm sorry, I only believe in beginnings . . . ○

## VABULOUS

from page 47

checked within each stage and the spacecraft.

Finally, the high bay door is once more opened and the crawler-transporter lifts up the awesome weight of the spaceship and launcer and ever so slowly transfers the assemblage to the launching site. The bay door closes and the Vertical Assembly Building is ready for its next job of precision macro-assembly.

After completion of the Skylab series, it now appears that the joint American-Russian earth-orbit rendezvous will be the next forseeable time an Apollo/Saturn will be assembled in the VAB.

The space program's next big project is the Space Shuttle. One of the VAB's high bays is already being converted to accomodate the reusable booster and orbiter combination. The VAB will be in use for as long as the space program utilizes rockets that will fit through the high bay doors. At this point in NASA's truncated mission, that looks like more than enough versatility.

The Vertical Assembly Building has one other use; storage of the Saturn stages. The unused stages are kept along the transfer aisle in plastic wrappings filled with dessicants and other protective agents.

For a visitor who feels deeply about mankind's involvement in space and America's committment to that effort, those storage areas are the saddest sight on the Cape.

There are other signs of disuse; the firing room used for Apollo 11 is now completely powered down and looks like a ghost town of covered consoles; the mission simulators that our astronauts trained on have all been moved to Houston; and even the visitors to the tourist center act as if they are visiting a museum rather than an active spaceport.

But there is something almost pitiable about the storage area in the VAB.

The giant Saturn stages lie dead and dismembered. The translucent plastic wraps filled with cloudy dessicants are all too remindful of shrouds. Stenciled signs carry epitaphs such as "Saturn S IVB Stage. No Mission." and "Saturn S II Stage. No Mission."

But perhaps someday a fully assembled Apollo/Saturn, or even more powerful vehicle, will again roll majestically through the high bay doors of the VAB and out into the bright Florida sun. Mankind will again be on his way to the Moon, to Mars and, most hopefully, beyond. NASA and the Vertical Assembly Building will be ready whenever America dares to dream again. O


**HORSEPLAYERS**

**WIN BIG, WIN OFTEN, WIN EASY WITH THE AMAZING NEW BOOK**

# HANDICAPPING TO WIN!

### NEVER BEFORE ANYTHING SO FOOLPROOF!

Winning is the name of the game and here, finally, is an author who lays it on the line NO HOLDS BARRED! You want an INSTANT WINNER! He shows you how to spot them. One chapter alone, THE MILLION DOLLAR MOVE, is worth $100,000 or more to any player. If a little bit of LARCENY is involved, he calls it like it is and makes it stand out like a red flag. Nobody in history has ever made it so easy to spot the horse that's out to WIN.

### EXPERT TELLS YOU HOW TO BEAT THE SYSTEM!

Don't let anybody kid you! Who's on your side? Not the jockeys. Not the handicappers. Not the trainers or any other so-called horse racing INSIDER. You're on one side. They are on the other . . . the establishment. All they want from you is action — any kind of action; good, bad, indifferent, win, lose or draw. Their books and articles give you the same tired pap again and again. Cover the name and they're all the same. ONLY SCOTT FLOHR GIVES YOU THE STRAIGHT DOPE YOU NEED TO BEAT THE SYSTEM! HE'S A PROFESSIONAL. After reading HANDICAPPING TO WIN, YOU'LL NEVER FALL FOR ANOTHER SUCKER BET!

### TWO DOLLAR BETTORS ATTENTION!

Scott Flohr is a big money player and he has written this book for men (and women?) who like big action, want big action and want to know how to win big money. If you are a two dollar bettor and want to stay a two dollar bettor, HANDICAPPING TO WIN will make money for you but why bother unless you want to MOVE UP TO THE BIG PAYOFF WINDOWS. SCOTT FLOHR SHOWS YOU HOW WITH ABSOLUTE CONFIDENCE!

**HANDICAPPING TO WIN**
**by Scott Flohr**
**$7.95**

**SCOTT FLOHR'S NEW BOOK IS RACE TRACK DYNAMITE!**

**SHOWS YOU HOW TO:**

- Up your win chances by 40-50%
- Make the most of post betting
- Use the tote board to make more money
- Know when class is more important than time
- Spot a "fixed" race
- Avoid getting "suckered" by sure losers

and most important of all,

- How to spot those rare million dollar moves

**NOW ON SALE AT ALL BOOKSELLERS**

**or use coupon to order direct from publisher. Payment must accompany order.**

**GUARANTEED SATISFACTION RUSH ORDER FORM**

**HANDICAPPING TO WIN**
MELROSE SQUARE PUBLISHING COMPANY
8060 MELROSE AVENUE, LOS ANGELES, CALIFORNIA 90046

Yes, rush me a copy of HANDICAPPING TO WIN by Scott Flohr. I enclose $7.95 ☐ check, ☐ cash, ☐ money order, payment in full. I understand that if I am not wholly satisfied, I may return my order within 10 days for a complete refund. (Note: California residents add 6% tax.)

Name_____

Address_____

City_____ State_____ Zip_____

# AETHERE

***He wasn't sure just who he had a date with, or what was going to happen when he got there, but he was sure that it was going to be interesting.***

**fiction/WALT LIEBSCHER**

**artist/SUSAN JENKINS**

# NAVORDICA

# LETTER

The phone rang and it gave me quite a start. Instead of the usual jangling summons to answer, the ring was sweet and mellow, somewhat like the unique sound of a glass harmonica.

Puzzled, I lifted the receiver, gave out with a quizzical "Hello," and received another surprise.

"Hi, Walt darling, this is Elona Blake. How are you?"

"Fine," I uttered, "just fine." Who in the hell was Elona Blake?

"I can tell you're puzzled." The voice was extremely pleasant. "Bob and I met you at the writers meeting the other night at the Lindlers. Remember?"

"Of course I do. And how are you?" Nothing wrong with a little white lie.

"Oh, we're both fine. Bob finished his script outline last night and the producer is ecstatic."

"Gee, that's great."

"So we've decided to celebrate. I know this is short notice, but are you doing anything Saturday night?"

"Let me check a minute." Actually I wanted a bit of time. I hadn't the slightest idea who the Blakes were, and the meeting had been at the Schindlers. Lindler-Schindler, an easy mistake. Oh, hell, why not. Besides she sounded so pleasant. Too pleasant? Forget it.

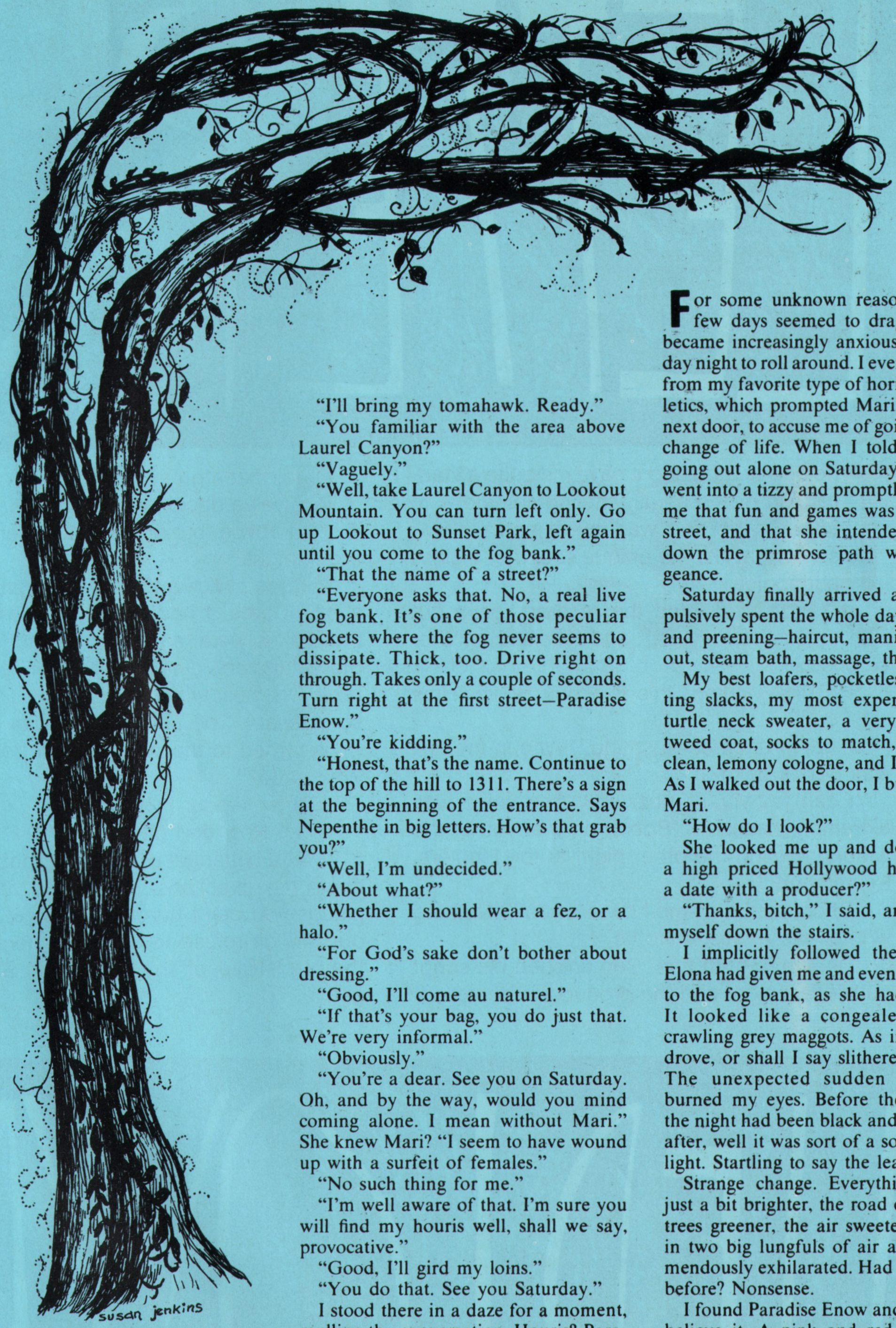
I returned to the phone. "I'm free Saturday. What's up?"

"Dinner. About 7:30. OK?"

"Fine. How do I get there?"

"You'd better get a pencil and paper and take down the directions. We live in one of those places you can't hardly get to yet. Several of our friends refuse to come up here. They say they're afraid of the Indians." She giggled gently.

# ALEDOME




***What puzzled him was that even when it was all over, when it was nothing but a beautiful memory, he wasn't sure what really happened.***

"I'll bring my tomahawk. Ready."

"You familiar with the area above Laurel Canyon?"

"Vaguely."

"Well, take Laurel Canyon to Lookout Mountain. You can turn left only. Go up Lookout to Sunset Park, left again until you come to the fog bank."

"That the name of a street?"

"Everyone asks that. No, a real live fog bank. It's one of those peculiar pockets where the fog never seems to dissipate. Thick, too. Drive right on through. Takes only a couple of seconds. Turn right at the first street—Paradise Enow."

"You're kidding."

"Honest, that's the name. Continue to the top of the hill to 1311. There's a sign at the beginning of the entrance. Says Nepenthe in big letters. How's that grab you?"

"Well, I'm undecided."

"About what?"

"Whether I should wear a fez, or a halo."

"For God's sake don't bother about dressing."

"Good, I'll come au naturel."

"If that's your bag, you do just that. We're very informal."

"Obviously."

"You're a dear. See you on Saturday. Oh, and by the way, would you mind coming alone. I mean without Mari." She knew Mari? "I seem to have wound up with a surfeit of females."

"No such thing for me."

"I'm well aware of that. I'm sure you will find my houris well, shall we say, provocative."

"Good, I'll gird my loins."

"You do that. See you Saturday."

I stood there in a daze for a moment, mulling the conversation. Houris? Paradise Enow? Nepenthe? Shades of the Arabian Nights and stuff like that.

"Well, Mister," I said to myself, "you seem to have an adventure in store."

I went back to bed, promptly fell asleep, and for the first time in years, had a highly erotic, and exceedingly damp dream.

For some unknown reason the next few days seemed to drag by and I became increasingly anxious for Saturday night to roll around. I even abstained from my favorite type of horizontal athletics, which prompted Mari, who lived next door, to accuse me of going through change of life. When I told her I was going out alone on Saturday, she really went into a tizzy and promptly informed me that fun and games was a two way street, and that she intended to travel down the primrose path with a vengeance.

Saturday finally arrived and I compulsively spent the whole day grooming and preening—haircut, manicure, work out, steam bath, massage, the works.

My best loafers, pocketless form fitting slacks, my most expensive white turtle neck sweater, a very masculine tweed coat, socks to match, a whiff of clean, lemony cologne, and I was ready. As I walked out the door, I bumped into Mari.

"How do I look?"

She looked me up and down. "Like a high priced Hollywood hustler. Got a date with a producer?"

"Thanks, bitch," I said, and whistled myself down the stairs.

I implicitly followed the directions Elona had given me and eventually came to the fog bank, as she had called it. It looked like a congealed mass of crawling grey maggots. As instructed, I drove, or shall I say slithered, through. The unexpected sudden brightness burned my eyes. Before the fog bank the night had been black and damp, and after, well it was sort of a soft rosy twilight. Startling to say the least.

Strange change. Everything seemed just a bit brighter, the road cleaner, the trees greener, the air sweeter. I sucked in two big lungfuls of air and felt tremendously exhilarated. Had I been here before? Nonsense.

I found Paradise Enow and still didn't believe it. A pink and red road sign? Private road? No, there were other houses on the way. But with minarets? Probably a new housing development called Arabian Acres or some such inanity.

I came to NEPENTHE, drove up the driveway, and was confronted with an

*turn to page 91*

# ALL 4 OF THESE GREAT HISTORY BOOKS FREE

## WITH YOUR SUBSCRIPTION TO MANKIND MAGAZINE

**1** **THE HUMAN SIDE OF HISTORY**
The fascinating history of man's human side—manners, morals, and games—is not only informative but also fun. Included in this book are a survey of the first one hundred years of college football and histories of cosmetics, glass, ice cream, and (would you believe?) home laundry. On the serious side there is an interesting new look at the Victorians and studies of juvenile delinquency, prehistoric diseases, and the black plague. Illustrated with forty-seven drawings and paintings. 256 pages.

**2** **THE AMERICAN INDIAN**
Only within the last few years have white historians begun to look at the history of the American Indian objectively. This unique collection covers the highlights of Indian history primarily from the Indian Point of view. Included are a history of the Pueblo Indians of New Mexico, the tragic story of the removal of the Cherokees from their ancient homeland, the story of the man who almost organized the Indians into a unified fighting force, and a study of American Indian humor. Illustrated with fifty-four photographs, drawings, paintings and maps. 256 pages.

**3** **GREAT MILITARY CAMPAIGNS**
"War is hell," said William Tecumseh Sherman and war is particularly hell for the losers. This collection of articles on great military campaigns concentrates, to a great extent, on the unsung heroes of losing causes such as Xavier Mina who led a force of Spanish guerrillas against Napoleon during the Peninsular Campaign of 1808–1814; Tyrone of Ulster who fought against the British for Irish independence; Boabdil of Granada who lost Moorish Spain to the Christians, and Finland's Winter War of 1939. Illustrated with forty-six photographs, drawings, paintings and maps. 256 pages.

**4** **THE ANCIENT WORLD**
Among the scholars represented in this volume are the renowned Dr. Michael Grant, former president of the Queen's University, Belfast, Ireland, Dr. Marvin Berry of the University of Southern California, and Dr. Paul I. Maier of Western Michigan University. The articles range from Dr. Berry's prize-winning "The Age of Solomon," in which he questions the myth of King Solomon the Just, to Dr. Grant's study of the early centuries of Christianity; from a comprehensive profile of Alexander the Great to Dr. Maier's unforgettable study of Pontius Pilate. Illustrated with thirty-four photographs, drawings, paintings and maps. 256 pages.

Experience history alive with verve and color to stimulate your understanding and sharpen your vision of man and his adventure on earth. Share Lord Byron's vision of Greece. Travel the western badlands with Jesse James. Open an Egyptian tomb. Charge up San Juan hill. Walk the streets of Colonial America or have dinner with an Indian tribe. Each issue of *Mankind* magazine brings you the delight of fresh, bold, unexpected ideas, beautifully illustrated and superbly written. Share with us the pleasure of *Mankind.* Send in your subscription today.

**ALL 4 BOOKS FEATURED ABOVE YOURS FREE IF YOU SUBSCRIBE NOW!**

**MANKIND MAGAZINE,** Dept. 10
8060 MELROSE AVE./LOS ANGELES, CALIF. 90046

Enclosed is $12.00 ☐ cash, ☐ check, ☐ money order payment in full for my 12-issue subscription to Mankind magazine—a savings of $3.00 off regular single copy price. Also send me the four featured books free as my subscription bonus.

Name _____

Address _____

City _____

State _____ Zip _____

# THE FIRST OBSERVATORY

from page 75

After passing through another 150 feet of pyramid, the tunnel opens into the Grand Gallery, a tall, narrow room which works perfectly as an observation chamber, being an open slit exactly on the meridian of earth and perfect for measuring celestial movement. A room such as this would be the only possible ways of *accurately* mapping the sky available before the invention of the telescope. Of course, this works only while the top of the Grand Gallery is open to the skies. In other words, before the top half of the pyramid is completed. And in case you're thinking "top half" is just an approximation, the level at which the Grand Gallery opens contains a flat area exactly one half the size of the pyramid's base.

But the fact that the Grand Gallery could be used as an astronomical observatory only at the time when the pyramid is half completed does not detract from the possibility of the theory that the pyramid is an observatory. After all, they did not have telescopes, and the length of time necessary to completely map the skies and determine the motions of all the visible stars would not be that long. The Grand Gallery was used as an observatory, the job was finished, and the construction continued to fulfill the other design purposes of the great pyramid.

Oh, yes. A couple of other things which could be determined through having a slit such as the Grand Gallery right on a north-south meridian, and exactly oriented to that meridian. The fact that the earth, and all the other planets, revolves around the sun, and the relative positions of the planets, could easily be shown, beating Copernicus to the punch by *several* thousands of years. Also, with the instruments available at the time *and* the Grand Gallery it could be shown that their is a precession of the equinox of one-half degree every 36 years, and a complete precession every twenty-six thousand years.

Once the astronomical measurements were completed and codified the great pyramid could be completed and go into use as an almanac and timepiece extraordinary. Given a structure over 400 feet tall at the latitude of the pyramid, perfectly vertical and with an exact orientation from which to make measurements, it might be possible to measure the length of the year and time the coming of the solstices with great accuracy. To make these measurements, though, on the opposite side of the pyramid from the sun there would have to be a very accurate measuring grid.

Moses Cotsworth advanced this theory, then went to Egypt to see if he could find any sign of a measuring grid to the north of the great pyramid. He worked out what the grid should look like, and what sort of accuracy could be expected. What he found astounded even him.

The grid was not only there, but in layout it was better than he had anticipated, had twice the number of orientation points he had thought possible, and using the grid the summer and winter solstices could be measured accurately and the length of the solar year determined to within two decimal places. There is *no* explanation of how that grid might relate to the great pyramid as a tomb. It's only possible use is as a super-sundial, calibrated with phenomenal accuracy to measure not hours and minutes, but seasons and years.

Another aspect of the great pyramid is that it seems to have been used as a universal standard for weights and measures. The weights are long-gone, but the standards for measurements are built right into the pyramid, Measurements which have since been lost, even though the standards haven't. And chief among the standards is the so-called King's Sarcophagus. As mentioned earlier, the sarcophagus is of a shape which makes it unlikely it was ever used for that purpose, and it is too large to have been brought in once the pyramid was finished. It had to be placed in the King's Chamber before the last half of the pyramid was completed. Which is rather unlikely if it was to act as a coffin.

However, if it was a standard for the measurements then in use, things look a bit different. Even if the pyramid *was* built in the reign of Cheops, some 4,500 years ago, the most advanced tools available would have been made from a rather poor quality bronze. At that time man was barely out of the stone age, and certainly not into the iron age. So far as we know.

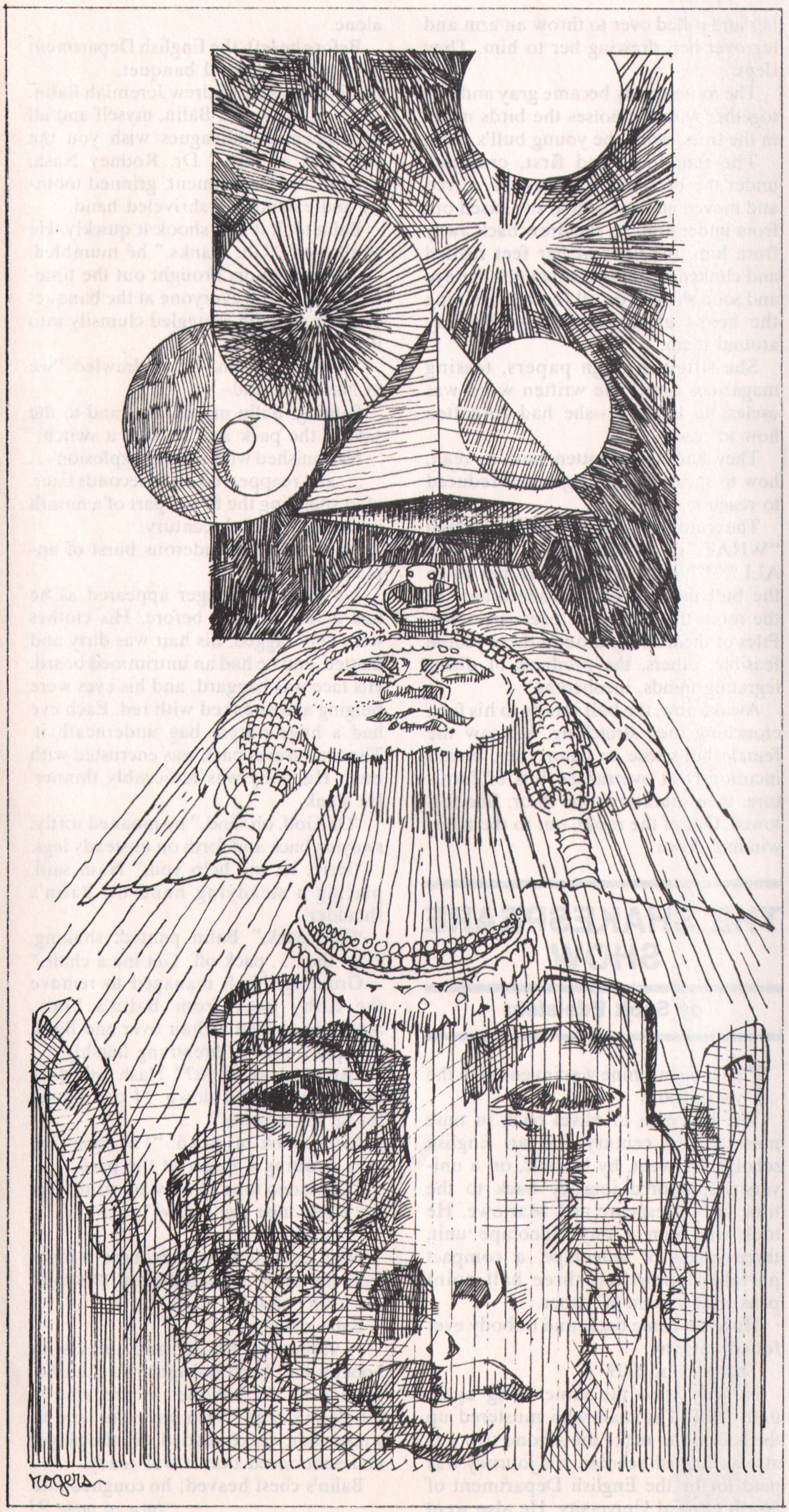
But the sarcophagus is made of a very special kind of granite which is found nowhere in Egypt, so dense it would require tungsten-carbide saws to cut it, and diamond-tipped drills to hollow out the center to the accuracy which actually has been found. But it *was* made, and made before the pyramid was completed. And placed in a spot where the temperature holds at an exact and unvarying 68 degrees. An even temperature such as the even temperature we use to hold our weight and measures at an exact size.

We don't know how the sarcophagus was made, but there *have* been explanations. Explanations which lead us into the geodetic aspects of the great pyramid.

There have been many theories put forth, many books written, in the past few years postulating that earth has been repeatedly visited from space, that the gods we worship are actually but dim memories of alien beings from the stars, that anything unexplained in history is merely the work of an extraterrestrial being.

***The legends, many today accepted as facts, detailing how the great pyramid was built simply won't stand up to a close scrutiny.***

Many aspects of the great pyramid, especially geographic and geoditic aspects, lend support to the theory that it was built by, or at least at the direction of, beings far ahead of the men of that period in scientific development. The length of the base is equal to one-eighth of a minute of a degree of latitude at the equator. Therefore twice the perimeter would equal one minute of latitude, accurate to *one centimeter*. The apothem equals one-tenth of a minute of latitude at the 29th parallel. The great pyramid is located exactly on the 29th parallel. Unless these two figures are pure coincidence, it indicates that the builders knew that degree of latitude is shortest at the equator and increases as one approaches the pole. But the chance of these two measurements being coincidence are




greatly lessened when you consider that if the circumference of the base is used to represent the equator, then the distance from the base to the apex *exactly* represents the distance from the equator to the north pole. *Exactly* even when it is taken into consideration that the earth is not a true sphere, but is slightly flattened at the poles. And, finally, if you take an equal surface projection map of earth, one that shows the various land masses in true-size relationship to each other, rather than in true perspective as you would have when looking at a globe, you will find that the great pyramid lies on a line exactly dividing the northern and southern hemispheres into equal land masses, and on one of the few lines which can be drawn dividing the land masses into equal east and west groupings. Again, coincidence?

As stated earlier, books have been written claiming that all this was the work of beings from another world, far surpassing us in intelligence, who visited earth before the dawn of recorded history. But man has been recording history for only some five thousand years, but he has been *potentially as intelligent as he is now for some fifty-thousand years.* We cannot in certainty even say when the great pyramid was built. Oh, we know it wasn't built thirty or forty thousand years ago. It wouldn't still be around, if that was the case. But it was built at least five thousand years ago, and many scientists concede that it *could* be at least fifteen thousand years old. Which means that at its *newest* it was built just prior to the dawn of recorded history. Who knows what civilization might have flourished long before the reign of Cheops? What civilization might have perished, leaving behind only the great pyramid, and the Sphinx, which is considered to be even older, as reminders that they were here? To assume that man reached a level where the pyramid could be built, say the same level of technology which prevailed a thousand years before Christ, then fell back to a stone age level for a few millennia, seems a much more logical thesis than that man was visited from the stars, and thence came the great pyramid.

Whatever idea you wish to accept, though, it is now clear that the great pyramid was built as more than merely the container for a dead king. Whether it was an observatory, man's first observatory, built to increase man's knowledge of the stars, or as a temple to the beings who visited man from the stars, it was, in essence, man's first step towards those same stars. Man's first observatory. O

# POTPOURRI

from page 14

pulled at and pinched by the other females since her capture; now she saw them leaving. She relaxed, chin sinking onto her chest; no instinct bade her seek shelter yet, nor would she have until she became cold, had the bull not seen and smelled her.

The wind stirring the branches of the trees obscured the slight noise he made dropping down from his low branch. Arms loose, hands hanging below his knees, he crept up behind her. She had not moved. Her scent was strong and the bull felt a pulse stirring in his loins. He waited, breathing deeper, drinking in the rich smell, feeling the pulse throb stronger.

When the impulse came he cuffed her to the side. She scrambled in panic, stirring up dust, covering them both. The bull had mated several times in the harem he had inherited from the old one—he knew how the female should behave, the bending posture she should have assumed, but apparently *she* did not know and was terrified. In her scramblings she rose to her knees and tried to scurry on all fours. He lunged onto her back, hips jerking spasmodically. She twisted from his pawing arms, trying to wrest herself from the thighs that clamped her. Irritation flooded the bull and he reached up, grasped a handful of hair and slammed her face into the hard ground. She went limp. He canted her hips up lunging for the place so easily found in the other females, found and nicked it at last, moving until he—overwhelmed—could move no longer but sank onto her prone body.

They lay in the dust until the bull grew cold in the dark and rose, disengaging. The female stirred, whining in pain, and drew up into a knot. Standing over her, the bull cuffed her again, with less force this time, having no need to subdue. He reached under her below the shoulders, pulled her up to his side, and started walking toward the places where the pack went to sleep or to escape rain.

As he ventured into the first few doorways, he was met with snarls. Tiring by this time, he unceremoniously dropped the female when he found an empty room, walked to a corner and dropped to the floor, curling up for warmth. The female had stopped whimpering by this time. She gazed round-eyed at the room, as though she had never been in one before. Cold soon overcame her curiosity and she tried to huddle by the door. It was colder there. She crawled around the small littered room looking for warmth and was surprised to find it near the bull. She did not hesitate to lay down close but did not touch him; he sensed her and rolled over to throw an arm and leg over her, drawing her to him. They slept.

The room slowly became gray and this together with the noises the birds made in the trees, woke the young bull's pack.

The female stirred first, cramped under the bull's weight, then he stirred and moved enough so that she eased out from under him. As she drew back away from him, the litter at her feet rustled and clinked. Shining bits caught her eye and soon she was on all fours examining the heaps of all the things that lay around them.

She sifted through papers, tossing magazines aside; the written word was useless to her now—she had forgotten how to read.

They had all forgotten how to read, how to speak, and thought was reduced to reaction.

The crumpled headlines that screamed "WHAT IS BECOMING OF US ALL?????" did not scream to her or to the bull that stirred to wakefulness in the room that had once been an office. Piles of theories lay around them—some feasible, others, the products of disintegrating minds, incoherent.

Awake now, the bull sprang to his feet, crouching then stretching. He saw the female but chose to ignore her, poked incuriously at overturned bits of furniture, then shuffled to the door. She followed. Out of the room, out to the trees, winding down.

# THE SHAKESPEARE SHOW

**by Scott Edelstein**

The time machine was invented in the year 2006.

The first man to travel back in time more than a century was an English scholar. He went, by himself, on a university-sponsored journey back to the time of Shakespeare and Marlowe. He took with him a tiny videotape unit, three spools of videotape, a compact portable typewriter, three ball-point pens, and a ream of paper.

He never came back, and nobody ever found out why.

That was in 2009.

Nobody tried the same thing again until 2021. The man who mustered up the courage to make the second trip was also an English scholar. His journey was paid for by the English Department of North Central University. He also went alone.

Before he left, the English Department gave him a farewell banquet.

His name was Andrew Jeremiah Balin.

". . . and so, Mr. Balin, myself and all my esteemed colleagues wish you the very best of luck." Dr. Rodney Nash, head of the Department, grinned toothily and extended a shriveled hand.

Balin took it and shook it quickly. He swallowed. "Uh, thanks," he mumbled.

Two professors brought out the time-travel pack, and everyone at the banquet clapped as Balin struggled clumsily into it.

"Well, Mr. Balin," Nash drawled, "we at North Central—"

Panting, Balin moved his hand to the side of the pack and pressed a switch.

He vanished with a small explosion . . .

. . . and reappeared eight seconds later, after spending the better part of a month in the seventeenth century.

There was a thunderous burst of applause.

But Balin no longer appeared as he had a few seconds before. His clothes were very ragged, his hair was dirty and matted, and he had an untrimmed beard. His face was haggard, and his eyes were bulging and streaked with red. Each eye had a huge purple bag underneath it. The time-travel pack was encrusted with mud. His body was noticeably thinner. He stank.

"Oh God, oh God," he moaned softly, swaying back and forth on unsteady legs.

"Here, let me help you," Nash said, placing a steadying hand on Balin's shoulder.

"The pack," Balin panted, shaking. "Get the . . . pack off. Get me a chair."

Grunting, Nash managed to remove the filthy pack from Balin's body. Someone pushed a chair over and Balin collapsed onto it, breathing harshly.

"Are you all right?" Nash asked as the applause died down. "I can phone for an ambulance."

Balin shook his head. "The tape," he said, pointing a finger at the pack.

"The video tape? You want us to play the video tape right now?"

"The tape."

Nash detached the videotape camera from the pack, opened the top, and took out a tiny spool.

Balin coughed.

A videotape player and television hookup had been brought in at the beginning of the banquet in preparation for Balin's tape. Nash gave the tape to a professor, who threaded it in the player and announced that it was ready.

Balin's chest heaved; he coughed and

*turn to page 93*

# A THREE LETTER WORD CALLED LOVE

from page 86

edifice that can only be described as an embellished Taj Mahal. I put on the brakes, turned off the motor and sat for quite a while, eyeing the beauty and breathing in the intoxicating air which was now redolent with the perfume of thousands of flowers that had no earthly right to be that beautiful.

"Stunning, isn't it?"

I turned my head and was confronted with another type of beauty, very definitely of the female variety.

"Incredible Elona." I took a chance. I didn't know her from Adam.

"We've been her for quite some time, and frankly the sense of awe never dwindles. It's sort of like the thrill you get every time you cross the Golden Gate bridge. Enduring beauty."

I rolled up the car window, got out of the car, closed the door and locked it. This seemed to amuse her.

"Why the quizzical look?"

"Oh, I'm sorry. Did it show? It's just that we never bother to lock any doors. There seems to be no need."

I didn't believe it. "In this day and age?"

"Honest. There hasn't been a crime around here in eons. But do come inside. Several of the girls are waiting to see if you measure up to my glowing report of your handsomeness, and your charm."

"Hope I measure up."

"Don't fret, you will."

The interior of the house was exquisite. The susurration of an incredibly beautiful fountain in the center of the room, and the lack of ordinary furniture seemed to infuse my body with a sense of peace and contentment. A world of wonder. I was immersed in a riot of color, of mountains of luxurious pillows, of carpeted terraces that negated sofas or chairs, of luxury quite incredible, and yet so completely right. I breathed in the sweet air, deeply, in an attempt to gain composure, and the introductions to the beautiful people began.

When I say beautiful people, I mean that literally. The women were exotic, voluptuous, desirable, you name it. The men were handsome, rugged, charming, affable, sensitive.

"You remember my husband, Robert," Elona was saying. "The Newells, Kris and Lil, the Pinktons, Terri and Tom, the Russells, Flo and Sam, the Van Doghs, A. E. and Mayne, Riona, Cathy, Breesa—"

"Pleased, charmed, glad to, pleasure—" I ran out of amenities and just nodded.

"So," said Elona, "now that you have run the gauntlet, let's give you a drink and let you open up a bit."

"Christ," I heard myself saying, "I feel like a frog in a field full of pink flamingos. They're beautiful."

"Relax handsome, the best part is they are just as beautiful inside."

And they were. Charming, witty, conversationalists, sincere flatterers, lovely. Before long I felt completely at home.

Elona offered me a glass, dropped a small pill into it, and filled it with an amber colored liquid. With a slight bit of apprehension I sipped it. Ambrosia. A subtle combination of guava, cocoanut, a tinge of lemon, and a faint shadow of rum.

"Don't worry," Elona said. "It's not a drug. Euphoric yes, but not a drug, at least not in your sense."

"You read my mind?"

"A bit. We all can. A couple more sips and you'll do likewise. Helps to belong, to be a part.

I hastily downed two man-sized gulps and a mild euphoria did set in. And she was right. I had but to look at one of them and I sensed the thoughts. All good, all good. My God, they're angels.

Riona, one of the unattached girls, came over to me. She gave me such an intense look of appraisal I suddenly felt completely naked.

"If you feel that way, you might as well take them off. You have no secrets from us."

"But. But," I hesitated. "Well I'm slightly aroused."

"Well, I should hope so. I would feel damned inadequate if you weren't."

I took off my clothes. It seemed such a natural thing to do, and I was amazed at the absolute lack of shame. A quick glance around revealed the others were doing likewise.

If I explained, in very explicit terms, what transpired in the next few hours, you wouldn't believe it, and besides it would befoul something intensely beautiful. Every erotic thought or dream I had ever envisioned was completely fulfilled. There were women, one, two, sometimes three or four at once, and there were men, and we were all as one, and everything, no matter what, seemed suddenly natural and clean. Once, when I hesitated, one of the girls said "If it's love, there's nothing wrong with it."

I thought of a series of books I had read as a young man, in which the phrase unendurable pleasure indefinitely prolonged played an integral part.

And I thought of a three letter word, which somehow had lost its meaning, and a four letter word, a good four letter word had taken its place. It was love. Pure, wonderful, godawful lovely peaceful love.

When it was over, and I was leaving, I looked at Elona and wondered if I would ever see her again. How in the hell could I ever repay for such an evening.

"No, you'll never see us again. If you have learned, that's all that matters. Recompense is not what we look for. Just remember, and pass it on to others."

"I'll try," I said. "Oh, God, how I'll try."

Then she kissed me and suddenly I was through the fog bank and back to, what shall I call it, reality!

As I floated up the stairs to my apartment, I noticed Mari standing at the top.

"Well, lover boy," she started, and I sensed she was about to say something bitchy. But she hesitated, and I smiled at her.

I could see her melt. It was uncanny. "Whatever happened to you," she said. "You look like Jesus."

Without another word she followed me into my apartment and immediately took off her clothes. And we made love. For a long, long time we loved each other.

Later, her head resting on my chest, I puffed away several strands of golden hair that had fallen across my lips.

"Happy?" I asked.

"That's not the word," she answered. "Delirious. Let's face it. You were always a good stud, all animal and exciting. I had no complaints. But tonight. Tonight you showed me affection, honest to goodness, real affection."

"I felt it too."

"What happened earlier? Where did you go? To church?"

"Church," I sighed. "Not quite. But somewhere, somehow, ages and ages ago, and for some unknown reason, I think I spent a few wondrous hours in another world. I think I was given a glimpse of Paradise."

"Well, anyway it worked," said Mari. Immediately I sensed she hadn't meant to speak out loud.

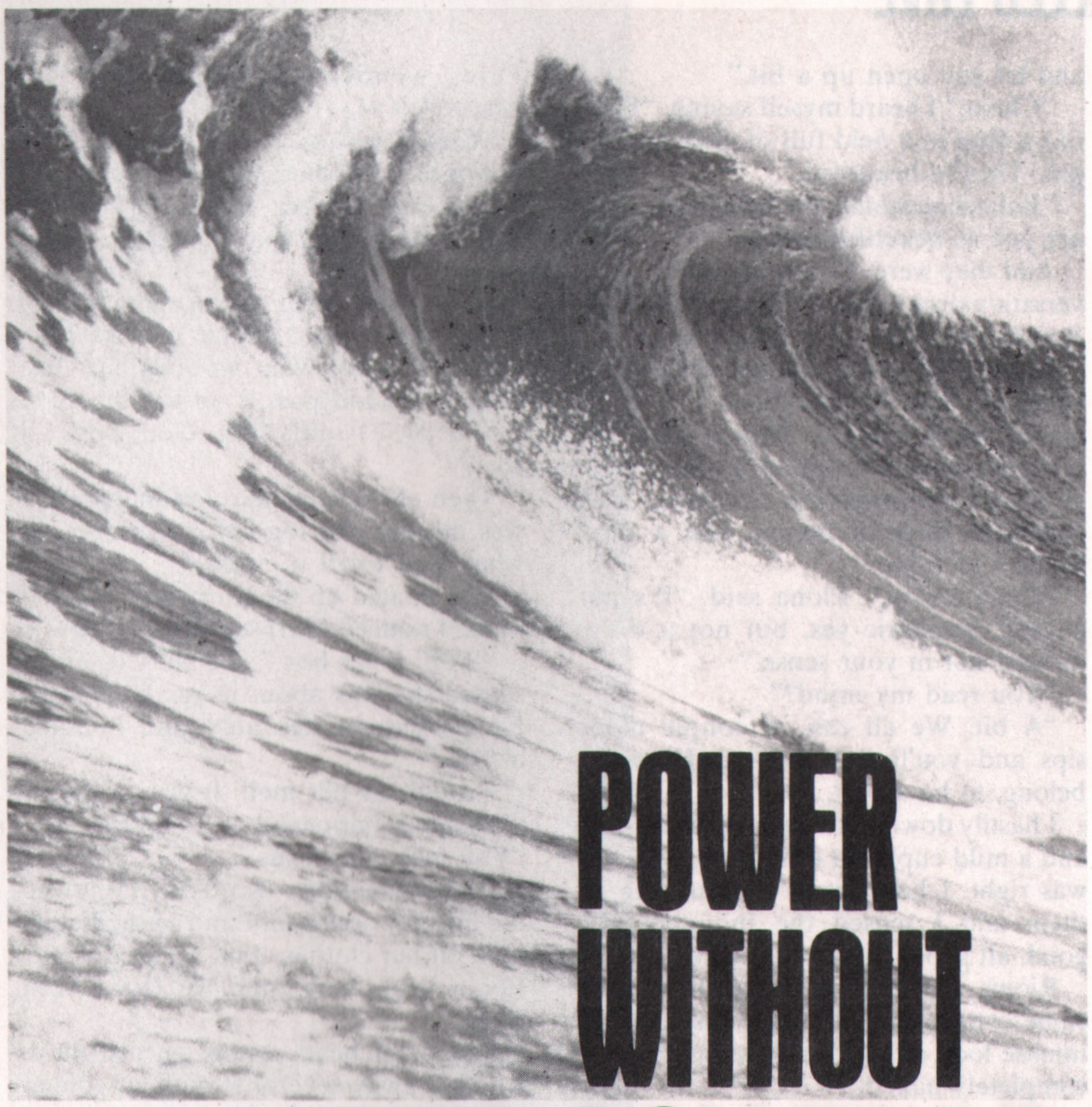
"What the hell did you mean by that?" I asked a bit too sharply.

"Never mind, Lover Boy." Gently she started to run her fingers through the hair on my chest.

I started to pursue the matter, but a pleasant tingle in my groin erased the question from my mind and I was soon caught up in more pleasureable pursuits.

Oftentimes, whenever I watch her closely, and marvel over the uncanny way she manipulates our children, I wonder! O

# ECO-CORNER



# POWER WITHOUT POLLUTION
## New Sources From The Sea

article/**JERRY POURNELLE**

Every power source presently available produces *some* kind of pollution. Fossil fuel systems make the oxides of nitrogen vital to smog. Nuclear plants create vast quantities of hot water at places we don't need it, as well as nuclear wastes that must be stored for thousands of years. Geothermal systems spew out brines. Even the most pollution-free system of all, hydro-electric power, dams swift-moving rivers and drowns hundreds of thousands of acres; or else put unsightly power-plants in waterfalls.

Every one of the various pollutants can be handled, of course, and there are advantages to each one. We will need them all for the next few decades. For the long term, though, industrial civilization needs a power source that creates *no* pollution whatever; that adds no energy to the Earth system as a whole; that is renewable in hours, days, or weeks, rather than the millions of years fossil fuel regeneration requires; and which will have pleasant rather than unpleasant by-products.

Solar screens might do that. Unfortunately, the technology doesn't exist to put them in space where they can be in sunlight 24 hours a day; and the only efficient power storage methods we have seem to have bad side effects. We shouldn't discount solar screens over the long term, but before we can use them, we need more and better technology.

The same is true with that great hope, fusion; only doubled and in spades. It took forty years to get commercially attractive power from fission; and fusion isn't even to the stage that Fermi was when he started that first graphite-heavy water pile in the squash court of the University of Chicago.

Yet there is a power source that meets all our requirements. It is instantly renewed, and has a potential for generating more power than we can ever use. Plants can be located out of sight, and the by-products are likely to be cheap proteins and cheap fresh water. The technology to get this power at costs very nearly competitive with present methods is already on the shelf.

Throughout the band between the Tropic of Cancer and the Tropic of Capricorn, the surface of the sea stands at about 25°C or 77°F. Deep underneath these tropical seas, though, the water is a constant 5°C. The resulting 20°C temperature difference is equivalent to a waterfall of over 90 feet. Few hydro-electric plants operate with a higher pressure head; and there is a nearly infinite amount of warm and cold water available.

In 1929 George Claude actually built a shore-based power plant that produced 22 kilowatts of useful power from sea temperature differences. He never made it economic, because the technology wasn't available in his day; but now things are different. The turbines to produce useful electricity from the sea could be bought off the shelf.

Claude used water as the working fluid for his system. Water has a very low vapor pressure, far too low for an efficient system, and of course its boiling point is very much higher than the maximum temperatures available from the sea. The systems now under study by the University of Amherst among others use propane, which boils at a far lower temperature. The great French physicist Jacques D'Arsonval, who originated the concept of power from the sea, suggested ammonia as another possibility, and there are groups studying ammonia-using systems as well.

Ammonia is in many ways an ideal working fluid for a sea-power system, because it has high vapor pressure and low boiling point, and would not require turbines quite so large as a system using propane or Freon; but unfortunately, ammonia plus sea-water makes a highly corrosive stuff that could eat the heart out of the system, and any method using ammonia would have to be absolutely leak-proof. The first systems will not use it, therefore; but it's well to remember it.

The sea-power system works this way. Hot water from the surface is taken down to about 280 feet deep, where it goes through a heat exchanger. The depth is chosen to keep the pressure differences between the insides of the system and the sea around it as near zero as possible, thus letting the heat exchangers be constructed of very thin-

walled materials. Obviously the thinner the walls the more efficient the heat exchanger—and the cheaper it will be to construct.

The working fluid, say propane, is boiled in the hot side. It passes through turbines exactly as would steam or falling water. The turbines drive generators. On the other side of the turbines the fluid goes into a condenser cooled by water brought up from the depths to about 150 feet below the surface, where again the pressure differential is minimum. That's all there is to it except for details.

Some of the details can be important, of course. Some aren't. One of the lesser important ones is that power is stolen from the system to drive the pumps that bring all that water through. It takes a *lot* of water, although not much more than a nuclear plant requires for cooling.

The stickiest detail is: what to do with the power? You can't run transmission lines from the off-shore station, and even if you could, the stations are likely to be located in the tropics. One would work quite nicely in, say, the Sea of Cortez, though, and it might well be possible to bring transmission lines up Baja California provided the juice could be got ashore in the first place.

A more imaginative proposal is to use the power to electrolyse water, liquify the resulting hydrogen, and bring the liquid hydrogen ashore through pipelines. The pipelines wouldn't be any different from those we now use for natural gas. In fact, other studies are showing that a "hydrogen economy" with hydrogen transmitted by pipelines may be *the* way for the United States to go in the near future. Most of the existing pipeline network could be used, and even the space heaters and gas stoves we already have would work with burner modification.

Another method short of pipelines is to bring the liquid hydrogen ashore aboard ships. It's seriously believed that a lot of America's energy will in future come from abroad as Liquified Natural Gas (LNG) within a decade; the same kind of ship can bring liquid hydrogen from an off-shore power plant.

The result is power without fuel use. Free power: except, of course, for the costs of construction, which run higher than those of conventional plants. They're *very* favorable compared to large fast-breeder fission plants, though, and with rising fuel costs the economic advantages of sea-power systems begin to be quite high.

It's not only power without fuel use, but power that's absolutely pollution-free. What the sea-power plant does is about what happens naturally off the coast of Chile: large quantities of cold bottom-water upwell to the surface. The flow of cold water along the bottom from the poles is increased, but the sea is so large and the amount of power taken from it so small in comparison, that oceanographers probably won't be able to notice any difference at all.

That cold water upwelling has its advantages, though. The cold bottom water is nutrient rich. It produces fantastic plankton blooms, resulting in very high fish production. Over half the ocean fish of the world are caught in areas of natural upwelling; artificial upwelling will bring with it easy fish production. That leads to cheap proteins—and most of the world is not calorie starved so much as it is protein starved. Kwashiokor and other protein-deprivation diseases are important enough to be the subject of an article of their own, but one of their main effects is a permanent lowering of intelligence level. More proteins in early diets will cure that, possibly resulting in enormous benefits to a lot of developing countries; and the amounts of protein that could be produced due to the artificial upwellings that would come with really large sea-power plants would be significant in that fight.

In places where the plant would be close enough to shore to make piping in fresh water economically attractive, the sea-power station has an added advantage. A 100 MW plant would produce about 60 million gallons of fresh water a day. The principle is much the same as that used by the Navy's "water-makers" aboard ship: warm water is vaporized in a flash (vacuum) evaporator and condensed by using some of the cold water flowing through the system. Obviously this would be most attractive to tropical islands, but there are many places where there are deserts near the warm seas. Some of those deserts can be made to bloom.

Transmission of power from nuclear plants off-shore—"electric whales," one imaginative company calls them—is already being studied and methods for accomplishing it are being developed. It would make a great deal of sense to continue that development—but also to look into sea-power, which has the potential of being the cheapest and least polluting method of generating electricity ever discovered.

It's as if we had a 90 foot waterfall stretching across the entire border from Canada around to Mexico and back; an inexhaustible source of renewable energy waiting to be tapped. O

## POTPOURRI

from page 90

he gagged.

"Look, maybe we had better get you a doctor," Nash said.

Balin shook his head. "The *tape*."

Nash signalled with his hand, and the lights dimmed and the television screen lit up. The scene was a narrow road winding through a town. There were a few people on the road, some leading livestock, some pushing carts.

"Stratford-on-Avon?" Nash asked.

Balin coughed and nodded.

Abruptly, the screen went blank. Balin groaned and rasped loudly, "Watch *Watch.*"

Another image appeared on the screen. It was the inside of a house or a shop. The lighting was poor and details were not discernable.

"Here he comes," Balin croaked. *"Shakespeare."*

There was a single collective gasp from the roomful of English scholars.

A man walked slowly into view on the left side of the screen. He was visible only as an outline against the dim light filtering in from the side. He was carrying what looked like a large dish.

"Are you sure that's Shakespeare?" Nash said.

Balin nodded, then dropped his head into his hands and began to weep.

"What's wrong?" Nash asked earnestly.

Balin lifted his head, and his bloodshot eyes were wet. He sniffed.

Shakespeare stopped before a bolted door, pushed the bolts aside. The camera moved closer and swung around until the door was in the center of the screen.

Balin's chest heaved and he sucked in air noisily. "Well . . ."

Shakespeare pushed the door open. The room inside was large, and light streamed in through a number of windows. A small table stood in the middle of the floor.

". . . well, you know how some people say that if you put six monkeys in front of six typewriters and had them type at random . . ."

The room was suddenly filled with a shocked babble.

"...eventually they'd type the complete works of Shakespeare . . .

Shakespeare walked into the room, placed the plate on the table.

"... and you know how most myths are based on fact?"

Something about three feet tall came over, hopped up on the table, and picked a banana off the plate. It balanced a portable typewriter in the crook of its arm.

"His name is Bonzo," Balin said. O

# THE TEACHER

from page 63

rellian Confederation. I hadn't gotten much sleep on that trip, and I must have been pretty groggy. Surprised he hired me, everything considered.

One thing I'll give the Mevelite credit for. He came right to the point. "I want to hire you, your ship, and an exploration crew. I've been told you've visited R'klva."

"Not exactly visited. I was part of the team that set up the R'klva-5 station, but I didn't see much else of the planet. As I understand it, you're a historian, though. What could you possibly want on R'klva? There's no history there. Nothing intelligent, home-grown or imported, has ever lived there except for the research station."

Canham shifted his eyes around the room, not speaking for long Leemarra, then: "I'm going hunting there."

I couldn't help it. I laughed. "Hunting for what? Bacteria? Two-steb-long lizards? The biggest animal on the whole planet would fit in your pocket. And it'd probably die of heart failure if you *did* put it in your pocket."

"It's worth ten-thousand Parv, good Mevelite Parv, for you to set up the expedition the way I have asked."

I didn't answer. I couldn't. The whole thing was just too ridiculous. The Mevelite was willing to pay five times the going rate to go on a hunting expedition to a planet which had nothing to hunt. I just sat there and watched as Canham reached into his pocket and pulled out ten one-thousand Parv chits and dropped them to the desk top.

"All right," I said as I shook hands with the Mevelite.

Now, looking at the little Mevelite crumpled into a relaxer, frantically clutching some sort of fuming drink, I wondered just how far I was willing to go for money. An expedition, even to as basically safe a place as R'klva, was no place for a madman.

Canham looked up at me, started to speak, stopped, then: "I'm sorry, but if you knew how important this expedition is to me, you'd realize how I feel, and why I've made certain demands. I'm not mad, nor am I a fool."

"Why don't you try telling me just what we're here for, then?"

"I've been waiting for this all my life," Canham said. "I've dreamed about this ever since I began training as a historian. I've devoted my whole career to finding the one most valuable creature in the universe."

"Come on, Canham. Let's not be melodramatic. There's no animal on R'klva worth the trouble of picking up."

Canham finished his drink in one long gulp, got another from the bar, and took another long drink. "Well, I'm looking for one. More accurately, a creature. A being that's supposed to be a myth, because no one's seen it. But it's real. The only reason it hasn't been seen is that the last remaining few—I don't know how many there might be—are right here on R'klva, where there's no one to see them. No one to confirm that they actually exist. No one to interfere with whatever it is they are doing.

"I didn't tell you this on Mac'Ullu because, frankly, I was afraid you'd refuse the job. You were the only qualified ship and expedition master I could find who knew the area and was free. That's why I offered such handsome pay." He looked directly at me for a long moment. "Sir, tonight we are going to capture an Elder!"

I must say I'm rather proud of the self control I showed. "Why, how interesting." I, too, took a long pull at my wine glass. And I wondered how many Canham had finished before my arrival.

"Oh, I know you think I'm joking," Canham said. "But they do still exist. I've studied them for almost a hundred Selem, and I know they're here, on R'klva. They must be almost extinct now, but there was a time, long before your race or mine reached the stars, when the Elders must have ruled almost the entire known universe. Gradually they have died out, until now they are only a myth on most planets."

"You sound as if you're actually serious."

"Of course I'm serious. You don't think I travelled all the way to Mac'Ullu, spent all that money on you and your men, and let myself be pounded to a pulp driving out here as a joke, do you?"

"A person who believes the Elders still exist might do anything."

"I told you, I've been studying them for a hundred Selem. I've crossed and recrossed this galaxy, and visited the Zum'blk galaxy, gathering evidence. Look at me. I've given my life and my health to this. I've read every book, traced every source, visited every historical site. I've spent Selem sitting in libraries, and more Selem trying to make sense out of the few machines they left. I've visited the Imperial City on G'rath, and tried to decipher the Book of the Elders. I know more about the Elders than any other being in the universe. And I know two things that no one else knows. Where they are to be found, and what it is they want most."

"I know one thing," I told him. "Leaving aside the question of your sanity, if you go out there trying to catch yourself an Elder, we're going to find ourself trying to get back without the V'lee. Like I told you before, they haven't yet developed very far. While we know of the Elders as a race which came long before us, to the V'lee they're still gods, and it isn't wise to tamper with a beings' god.

"The Elders are not gods, nor are they superstition," Canham yelled at me. "They're a historical fact. They're real. And they still exist. Here. On R'klva."

"Okay. Let's say, just for the sake of talking, you're right. How do you propose to capture one? A member of a race that was spanning the stars before our races even existed. A member of a race which had been around for at least ten-*billion* Selem? A being which belongs to a race which has been around that long isn't going to just walk into camp and say, 'Here I am.' "

"No, you're right, it won't surrender easily. It won't be caught without a fight. But over and over again, the records, the histories, the legends and myths, say one thing. An Elder cannot resist any form of information storage. Be it a professional storyteller, an engraved stone tablet, a skin scroll, a book, or an electronic recorder, for some reason information storage acts to attract Elders. In almost every legend of a mortal being destroyed by an Elder, information gathering and storage plays a key role."

"And that's why you brought along the Salandish information unit?"

"Right. It's the most advanced, the most compact and yet the highest capacity, information storage and retrieval unit ever built. If it's information storage ability that attracts the Elder, then the Salandish unit should bring them on the run."

"Canham, you're stark, raving mad. Tomorrow morning, at first light, we're packing up and moving back to the station." I didn't wait for a reply, but turned and walked out of the tent, mentally swearing to myself that I'd never again head up an expedition without knowing *everything* before leaving Mac'Ullu.

I don't know how long I had been asleep, or what really woke me up. I laid there, still and stiff, the instincts that had made me a good expedition leader coiled, waiting for some slight sound or smell to make the night real, to dispel the dreams.

After a moment I sat up and tried to

***Was it really an Elder which had killed his employer and sent him fleeing into space, or just a terrible nightmare from a forgotten hell?***

shake the fuzz of the wine from my head. I turned on the light next to my lounger, got up, and dipped my face into the tepid water in the basin. Then I took a portable light and stepped outside.

I checked Canham's tent first. It was empty. I cursed the little Mevelite in soft whispers and began to pick my way across the rock towards where the trap for a nonexistent Elder had been set. Around me the night was stiff-black in silence, ripped only by the slight crunch of my boots on gritty rock.

At the entrance to the trap I stopped and directed my light towards the telltales. The power to the force fence generator was off.

Canham was inside. He was lying on his side, crumpled on the rock like a pile of gravel. He was still breathing, heaving great gulps of air into his tiny frame.

I crossed to him and kneeled down. "Canham," I said. "Canham, can you hear me?" I laid a hand on the little Mevelite's shoulder and tried to turn him over, but Canham curled tighter around himself. I shined the light into the little historian's face, and it was then I saw the burn-marks on his forehead and skull.

Canham's lips moved. "Storage . . ." he whispered. "Mind storage. It didn't want the unit. It wanted me . . ." Then his face relaxed and his eyes glazed green with death.

I started to pick Canham up, then I heard a sound—a chuckle. For Leemarra I froze, then I swung the light around, towards the information unit. The unit itself had been ripped open, components scattered about inside the enclosure. And there, next to the case, was the being—the Elder.

Again there was the sound—a chuckle?—a laugh?—a sound beyond my comprehension. And with the sound my body unfroze and I launched myself through the gate. I almost flew over the ground between the knoll and the camp, and I did fly the last Varram to the supply truck. The engine caught immediately, and with throttle open full I fled from the camp, the V'lee in the back of the truck shreiking with fear.

Eight Oomarra later we were back at the station, and another Oomarra found us in space, on our way back to Mac'Ullu.

The Mac'Ullute reached for a piece of fruit while silence filled the room. Finally, unable to stand the suspense any more, one of the cubs spoke: "But, sir. What happened? Was it *really* an Elder? And what did it want? Didn't you ever go back to find out what it wanted? Why did it want the Mevelite?" The questions just seemed to pour out once the one cub had broken the dam.

The Mac'Ullute looked at us for long moments, and even the youngest cub among us could read sadness in his look. Then he spoke: "Yes, I think it was an Elder. And I did go back, finally, Selem later. I had to. And for what I found, you're just going to have to wait to find out. That's another story, for another day."

He was a good being, that Mac'Ullute. We cubs seemingly could not provoke him, no matter how thoughtless our actions. Of course, there were outside provocations which would ignite a flaming anger in him, such as when the desert Jee would slip into the landscaped grounds and rip up the flowers and shrubs, which they felt were an affront to the clean surface of Jeeona. And, in those days, there were also those who came to steal from the outworlders, and who found the grounds of the Mac'Ullute mansion a tempting target. Many of them also found that the Mac'Ullute, despite his age, still had defenses and the mind to use them.

Our hive was across the thoroughfare from the Mac'Ullute mansion, a location not desirable by Jee standards because of the taint of water vapor which often escaped from the landscaped grounds. While most cubs loved the free water, our parents could not stomach it, and avoided it whenever possible.

For eight varram the wall lined the thoroughfare, sealing the Mac'Ullute's hill off from the rest of Jeeona, the trees and shrubs and grasses showing dimly through the translucent stone. No Jee could have climbed that wall without disturbing the defenses the Mac'Ullute had built, but we cubs knew two ways in. The first, of course, was through the front gate, which was always open to us. But, of more appeal to a cub was a small break in the wall, hidden from the home itself by a small building which housed the converter that supplied the water for the grounds.

Almost every visit to the Mac'Ullute was made through that entrance, a bit of adventure whetting the appetite for the tales of adventure he would relate to us later that afternoon. We probably could have obtained his permission to come in that way, although we were sure that if we asked he would put a sentinal on the break to make sure that none but

***They were desert Jee, fanatics from one of the old tribes come to cleanse their world of the stink of the outsider.***

cubs came through. But that wouldn't have been near as much fun. Plus, by sneaking in we felt we had earned the right to roll in the lush grass, soaking up water, and nibble the succulent leaves which abounded along the wall.

Sometimes, after absorbing all the water our bodies would hold, we'd slip up to the edge of the stream which ran through the grounds, there to wonder at the sight of free water and marvel at the small life-forms which the Mac'Ullute had seeded into the stream.

The stream was less than a varram across, but it was a mighty waterway to the cubs of a planet which had never known free water, a place of mystery and adventure the likes of which we could have found on no escape-tape. Each of us had his own place on the bank, our individual adventure capsules where we would play at visiting strange and often terrible places—planets of stars so far from Jeeona not even their light could pass through the thousands of marravarram of dust. And it was there that we played the game of Capture the Elder, making up our own endings to the story of the Mac'Ullute's adventure on R'klva.

The Vrm knew that we sneaked in, where we came in and where we played our games before coming in for the afternoon of story-telling, but it must have had a soft spot for Jee cubs, for it never reported us to the Mac'Ullute, never chased us away, never interfered with our games. Indeed, it never even directly indicated it knew we were sneaking in, and thus it never ruined our pleasure in doing something we knew we shouldn't be doing.

One day we were on the ground, playing our mind-games near the stream, when, suddenly, there were six strange figures, all clad in the full-length dust-brown robes of desert Jee, standing just across the stream, looking at us. Our play-actions froze at the sight of those strangers.

Meeva, my hive-sib, was first to react. "Issan," he 'pathed, still crouched in his spot on the stream bank, "they are desert fanatics. They've come from one of the old tribes."

Even though I had never seen anyone from an old tribe before, I knew instantly that he was right. The six must have slipped in through the same break we had been using. Probably they had seen us using it, and we were the direct cause of the invasion of the private grounds. There was no telling what damage they might do because of us. But, frankly, right then I wasn't worrying about how they might hurt the grounds, or even the Mac'Ullute. I was worried about how they might hurt *me!* I was worried about the fact that they were still standing there on the other side of the stream, staring at us, saying nothing.

"What do we do now?" I 'pathed at Meeva, trembling.

"Nothing! Don't do anything. Just get up slowly. We'll try to get out before they think of something to do to us." I remember hoping that those men of the old tribe were not from my fatherhive, that they would not be able to 'path us from the other side of the stream. Meeva and I rose to our feet, slowly, as one, all the time watching the group which was still standing rock still. Suddenly I knew that they were from another fatherhive, and that as we were standing they were 'pathing among themselves, and I was too far away to overpath their deliberations. I wondered how long it would be before they reached some decision.

"Now walk backwards," Meeva ordered. I did as he said, and we started our retreat, still facing the desert fanatics. When they saw what we were doing they apparently made up their minds on a course of action, a course which seemed it was going to involve us, whether we wanted to be involved or not. One of them, the one I took to be their leader, 'pathed strongly for us to stop. And, strangely enough, we obeyed him instantly.

That strong 'path was the only signal they were to make. Immediately afterwards all six of them began to wade across the stream, heading towards us. Completely irrelevently, I remember thinking that their fanaticism against free water and parklike grounds didn't seem to extend to a prohibition against coming in contact with the water themselves. Without really thinking about it Meeva and I resumed our backwards flight, and for three or four varram we were two slowly moving bands, making equal progress.

It was eerie. And to make it even worse, the sun had moved behind one of the growths which I later learned were called, appropriately enough, cloud-trees, and the grounds were plunged into a shadow light Jee eyes were not adapted to. Meeva and I knew we stood no chance of getting either to the home or the front gate before the fanatics caught up with us, so, without even 'pathing about it, we circled slowly, heading back towards the break through which we had entered the grounds. But, again almost as one, we realized that we couldn't even make it that far without being caught, and at the same moment we both thought of, and 'pathed of, the converter building. We turned as one and ran for it.

The converter building was a small, foreign-substance shed that stood in the center of a very overgrown area, surrounded on three sides by a grove of trees. The fourth side butted against the wall. We reached it and plunged inside through the partially open door, but we were too late to do anything about blocking the door once we had it closed, and there was no latch. Only half a varram behind us were the fanatics, already upon us before we could even search for something with which to block the door. Without much effort they were able to push the door open against our strength. They came piling in and were all over us, slapping and spitting and tearing at our clothes.

I began to strong 'path for help, but the harder I 'pathed the harder they hit me. Then Meeva broke free and dashed through the door. He must have thought he had made it, but he didn't reckon with the two who had stayed outside. They caught him and began pummeling him with their fists and feet. The others dragged me out into the open and kicked me to the ground. For a fleeting second I saw that Meeva was being strangled, and I began to struggle harder than ever, convinced to the bottom of my being that I was in a fight for my very life. Each leemarra felt as if it had been expanded into a lifetime of blows and I was destined to struggle with those creatures from the desert hell of my ancestors forever.

That's why I don't remember when it was that the Vrm was upon them. All of a sudden I was not feeling any further blows, and when I opened my eyes I couldn't believe what I saw. The Vrm had singlehandedly ripped them off our backs and was chasing them away, its usually tender nature churned into that of a rockbeast.

When those of the desert were a good distance away, heading towards the main gate where the defenses would catch them and hold them for an order-team, it turned its attention to us. Through my pain and fright I saw its strangely shaped body bend over mine, then its hands touched my head and my pain was gone. And, an immeasurably short period of time later, so was my last hold on consciousness. I woke much later to find myself back in my hive with one of our healers bending over me, and a question in my mind of how much I had dreamed

***The Jee cub had been chosen for a mission not one in a billion could complete, and he wasn't even sure he could without dying.***

after losing consciousness, and how much of what I thought had happened had been real. Had the Vrm really reached into my mind deeper than any Jee could 'path and soothingly smoothed away the hurt, or had it been an illusion that came on as consciousness faded? It wasn't the kind of question a cub is equipped to ask, much less answer, but over the selem the question never left my mind for long. But, for some reason I never understood, I never mentioned it to anyone else. Yes, I told them about the old tribe raiders, and the attack on them by the Vrm, but never about what I thought the Vrm had done to my mind.

The selem passed, and while I still visited the Mac'Ullute, it was really the Vrm I was going to see, and we became as close as it is possible for two different races to become. I'd visit its living area and would sit and day-dream while it concentrated on its duties. Duties which were evidently totally of a mental nature, since I never saw it doing any manual work around the home. It did, however, spend much time each day alone with the Mac'Ullute, and after each session the tiredness would be obvious in its carriage, and soon I could see the reaction even in its alien features.

As we became friends there was nothing I kept from it, at least nothing except the one most important question I had to ask. We'd hash over my problems in the hive, in school, in my developing interest in one of the hive-queens. We discussed everything except what I wanted to discuss: what had happened in my mind the day it had touched me.

It knew, of course, that the question was there, that it had been bothering me ever since the afternoon of the fanatics. It knew that no Jee had ever experienced such a thing as an emotional 'path, a deep 'path, and that I still wasn't sure that it hadn't all been a dream. Finally, I had to come right out and ask it—what had happened that afternoon? I did it in a joking way, in a light mood, but we both knew that the question was serious.

"Issan," it said, using the trade tongue despite the fact that it could 'path as well as any Jee, "do not ask me now. When you have passed your tests and become an adult, then there will be the time and need for you to learn more." Even in that serious statement it used comedy-inflection, making a joke of it.

'Pathing humor, I asked, "What difference is there between me now and me two selem from now, after I've passed my tests? Could it be you're just putting me off?"

"No, I'm not putting you off, Issan," it said, suddenly serious. "But I need to explain to a man, not a cub. More than that I cannot say."

Impatient as I was, with that I had to be content.

The old Mac'Ullute was dwindling fast. His plants went on blooming powerfully in the transplanted sample of his homeland, but his strength and clarity of mind were running down, sliding down the slippery corridor of time, unable to fight back against death.

He never told us the conclusion of his story about the Elder, and most of the cubs who were there for the telling grew up and concluded that the story was just that—a piece of fiction made up by a master storyteller. And, as pragmatic adults, they didn't care that they had never heard the end to that particular fairy tale. At least most of them didn't. There were those of us, though, who still wondered if it was a story, or a report, never completed.

When he died we were all sure the Mac'Ullute representative on Jeeona would do something to insure that the Vrm would have another home, but the representative refused to claim it along with the Mac'Ullute's other property. The Vrm was left, an alien on a world nature had not equipped it for.

I talked to it as, with formal Mac'Ullute ceremony, its dead master was dispersed.

"My friend, I'm sure I can help you find a job in one of the outworld residences, or maybe in one of the more advanced hives. Don't worry, though, for I'm sure something will turn up."

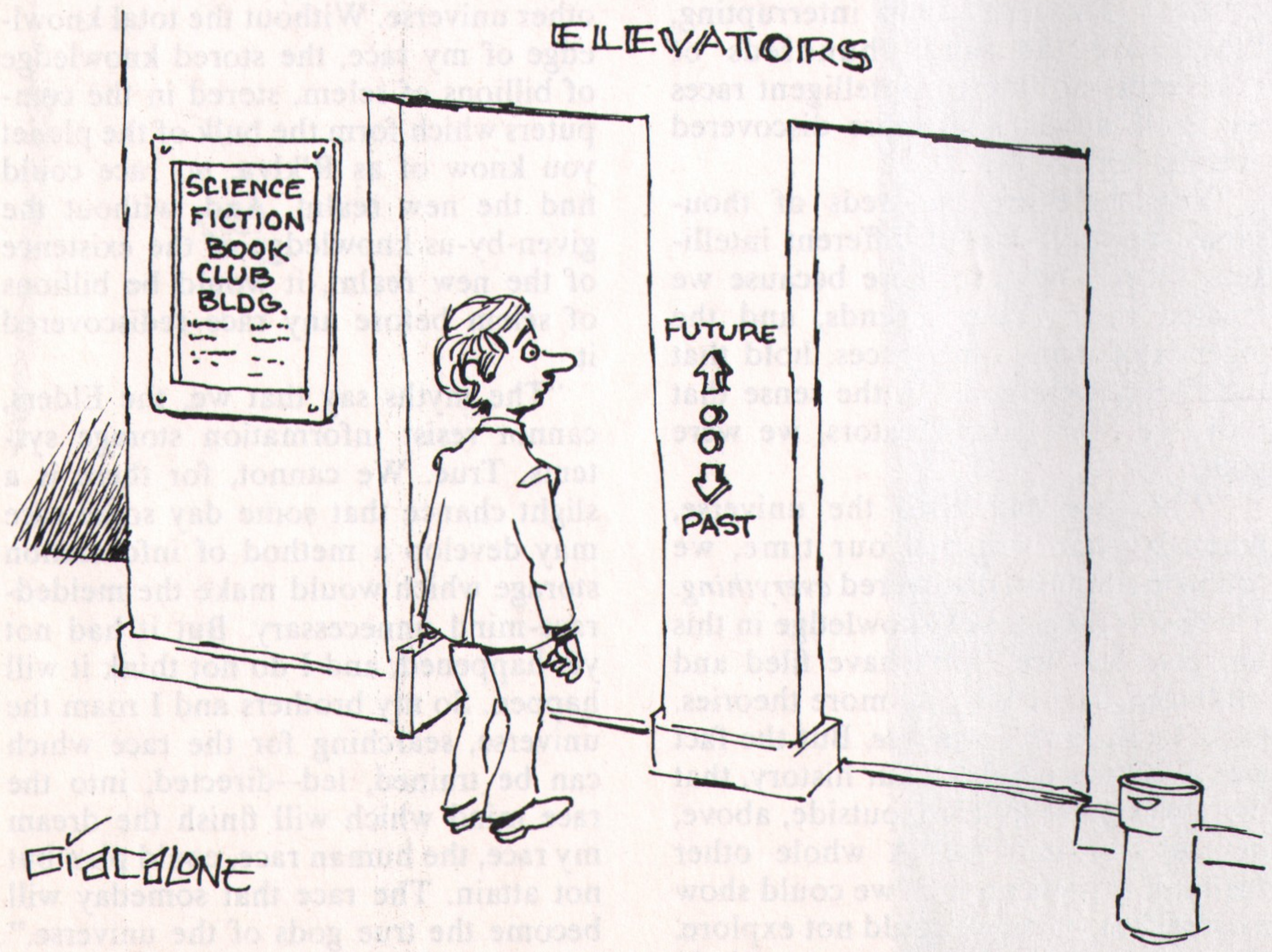
"Yes, little Issan, something will turn up. Something already had, and not working for someone else. I'll spend the rest of my days working with you."

"But Vrm," I objected, "I have no use for you, nor would my hive let me keep you. We aren't desert Jee, but we aren't that advanced yet."

"You don't understand, Issan. You are not to keep me. I will keep you, just as I kept the Mac'Ullute, and others before him, and probably others after you until I find the one who can complete my mission in this universe. Perhaps you are that one, or perhaps you too will die, like the Mac'Ullute. But you have been chosen, and you must serve."

"Mission? Serve? What are you talking about?" I 'pathed. I began to back away from it, fearing that perhaps the passing of the Mac'Ullute had deranged its mind.

"Come with me, young Issan. As the Mac'Ullute told stories for cubs, now I will tell you a story for an adult." The



Vrm turned and moved swiftly from the room, out into the street. I followed, intrigue overcoming my fear, and the Vrm led me back to the Mac'Ullute home, across the grounds and to the stream where I had played as a cub. The converter was still going, and water still flowed, supporting the life-forms which could never have evolved on Jeeona. We settled on the bank, me in my accustomed spot, the Vrm where Meeva had dreamed of far away places. The Vrm looked at me, and with a sharpness I could hardly believe thoughts began to take form in my mind, thoughts forming a story of a universe I could hardly believe existed.

"You remember," the Vrm began, "selem ago, the Mac'Ullute told you a story about his expedition to R'klva with the Mevelite historian in search of one of the mythical Elders? Well, in case you've wondered, that wasn't just a story. It was fact. It actually happened to him, just the way he described it. He never got around to telling you the next part of the story, though. What happened to him when he went back. For he did go back, back to the very campground where that creature had killed Canham.

"Everything was pretty much as he had left it, selem before. There isn't much weather change on R'klva, and practically no soil or sand to bury things. The only real change was in the body of Canham, which had decomposed.

"The Mac'Ullute thought about trying to repair the ripped-apart information unit, to use it as bait. But he didn't have to. The Elder came to him without bait. I came to him."

"You're an Elder?" I couldn't help myself. My question carried both a note of incredulity and a hint of ridicule.

"Yes, little Issan. I'm an Elder. And laugh while you can, for soon your laughter must stop and your training begin."

For several eternity-long leemarra the Vrm looked at me, radiating an almost palpable wave of compassion.

"Billions of selem ago, so long ago that life had not yet been started on your planet, my race evolved and moved out into space, through the home galaxy, through neighboring galaxies, and finally throughout the universe. Unfortunately, my race was one which needed a goal to survive, and once we had reached the ends of the universe, once we had seen all there was to see, we began to die. Not just individually, but die as a race.

"Your race doesn't yet have the numbering system to define how many of us there were at the highpoint of our expansion. But by the time the first lizards, your ancestors, were beginning to look around the surface of Jeeona, there were less than a hundred-million of us left. Today there are less than a hundred. Were it not for the ruins we left behind, the races of today's universe would not even know we existed.

"We few are alive because we have a mission—and when that mission is finished we, too, will be finished. When my race reached the limits of the universe, when we had visited every star, examined every planet, we had a definitive answer to a question which had been asked by philosophers and scientists throughout our history. The question of whether or not there was intelligent life in the universe besides us. The answer we found was that there was not."

**There was more to the universe than any of them knew, and only the teacher could show them the way to all they were missing.**

"But," I couldn't help interrupting, "there are thousands—hundreds of thousands—of different intelligent races we know about. And more discovered every selem."

"Yes, there are hundreds of thousands—no, millions—of different intelligent races. They are there because we created them. Your legends, and the legends of many other races, hold that the Elders were gods. In the sense that they, we, were your creators, we were gods.

"When we had filled the universe, when we had finished our time, we found that we had discovered *everything.* There was no piece of knowledge in this universe that we didn't have filed and cataloged. There were no more theories. Only facts. *In this universe.* But the fact was also known, late in our history, that there was more to learn, outside, above, beyond our universe. A whole other realm of existence which we could show existed, but which we could not explore. We could not explore it, even visit it, for the individual mind was not capable of comprehending it. Our computers, linked together, could show it was there, but that was all. Only a *race mind* could explore that new realm, and that was beyond us. Too many hundreds of billions of selem of evolution had made us what we were, and we could not change.

"But there was one thing we could do. We could create. The secrets of the creation of life and intelligence had been solved during the middle-age of my race. The genetic engineering necessary to create life-forms with minds which could meld together was known. The challenge was there, and we accepted it.

"*We created you!* You, and thousands—millions—of other races throughout the universe. It was the greatest project of all time. Some of the races we created never developed intelligence, though. Some developed intelligence and used it to kill themselves. Some developed intelligence, but not the power to meld minds. Some, like the Mac'Ullute, had the power but it was not developed enough, and in trying to develop it I killed him. And there was the Canham, the Mevelite whose mind was burned out when I tested it. And there are some races, like yours, which seem to have developed properly. Not yet mature, but well on the way. Now it is my task, mine and my few brothers', to find the right race and supply the three missing ingredients.

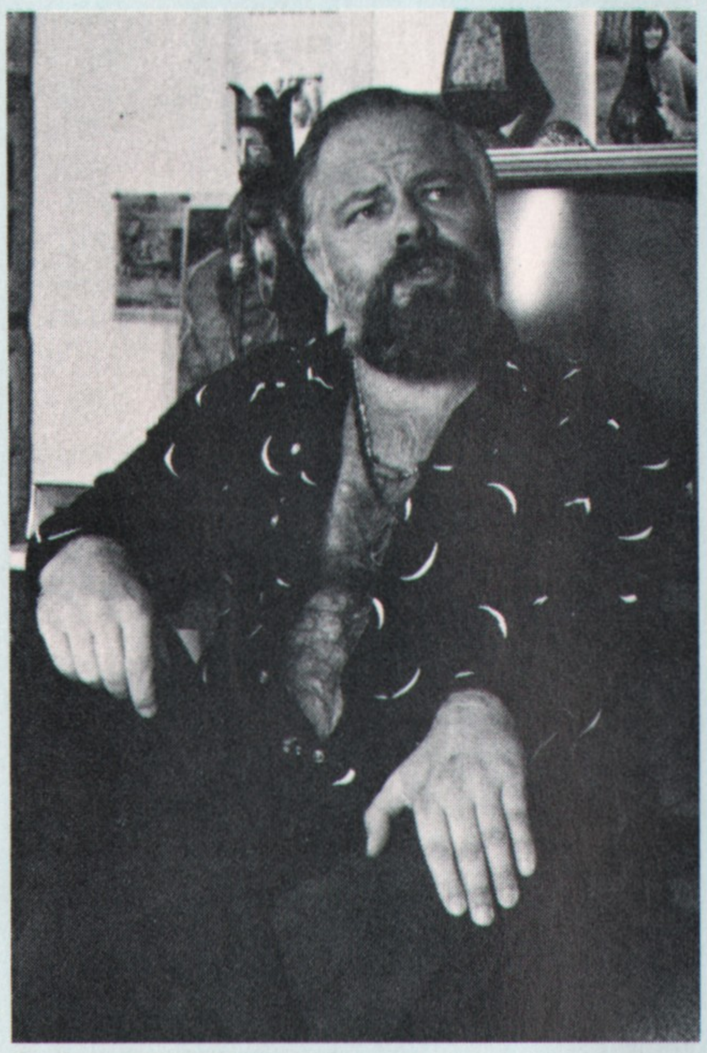
"Without the ability to meld minds a race cannot enter the new realm—the other universe. Without the total knowledge of my race, the stored knowledge of billions of selem, stored in the computers which form the bulk of the planet you know of as R'klva, no race could find the new realm. And, without the given-by-us knowledge of the existence of the new realm, it would be billions of selem before any race rediscovered it.

"The myths say that we, the Elders, cannot resist information storage systems. True. We cannot, for there is a slight chance that some day some race may develop a method of information storage which would make the melded-race-mind unnecessary. But it had not yet happened, and I do not think it will happen. So my brothers and I roam the universe, searching for the race which can be trained, led—directed, into the race mind which will finish the dream my race, the human race, could plan but not attain. The race that someday will become the true gods of the universe." ○

# AN OPEN LETTER FROM PHILIP K. DICK

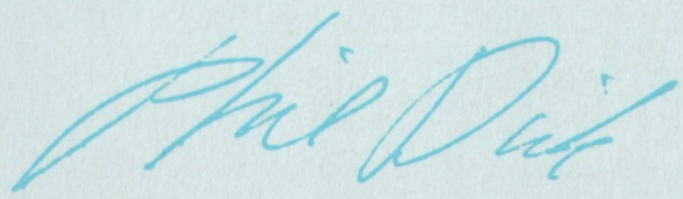
Poul Anderson's rebuttal to Joanna Russ in Vol. 2, Number 2 had an odd effect on me, considering that Joanna, in the English journal *Vector,* for example, said dreadful things about me and my writing (e.g. my Vancouver speech) which were calculated to strike at my very deepest human and masculine pride (for example, she shrilled at me in print: ". . . the obligatory nervous/macho assurance that he isn't queer, by God!" etc.) I quote this, which was so to speak below the belt as a criticism of my writing, merely to place before you the obvious: that I have no reason to speak in favor of Ms. Russ, at least from a nervous/macho standpoint; Ms. Russ has in the most polemical manner, familiar now to most of us, hit where it hurts, far off target, to make her point, even at the cost of strewing the landscape with the wounded and puzzled corpses of otherwise reputable SF writers unaccustomed to such unfair attacks (for example, she identified my long, complex and very heavy, even religious Vancouver speech, which as I said in my *Vertex* interview (Vol. 1 Number 6) was the "most important thing I'd ever written" as my "rape article."). These are the tactics of bitter fanatics, and I can understand Poul Anderson, as well as others in the field, rousing themselves from their slumbers wanting to hit back.

And yet—I think, after reading what Poul said in his article in *Vertex* in response to Joanna (and Poul has been a personal and dear friend of mine since 1952, longer than virtually anyone else I know—longer than wives or children or even my *agent*)—his response, which is superb, and because it *is* superb and probably could not be bettered, I suddenly realized that beneath the anger and polemics and unfair tactics, which remind me of my old Left Wing girl friends when they were mad at me for whatever reason—under all her *manner* of expressing her views, Joanna Russ is right. And Poul and I and the rest of us are wrong. Off hand I see this as an opening reason to abruptly reconsider our unquestioned and even smug attitude: science fiction is notorious for failing to deal with human relationships; as Stanislaw Lem offered in an article, which I mentioned in my speech, a time might come when a man (I suppose—I hope, anyhow—deep in space and alone in a ship) might try to rape a sewing machine. I found this idea funny, and my amusement maddened Joanna. Now I think she was right, although at the time my own defen-



siveness, matching hers, prevented me from seeing why and how she was right. Science fiction must get its ass off those cold and even psychotic preoccupations about "men raping sewing machines," because this is not just a silly idea, unworthy of our reading about it seriously or Lem or anyone else seriously writing about it; it is not just another lousy plot-idea, as I had thought when I read it in his article in *S.F. Commentary* and spaced-out laughing, but because it embodies the basic flaw, the dreadful *vacuum* in science fiction. My God, have we come to *that?* In our history of writing? Yes, we have, and because we are alienated, not from the sky (we write and gabble on and on about the stars and planets, orbits and ships and thrusts and communications systems, all that cold and dead stuff) but are alienated from the *earth,* the chthonic soil from which life, *our* life, sprang long ago. And that life, let us face it, is Woman. In our stories, we as writers are almost universally (except perhaps for Ted Sturgeon) simply incapable of (one) imagining the need of dealing with man-woman relationships as prime factors in our novels and yarns, and (two) if someone outside the field points this out to us, well, we are without the skill, the insight, *the experience with life itself,* to put women in. And, to compound it, the nitwit readers, the fans, fail to see anything missing if the hero is alone with others like himself: a pure metallic revolving mind in a body that needs only to excrete and then reprocess for his own consumption what we usually are glad to void.

So Joanna is right—in what she *believes,* not how she puts it forth. Lady militants are always like Joanna, hitting you with their umbrella, smashing your bottle of whiskey—they are angry because if they are not, WE WILL NOT LISTEN. We are too sure of ourselves, as witness Poul's article-in-response. His article was lovely. Literate and reasonable and moderate and respectable, and worthy in all respects except that it was meaningless, by virtue of the fact that it was just so much space gas. It was like telling the blacks that they only "imagined" that somehow things in the world were different for them, that they only somehow "imagined" that their needs, its articulations in our writing, were being ignored. *It is a conspiracy of silence,* and Joanna, despite the fact that she seemed to feel the need of attacking us on a personal level, shattered that silence, for the good of us all. I have long said, science fiction may touch the sky but it fails to touch the ground. If by "ground" we substitute the time-sanctioned symbol *and reality* of woman, then maybe science fiction will begin to turn out stories related to realty—not power fantasies where you sit at the command module and press buttons and watch screens and talk rational educated talk, but hug and kiss and love and hold and (are you ready?) make sexual love. And, above all, respect, as your equal, the lady you love. She deserves it; she is entitled to it, in our field, in *all* fields. Joanna, I resent being told I'm worried about being queer, especially in print (not "queer in print" but "being told in print"), but if your attack serves to make us aware of you and your previously-considered second-class group as our equals, our peers, our friends—then I'll take it. Like a man.



With warm regards,
Philip K. Dick

# COLLECTOR'S BOUND VOLUME OF VERTEX

**A historic collector's edition of the first year of Vertex magazine magnificently bound into hard cover library volume—complete art and text, volume one, issues one through six 1973.**

☐ **LIMITED COLLECTORS EDITION**
EDITION LIMITED TO 1,000 NUMBERED COPIES ONLY
GOLD FOIL EDGE PAPER AND IMPRINT
BLACK CLOTH BINDING
**$16.95**

☐ **EDUCATOR & LIBRARY EDITION**
STANDARD SILVER IMPRINT
BLACK CLOTH BINDING
**$12.95**

**PRIORITY ORDER FORM**
Both editions will be shipped on a priority basis to orders received with payment. Orders will be accepted until entire edition is sold. Due to the limited quantity of both editions, we expect both to be oversubscribed and urge your early response to assure your copy. Priority for future editions will be given to purchasers of this first edition.

---

**PRIORITY ORDER FORM–VERTEX 1**

**VERTEX MAGAZINE**
8060 Melrose Avenue
Los Angeles, California 90046

Dear Sirs:
Enclosed is ☐ check, ☐ currency, ☐ money order, as payment in full for *VERTEX-1*. Please send the edition indicated below:

☐ **LIMITED COLLECTORS EDITION @ $16.95**
☐ **EDUCATOR & LIBRARY EDITION @ $12.95**

I understand that shipment will be made on a priority basis. If oversubscribed at the time of receipt of my order, full refund will be made. (California residents please add 6% tax. Overseas orders, $1.00 additional per volume for postage.)

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____