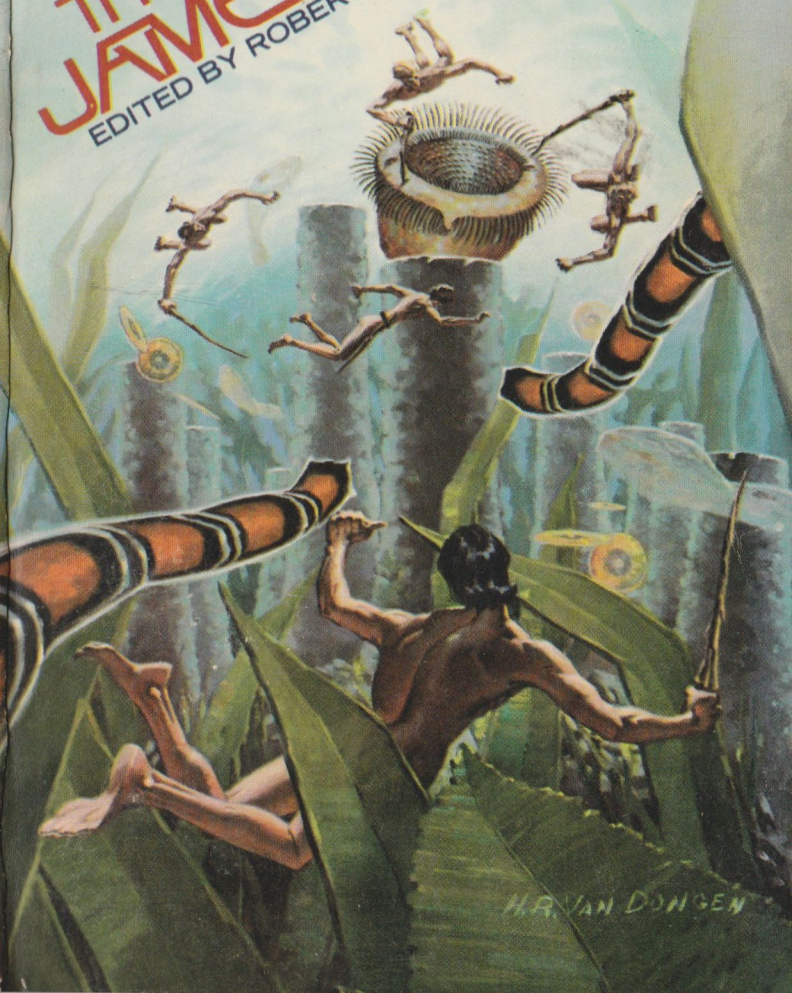


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CLASSIC SCIENCE FICTION
**THE BEST OF
JAMES BLISH**
EDITED BY ROBERT A. W. LOWNDES



H.R. VAN DONGEN

**"ALL RIGHT, CAPTAIN WEINBAUM,
PAY ME."**

Weinbaum snorted. The girl went on quite calmly. "It's quite a secret you're buying. Once I tell you what it is, you will be able to read the future as I do. My prediction of the attack in the Three Ghosts System shows you how accurately that is. And all I'm asking is the equivalent of your service's entire annual appropriation."

"I'm not going to give it to you," Weinbaum said. "The way the Government works makes that impossible. Or is that really your price?"

"It's an alternative," she admitted. "The price I'd settle for comes in two parts—to be taken into your service as a responsible officer . . . and to be married to Captain Robin Weinbaum."

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James Blish

Edited and with an Introduction by
ROBERT A. W. LOWNDES



A Del Rey Book

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A Del Rey Book
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Library of Congress Catalog Card Number: 79-84463

ISBN 0-345-25600-X

Printed in Canada

First Edition: August 1979

Cover art by H. R. Van Dongen

ACKNOWLEDGMENTS

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Science Fiction the Hard Way

Many-tongued tough-minded and intent
he means to go a way some others went,
no way but hard, no weapon but his heel
and head, no quarter, no appeal.
—Virginia Kidd “No Royal Road—for JB”;
Occasional, September 1949

IT WAS SOME time in 1940, at a gathering of members of the Futurian Society of New York at my apartment on 103rd Street, that Cyril Kornbluth slammed down a copy of the latest issue of *Astounding Science Fiction* and said to Donald A. Wollheim: “Dammit, no one does it the hard way!”

Wollheim and the others agreed, and John B. Michel went into ideological reasons why. I listened, not entirely sure what Cyril meant, but with a feeling he wasn’t talking about politics; but once the subject had been changed there was no getting back to it. It was many years before I realized what Cyril had really been complaining about, and it was James Blish who showed me. Among his many other accomplishments, Jim was a good teacher, although his formal classroom experience was restricted to a year or so of substituting, mostly in literature classes.

He was born on May 23, 1921, in Orange, New Jersey, making him just about five years my junior, and his first encounter with science fiction was the April 1931 issue of Clayton’s *Astounding Stories*. He did not see examples of Gernsback science fiction until some years later. In a letter to me in 1973, he said: “I read no

other magazine until that one died." (The Clayton *Astounding Stories* folded up early in 1933.) Jim goes on: ". . . I sampled *Weird Tales* just once and decided it was not for me; some of the stories scared me, but not very pleasantly, and even then it was the future that interested me, not *frissons*. The Tremaine *Astounding* was a great boon and the Campbell reign even better . . ." As to fantasy: ". . . I felt then, and feel now, that fantasy requires masterhood of the writer; mediocre fantasy is abysmally duller than mediocre science fiction, and thus less rewarding in a periodical." Even so early, then, he had glimmerings of what it meant to write science fiction and fantasy the hard way, although he did not achieve masterhood from the start, as did Stanley G. Weinbaum.

The "I read no other magazine" above should not be taken to mean that Jim read no fiction other than science fiction in the early 30s, but I know of no record as to what other sort of reading he did do, aside from that required in school. His reading in science fiction did, however, impel him to take up science subjects in college and to continue them in postgraduate work under the GI Bill after he emerged from the armed services in 1945. He was studying zoology at Columbia, but (as he wrote in the letter mentioned above) he soon became convinced: ". . . that as a scientist I would never be anything but third rate . . ." He and I both took advantage of the opportunity, in 1945, to take scientific aptitude tests, and his test showed that, while there was some talent for science and certainly a great deal for music, he was most ideally suited for literature.

At the time of the incident relating to Kornbluth above, Jim had had two stories published in Frederik Pohl's *Super Science Stories*: "Emergency Refueling" (March 1940) and "Bequest of the Angel" (May 1940). His early attempts to become one of the new generation of science-fiction authors then springing up—those who started off as science-fiction fans, in close association with other fans—were interrupted by induction into the army. In 1940, I was trying to make a go of it as an author's agent, specializing in science fiction and fantasy (the only pulp fiction about which I really

knew anything at the time), and Jim sent me a number of manuscripts to try my hand at selling. By the end of the year, Don Wollheim had become a science-fiction editor and had brought out his first issue of *Stirring Science Stories* and was working on the first *Cosmic Science Stories*, and I had been appointed to take over *Future Fiction and Science Fiction Quarterly* for Columbia Publications. Those stories, and a couple of others Jim managed to find time to write while in service, all appeared in the magazines listed above. (In a way, it was a mistake for him to have sent his material directly to me instead of submitting to John Campbell's *Astounding* first; not that I didn't try to sell them to John, but Campbell did not write letters to the authors of stories submitted by agents. Had Jim submitted direct, he just might have obtained some valuable suggestions from another of the great teachers in the science-fiction magazine field.)

With one exception, those early tales are entirely forgettable, although readable today. The exception is "Citadel of Thought," which appeared in the initial issue of *Stirring Science Stories*. (By prior consent for the early issues of the magazines none of the authors were ever paid. They all submitted stories they liked which had been rejected anywhere else, with the understanding that should the magazines go over, the authors would be paid for further submissions. Payment was begun soon enough for Jim to get money for the third story Wollheim published.)

"Citadel of Thought," then, is the earliest of James Blish's fiction in this volume. While the theme (mind control) is the first showing of one which Jim would develop in an astonishing number of ways later—ways that other science-fiction writers hadn't already done—certain crudities and pulp conventionalities rule it out as a reasonable sample of his "best." But the story will enable the reader to see who Jim's earliest ancestors in science fiction and fantasy were; some of them he retained, but later added others.

An advantage of being an author is that one can change or add to one's literary parents and ancestors at will. Jim's later work shows a broader and more dis-

criminating selection. But in 1940, he hadn't started learning to do it the hard way; had he continued along those lines, his stories would have improved, certainly, and there might be a few worth preserving in anthologies, but most of them would not have been above the level of good pulp fiction.

Not that *any* fiction worth someone else's reading (and, to the writer, the first reader is an editor) is easy. It isn't. But the easy way to become a "name" in popular fiction is to go along with what is popular at the time and just put some new twist upon it. That, in itself, is hard labor until it becomes mechanical, but even then it isn't easy. There are a few exceptional writers who seem to have been born with the knack. Too many of them took the easy way when they found that they could write selling stories with a minimum of effort; a little thought about plot ideas, clever characters, surprise developments in the story, etc., then it was just a matter of typing the story out as fast as they could type and sending it off to one of the editors eager to get their names.

James Blish and I became aware of each other through the letters columns in the Gernsback *Wonder Stories* and the Tremaine *Astounding Stories* in 1935. We met briefly at a science fiction convention put on by one of the largest fan clubs of the day, the International Scientific Association, in 1937. Jim had been writing for fan magazines, and was planning to publish one of his own, at the time. We remembered seeing each others' names in such sources. That was why, when I approached him as a client for my agency in 1940, he sent me everything he had on hand. But my first awareness of Jim Blish as a unique, multitalented man came one evening in 1942, when he was on leave and joined a bunch of us for a Chinese dinner. What he was most interested in talking about was not science fiction, not the future, not politics, but James Joyce's *Finnegans Wake*. And while I knew little about the book aside from a few excerpts, it was clear to me that Jim was not repeating second-hand opinions; he had read the book with care and had some ideas of his own about what Joyce was doing and why.

In 1945, several of us in New York City—notably Don Wollheim, John B. Michel, Larry Shaw, Damon Knight, Judith Zissman (later Judith Merrill), and Virginia Kidd—were involved in starting a new amateur press association. “Apas” are small groups of people who like to publish their own magazines or write for others who do. Periodic collections of copies of such magazines are sent to each member of the organization by the person chosen to handle the official mailings. Wollheim, Michel, and Pohl, among others, had started the Fantasy Amateur Press Association in 1937, and I had joined almost immediately. In 1945 we wanted to try running an apa with a broader base than science fiction, and we wanted Jim, who had just left the army and was taking graduate courses at Columbia and living at home in South Orange, to be in at the start. He was enthusiastic and when we went out to visit him one Sunday, I found out why. He was interested in literature, “modern” poetry, and music, and had a large collection of records. He wanted to be with an apa, associating with people who could write intelligently about such things and where we could all try our hands at writing poetry, criticism, studies, etc., about something other than the latest contents of *Astounding* or nostalgia for the “good old days,” “sense of wonder,” fan reminiscences. He proved his interest by moving to New York City (he was tired of commuting from New Jersey) and taking an apartment with me on West 11th Street. Among other things we planned for the new apa was Vanguard Records, which would bring out limited editions of music written by, and performed by science fictionists. That, of course, proved to be beyond our means; too few “composer” fans were willing to participate.

About this time, Jim interested me in the then “modern” poets, particularly Ezra Pound, and he showed me the manuscript of a book on music he had written for the layman but which went far beyond the “music appreciation” level. I forget the original title; in the course of reworking it, he changed the title to *Music the Hard Way*. (The last two weekends I spent with him—in 1968—I got to look over his updated and reconsidered

version, with a new title. Had he lived to finish it, I believe he would have found a publisher in England.)

It was in 1945-1946, when outwardly it seemed as if his sole interest was continuing studies in literature at Columbia, and writing and publishing in the Vanguard Amateur Press Association magazines, that Jim actually started to learn to write the hard way. At that time, there was no such thing as a course in writing science fiction at Columbia, or at any other college for that matter. I don't know whether he would have taken such a course had one existed; my guess is that he either wouldn't have bothered, or would have dropped out early had he done so, because in those days magazine-writing courses were directly channeled to the technique of how to write and sell fairly quickly.

What he did was to take a low-paying job with a literary agent in the "reading-fee" department. Unknowns who sent in manuscripts with a fee for reading and criticism would receive carefully thought out letters explaining exactly what was wrong with the story, whether it was salable at all, and what had to be done to make it so if it had the potential. The reading-fee client's fee was deducted from the agent's commission if, as sometimes happened, the story was indeed salable as it stood.

On the surface, Jim was teaching hopeful writers (most of whom were entirely hopeless) how to sell—not much different from a college course, one might think. But in the process he was learning what a bad story is, why it is bad, and how not just to make a story salable but excellent. (Other science-fiction writers later benefited by going through the same process with the same agent.) He then set down to test his knowledge by writing for every type of pulp magazine on the market except the "love" pulps. At that time, I was editorial director of the entire Columbia chain of pulp magazines, and personally editor of them all except the love titles. Jim sent me western, detective, and sports stories; I never had to reject one or send it back for reworking. And a few of them were not just a little better, but considerably better than they had to be to make a sale. He had already gotten beyond the highest level

of story writing that he'd attained in his early science fiction. (A "good enough" story would have been sufficient for me, to help a friend; but Jim was doing well enough for me to assign stories to him. When I did, he came through.)

Our joint apartment did not last long—a little over five months—as he moved out to take an apartment across the hall from Virginia Kidd, whom he married a year or so later. That apartment was within easy walking distance of our former joint one, which I continued to occupy alone, and the three of us remained in close contact until the Blishes moved to Staten Island at the end of 1947. Their first son died in infancy from the Rh Negative reaction, about which not enough was known. Treatment during the pregnancy might have saved the child. (They would later have a son and daughter who are still alive and well.)

During that period, all of us were writing poetry, non-science fiction, and criticism for our Vanguard publications. (It was in one of his own that Damon Knight launched his career as a merciless science-fiction critic, with a devastating analysis of one of the most popular authors of the day.) While Jim and Damon disagreed on many subjects, they were as one on the idea that science fiction was not only worth reading, but worth writing with as much care as one would give to a "serious" story for a national literary magazine. It was then that Jim began to use the technique he had learned, combined with serious thought about the *content*, rather than just the plot, backgrounds, etc., of science fiction. Why shouldn't science fiction be written as well as the best mainstream material? Jim set out to reform science-fiction writing, starting with himself. The transformation didn't occur all at once, but the science fiction he wrote after the magazines started to open up again (the postwar paper shortage being over) showed a decided improvement. "The Box" is among the earliest of that period, with a richness you will not find in earlier stories by other authors centering around a similar idea.

"There Shall Be No Darkness" first appeared in 1950. That story now exists in two forms, as Jim ex-

panded and reworked it to fit into a volume called *Witches Three*, published by Twayne in 1952. Both tell the same story, but the difference is that the original version, which you will see here, is science fiction, while the Twayne version is fantasy. The science-fiction version gives the reader a scientific explanation of lycanthropy; there is not even a trace of the "supernatural" about it. In the expanded version, Jim goes into fantasy when he makes the leading female a witch, without any scientific explanation of witchcraft, although the nonsupernatural exposition of the werewolf remains.

There is a legend that Jim wrote the original version in 1940 and did not sell it until 1950. Not so; in an aside in one of the 1949 Vanguard publications, Jim notes that he's revising an old werewolf story known around here "as the 'Two-Bit Horla,'" and that he had written the very first version in 1942.

One story that did appear in 1942, under the pseudonym of Arthur Merlyn, was "Sunken Universe." (*Super Science Stories*, May.) It was a charming tale of microscopic human beings who lived under water in a puddle on some imaginary planet. The story was very well liked and Jim did a sequel, published under his own name, in *Galaxy*, 1952, and titled "Surface Tension." Later, both stories would be subsumed into a novel entitled *The Seedling Stars*, wherein the microscopic water dwellers are part of a scientific experiment. A prologue, explaining the experiment, appears in some reprints of "Surface Tension," but several readings have convinced me that it is not only unnecessary, but needlessly intrusive as an introduction to the story. The prologue is therefore omitted in the present edition.

Around the middle of 1952, Milton Luros, who painted most of the covers for my science-fiction magazines (they had been revived in 1950) brought in a surrealistic cover painting which featured a swollen sun, black sky, and a tiny figure of a man. I invited Jim to write a story around the cover; it would be a shame, I thought, not to have something in the issue directly related to Luros's effort. Jim sent me "The Testament of Andros," which, among other things is his first published black comedy.

Jim's black comedy never reached the level of bitterness or nihilism that one finds in Cyril Kornbluth. In "Testament of Andros," what you'll find is a series of parodies; each section takes off on a different kind of science fiction, science-fiction fan, or comic-strip science-fiction writing; each tells the same story in its different way, but the work as a whole goes beyond the level of mockery. There have been arguments as to whether the story really is or is not science fiction, but I see no point in belaboring them; let the reader decide. It's a striking story, anyway, and could not exist were there no such thing as science fiction.

"Common Time" also grew out of a cover for one of my magazines, this one clearly symbolic, that was painted by A. Leslie Ross, who usually did straight western and sports covers. It proved to be the richest story I had read by Jim to date. It showed, among other things that none of Jim's side interests—Ezra Pound's poetry and criticism, James Joyce, Spengler, the music of Richard Strauss, Wagner, Mahler, Bruckner, Alban Berg, political movements in protest against war and militarism, etc.—were sealed off from his writing. He had learned control in his use of personal feelings and enthusiasms so that they are there, and cannot be separated from the author or the story, but rarely appear on the surface. The person who does not want to go beneath the surface of an interesting story will not be barred from enjoying the tale; anyone who wants to understand what is being said below the surface, however, must take note of them. By this time, learning how to do it the hard way (and he never stopped learning) had paid off; by the mid-50s, James Blish was a "name" in science fiction.

It was astonishing to many readers beside myself to find "Beep" in *Galaxy* magazine; a perfect Campbell-type *Astounding* novelette in Horace Gold's magazine, which could not have been more unlike Campbell's otherwise. No matter. In 1972, Jim did an expanded version of the tale, which was published as a softcover novel, though not much more than novella length. British author and critic Brian L. Stapleford considers it "little more than a trivial inflation of the prose," and notes that Jim did the expansion when he was in the

grip of the cancer that killed him a few years later.* I cannot agree; *The Quincunx of Time* does indeed tell the same story, and has the same ending as "Beep"; but in the process Jim presents his afterthoughts to the theme of "Beep," which is a strict exploration of a rigidly deterministic universe. Those afterthoughts modify the original premises and weaken them. I wouldn't be without the added richness of the expanded version, but the original theme is damaged no less than in the fantasy of "There Shall Be No Darkness." Both versions of "Beep," however, come as close to presenting a Utopian culture as Jim ever came in his fiction.

Once, just once as far as I know, Jim used one of his personal enthusiasms directly as a plot for a story. "A Work of Art" deals with a technological "resurrection" of Richard Strauss and is told from the revived composer's viewpoint. Numerous weird and science-fiction tales have included music and musicians, but this was the first I ever read written by someone who really *knew* music. Jim sent me the story because he felt sure that I would like it and would not tinker with it; he was right on both counts.

"This Earth of Hours" and "How Beautiful with Banners" both deal with alien life-forms, and in each case the form is a bizarre-seeming one, but each has its own beauty. In the first tale, the beauty comes through elements that outwardly seem revolting; in the second, the creature responsible for the female protagonist's death is lovely to her; and their encounter makes a significant change in the creature's evolution.

"The Oath" is a postbomb tale, but from an angle that I do not recall seeing elsewhere. It poses an ethical question: In such a society should a doctor cleave to that part of the Hippocratic Oath which impels him to make all efforts to preserve a patient's life, whatever the circumstances? And what should be his attitude toward a dedicated amateur who is practicing necessary medicine without a license or formal medical training? Technically, he's a quack, but? . . .

*"The Science Fiction of James Blish," FOUNDATION #13; 1978.

"A Style in Treason" shows a multibeing, loose federation of worlds during a period of a certain type of decadence. Here are high technology and barbarism uneasily mingled, where the Traitor's Guild comes close to playing the role of a galactic patrol, but not in the manner that either Dr. Edward Elmer Smith's *Lensman* Series or Poul Anderson's hilarious series of short stories in *As-tounding* about Wing Alar, portrayed. Here Jim makes use of some of the notable traitors in fantasy and heroic fiction, such as Lord Gro from Eddison's *The Worm Ouroboros*, mingling comedy and tragedy into the fabric of a highly entertaining story.

Although he was author (or collaborator in two instances) of over twenty fantasy or science-fiction novels, James Blish was primarily a magazine writer and more than half of his books are either expansions or confections of material earlier published as short stories or novelettes. He was always interested in the science-fiction magazines and their writers, and in the 50s he began to write criticisms of current issues under the pseudonym of William Atheling, Jr. ("William Atheling" was the pseudonym that Ezra Pound used for writing music criticism.) Those were not formal essays, but informal, though sharp analyses of the faults and virtues of current short science fiction. He felt that all writers (himself included) needed feedback and such criticisms were about the only way to give it to them. Few of the magazines had readers' departments any more and even those few rarely ran anything close to competent criticism.

The only outlet for such writing was the fan magazines, and "William Atheling, Jr." appeared in a number of them. In 1964, a collection of the best of his comments was published by Advent as *The Issue at Hand*, with Atheling's identity revealed. A second volume, *More Issues at Hand*, appeared in 1970. In the introduction to the second volume, Jim wrote: "After all, the whole point of telling a man he is doing something wrong is the hope that the next time he will do it right. Simply saying that a given book is bad may serve the secondary function of warning the public away from it, if the public trusts the critic. But if you do not go on

to say *in what way* it is bad, your verdict is not destructive criticism, or any other kind of criticism; it is just abuse." By this time, science-fiction books had multiplied sufficiently so that Jim could give most of his critical attention to novels.

Near the end of his too-short life, Blish sent what turned out to be the final "Atheling" piece to the British *Foundation* magazine, at the request of Peter Nicholls for "some overview of the whole science-fiction landscape." In "Probapossible Prolegomena to Ideareal History" we find the well-known Blish scholarship and humor (the title combines elements of Joyce and Walt Kelley's "Pogo") blended into a serious conclusion about the place of science fiction in western civilization and why. It is not an optimistic picture, but neither is it a despairing one. Nor does it in any way compromise the author's lifelong conviction that science fiction was worth writing and worth writing well. An internal reference to the Futurian Society "thirty-five years ago" shows that the article was written in 1973 or 1974, as the Futurians made their (ignored) challenge to science-fiction fans and authors in 1938 and 1939.

His finest work was not science fiction or fantasy at all, but a historical-biographical novel about Roger Bacon. *Dr. Mirabilis* was to be the first novel of a trilogy with the over-all title, *After Such Knowledge*. The second novel was fantasy, *Black Easter* (which, had Jim been able to reissue the trilogy in one fat volume would have been combined with its sequel, *The Day After Judgment*) and the third is *A Case of Conscience*, which is science fiction.

Had he been able to prepare his planned trilogy in a final form, he might have done some reworking on the component parts, but no matter. We have them all. We have the final form of his *Cities in Flight*, and the excellent *Torrent of Faces*, as well as his better juveniles, such as *The Star Dwellers*.

Around the middle of the 60s, when his first marriage was breaking up, Jim had an apparently successful operation for tongue cancer. His second marriage was to Judith Lawrence, and in the late 60s he made his third (and this time successful) attempt to live entirely by

writing, moving to England in 1968. There he found time to play an important role in the British Science Fiction Foundation, write articles on science fiction for the *Times* literary supplement, and keep in touch with the Science Fiction Writers of America here.

In 1974, a second operation was necessary, but gave him only a brief respite. He died at his British home in Henley on July 30, 1975, a little more than two months after his 54th birthday.

Like all true artists (as Richard Strauss once noted), James Blish did not strive for originality. Yet, his best works are original, whatever their origins. His drive to improve science fiction bore fruit during his lifetime and several of today's better writers acknowledge their debt to him, having learned from him to do it the hard way.

But with love—always with love.

Robert A. W. Lowndes
Hoboken, New Jersey
September, 1978

Citadel of Thought

I

WHEN DAN LOTHAR'S shattered *Ganymedian* dropped into the ammoniac mists of Neptune, turning slowly and trailing a wraith-like, ephemeral fan of incandescent gas, there was nothing to show the watching police cruiser that death was not waiting to enfold it below. The cruiser's job, after all, was done; the *Ganymedian* was crumpled, seared, riddled, and falling out of control to a bleak and uninhabited planet; the cruiser's young captain, who still required his men to call him "sir," was justly proud of himself.

That he did not take into account Lothar's phenomenal resourcefulness was perhaps wrong; yet he had beaten the interplanetary outlaw in a fair duel between ships, and more experienced men than the young commander had been satisfied with less. Withal he should have known that no police cruiser could have beaten the wasp-like *Ganymedian* unless there was something wrong inside; he should have remembered the shrewd mind behind Lothar's dark eyes, and the ability of that mind to take full advantage of chance. But the police cruiser went back toward the sun, and if a spaceship can strut, it did so.

For there had been much amiss within the *Ganymedian* when it blundered so carelessly into range of the cruiser's fire. Nothing was wrong with the ship itself—Lothar was too careful of it and too much in love with its sleek, deadly beauty, mothering it constantly with

oily hands. No, it was the hand at the boards that was out of control. Dan Lothar was sick.

Any other man would have been dead. His lungs were burning unendingly with the corrosive purple mists of Io; his eyelids rasped over dry balls that saw everything as if at a great distance through a milky film. The bronzed skin was sallow, the cheeks sunken, the black hair singed; and from a razor-edged slash across the right shoulder unclotting blood oozed constantly. Every movement was a dull agony, pierced through as if by a white-hot sword from the shoulder-wound. His fingers refused to obey, moving in clammy independence at each impulse from the fighting brain; the dials on the board conveyed no meaning. Never-ending flight was Dan Lothar's chosen life, and again it had led him across deadly alien worlds before it gave him brief rest. Since he had left the Earth ten years ago, stifled by routine and toy sophistication, nearly every planet in the system had felt his flying feet and reached for him with a million deadly hands; now it seemed that Jupiter's poisonous moon would claim him as a proxy conquest.

He managed to get into his spacesuit and fight the *Ganymedian*, driving the quivering, wasted body as if it did not belong to him. That was his way, the terrible drive of his brain which would never let him rest; but even against the will of Dan Lothar, who had thrown himself deliberately against five worlds out of sheer disgust, nature took its wonted toll. . . .

And so it was that the tiny planet-plane, mangled beyond recognition, plunged into the dry, cold atmosphere of Neptune, and a slumped spacesuited figure sat strapped in its metal seat, head rolling grotesquely . . . and before it a jury-rigged rocket tube, such as the spacelanes had not seen since geotrons were invented in 1987, coughed, popped, hissed. . . .

II

Strange disconnected images swept through his brain as he forced himself to consciousness. At first they were long-forgotten scenes on Earth—dinner-suits and tall candles—a humming cyclotron—a bright, silent

peal of laughter from a brown-framed face. The face moved nostalgically above brighter waving fields of grain; the waves persisted, now green and white-ridged water, while the face faded. For long ages he saw nothing but rolling water, moaning and sighing through his head.

Then at last the sea-waves merged into a single harsh green glow; the glow centered in a single tube-light directly above his head. He winced and closed his eyes; red spots floated persistently before them in protest. He remembered his battered body and gritted his teeth in anticipation as he turned his head away from the glare; but there was no answering stab of pain. Tentatively he moved his arm; it came up to his shoulder freely, in complete control, without any abnormal sensation. His wasted muscles no longer ached; the fire had been drawn out of his lungs. He took an appreciative breath, noticing the faint musty odor with relish, and opened his eyes again. Once more he had cheated the ebony gates, borrowed another short period of life.

The room in which he lay convinced him that it was not a very long respite. It was unfurnished, prison-bare stone, bleak in the light of mercury-vapor. The Plutonian mines! It was too cold to be Venus; the light was not calculated for human eyes. Photocells were more sensitive in such illumination, and the mine guards were robots, for no free man would take such a job. Probably the cruiser had followed him down, vulture-like, and finding him still alive, had remembered the larger reward for the living criminal, brought him here. He did not then consider his healed wounds, for circumstantial confirmation was placed upon his befuddled theorizing.

A silver egg drifted into his field of vision, watched him through two black eye-lenses. A proxy-robot. A new model, apparently, far advanced over those he had beaten in his escape from the radium mines years ago. It had no appendages for weapons, but there was another opening, slot-like, below the eyes which might be a porthole for a ray. It gave the front end of the egg a severe schoolmarm expression; he chuckled grimly.

"You are well," said the proxy abruptly. "You can stand." It was not a question, but a cross between a

statement of fact and a command. The metallic voice startled him; without thinking he climbed to his feet, flexing his muscles. He was indeed in perfect condition, better than before he had started the wild race across Io. The fact, startling enough in itself when he considered the cold stone upon which he had made this recovery, was subordinated by the sight of an open door behind the proxy. Not even a door, but a barless doorway. He had not seen it before; it seemed as if it had just sprung into being. He considered a break, but the proxy was too high to grab and watching carefully.

"This is Pluto, I suppose," he said. "The bad penny has returned to the mint."

"Follow," the adding-machine voice replied, and the egg pointed its prim face out the doorway, swooped forward. He strode after it, but some instinct made him turn as he entered the corridor. There was no door behind him—only a solid wall!

"Tricky," he murmured, and grinned. Tricky prisons were easiest to break.

But he became increasingly bewildered as he followed the proxy down the green-lit corridor. He passed several doorways to his right and left, and what he saw beyond them was not prison-like. It was more like the interior of a stone spaceship, crowded with machinery, some of it familiar, most of it incomprehensible and technically senseless. A bad boy turned loose in a fortress with a toy construction set and a box of old radio parts might have produced most of what he saw; yet it all spun, whirled, and blinked purposefully. Nowhere did he see an attendant, although a few of the proxies were poised motionlessly here and there as if watching.

Another blank wall came into view around a bend; he waited for it to vanish from his path. Instead the proxy shot up and disappeared, leaving him standing at the bottom of a tremendous shaft, into which light radiated at intervals as far as he could see. The egg had vanished, but finally appeared, floating in a beam of green far above his head, apparently waiting for him to follow.

"I'm no damn' bird," he protested, and immediately shot upward, arms and legs asprawl. In a moment the

unexpected force had brought him up beside the egg and deposited him, breathless, on another stone floor. He stood motionless, gaping.

III

This was certainly not Pluto; beyond that negative he could say nothing of what he saw. Before him was a huge hall, about two stories high, and seemingly as long as the levitation shaft was high. Its sole furnishings were a number of tilted couches dotting the floor, in each of which lay a sleeping figure. The light was, as ever, bright blue-green and hard on the eyes; yet apparently this was a vast dormitory for all the human occupants of the weird place. The silence was absolute, empty of the machine-mutters with which he had lived in his lost *Ganymedian*; it seemed to wash in his ears with seashell sounds. He recognized the effect as the cause of his dreams before awakening.

"The egg must have slipped," he thought in awe. "This is the boudoir."

Then horror struck him as he saw that every eye in his range of vision was open, staring glassily ahead. His flesh crawled; he grasped his ray-tube automatically, not surprised to find it there. Under the green radiance they all seemed ghastly corpses, yet breathing movements were clearly evident.

"Thinking," he told himself unsteadily. "Contemplating their psychic navels, that's what." He shivered in the unnatural silence.

"Daniel Lothar," a voice whispered in his ear. He swung, but all the eyes were regarding him, and he could not tell who had spoken. His nerves were quivering.

"It is I," said the voice. "Here." He felt his gaze being compelled to his right.

At first it appeared to be but another of the monstrous dreamers upon a slightly more ornate couch. Then he saw that it was a woman. . . .

She might have been a beautiful woman, but her face was sallow in the unflattering light, her hair was swept back from her forehead so that her brain-case seemed

to bulge. Yet the bulge was merely optical, for she seemed perfectly formed. . . . Her eyes claimed his; he felt himself drawn down, down, into deeper wells than he had ever known. All the loveliness of this woman, who seemed physically little more than a girl, was annulled by those eyes, which burned with a cold, subtle fire, detached, ascetic, powerful. He could not fight those eyes, though his will had met five worlds. Or perhaps he would not, subconsciously. . . .

"You are the first outsider to come since the Hall was built," the whispering voice went on. "We bid you welcome."

"Where am I?" he tried to say, but his lips would not form the words.

"You are in the Hall of Thought, on Neptune, at the bottom of the Sea."

The Sea, Dan Lothar remembered, was liquid gases, mainly methane.

"How did I get here, then?"

"You fell in your ship; we brought you in." She fell silent, contemplating him with those unspeakably inhuman eyes; it came to him that she had not moved her lips either during the entire conversation. Mind to mind—something puzzled him.

"I was injured," he began.

He felt a sensation of cold amusement, not laughter, but faint contempt. He wondered if she had forgotten what real laughter was, lying here thinking to herself.

"Do you suppose your bodily ailments have any moment in the Hall of Thought? The mind controls the body, as it controls, perhaps creates, all matter. Tell me . . . how old do you think I am, then?"

"If you'll stop looking at me . . ." He sensed faint apology and the mental compulsion was withdrawn. With the icy mental flame gone he could see her more clearly. Accounting for the green light, she was not at all bad. Better than he at first thought.

"About twenty," he judged, speaking the words now.

"The figure," said the incomprehensible girl, "is closer to two hundred and twenty."

IV

She moved an arm slightly; he approached and sat down at her sign at the foot of the couch, perching tensely on the edge. Wryly he remembered another time he had done the same thing, but not in a room with hundreds of other beds, at the bottom of a sea of liquid gases! He tried to concentrate on the two hundred and twenty. It sounded impossible. And yet so much in the Hall of Thought was just that—the strange machinery, the vanishing doors, the serried silent philosophers, his own quick recovery—figments of an *Etaoin* pleasure-palace dream.

"When I was a little girl on Earth, about 1965, I was adopted by a college of metaphysicians." Again the sensation of amusement. "They were blunderers compared to our present advancement, but they accomplished one thing. They taught me to believe death was unnecessary." She paused. "I was never allowed to think anything about dying. I was told, and had no reason to think otherwise, that no one had to die, that I never would. My mental powers, groomed by them to greater ability, directed on that one lesson, pounded into me ceaselessly . . . well, I am deathless."

He shut his mouth with a click. Crazy! This was the most fantastic feature yet. But the powers of mind over matter were known. . . . A fragment of an old creed came back to him: "There is no life, truth, intelligence, nor substance in matter. All is mind, and its manifestation. . . ." That was misquoted, but the idea was there.

He shuddered again. So that was the reason for this silent hall! Immortals, sitting or lying in eternal thought . . . a defiance of nature?

She divined his thought. "The Hall has another function than contemplation, Dan Lothar. Were we dedicated to that alone, you would not have been brought here. Perhaps some day we may devote ourselves to the pursuit of the cosmic comprehension, but now there is another task set us."

He made no comment and she went on.

"Long ago we tried to reach that cosmic awareness. The massed minds of the college were flung out, united, in a great effort at understanding—but without warning came a terrible interruption. There was another thought present. At first it was a faint disturbance, nothing more, jarring our concentration. We could not find the source. Then, gradually as we became attuned to it, it grew; an alien thing, not human, and inimical, cold, deadly, coming from we knew not what nadir beyond our Earth. . . . How inhuman our Hall must seem to you, I realize," she interrupted, and he was astonished to see a faint smile transfigure the acerb expression for a moment, "but you have no idea of the difference between thought patterns of human and alien minds, no matter how advanced the former may be, until you have actually sensed them. We did. We felt this deadly current, this other-world pattern, playing coldly across the Earth, and we were afraid. We had no way of knowing its meaning, yet we did know that it meant ill things for man and his works. Soon after we began to piece it out . . . it was lost in the human thoughts all around us.

"We came out here, away from human interference, to search out that spatial cold we had felt. Only a few of us are immortal; but we are all doing the same work—tracing, projecting, attuning our mind-channels to that thought. You cannot imagine why it seemed so important, because you cannot feel what we did—yet it means death to mankind unless it is halted, Dan Lothar."

He put a hand to his head. Unbelievable nightmare! A citadel on acerb Neptune, built at unguessable cost, to seek a thought, a single wave, that seemed dangerous to Earth! The idea chilled him; yet on the surface it seemed ridiculous.

"I know," she said. "Close your eyes and I will show you."

V

And immediately he was sorry. He felt his mind being probed by delicate, intangible fingers, opened, readjusted, sensitized, as if it was being made to think

on another plane . . . and pouring in on him in stifling waves came . . .

There was no name for it in human speech. It was not words, nor pictures, nor physical sensation. It originated in no human mind, nor in any known mind of the Solar System. It was like the breath of Death, utterly horrible, utterly irresistible. It filled all space, charged it with unspeakable things; it was Fear, and Hatred, and emotions human beings had never known. It seemed directed at him personally, an implacable lust for his shrinking soul; yet it surged and swirled like a charnel wind over the universe of man so that all the great cities on the planets were darkened and human figures lost their life and became tiny wooden puppets immersed in cold, invisible flame. It blighted all hope and re-opened the ebony gates. It ran through his brain in rivulets of ice—

Then it all folded shut around him, like the turning of a page, left him white and trembling.

"You see?" the girl asked softly. He clenched his hands to stop the quivering. It was gone now, yet he knew he would never forget it; that in some measure, as long as the unthinkable mind that was broadcasting it lived, he would be able to sense it.

"What—what—is it?" he gasped.

"It is the approach of another world, another people," she said, her face like the expressionless marble of some ancient statue, lovely and lifeless. "They come from a far star, we do not know what one, and they are very near now."

"Why did you call me here?" He felt a faint anger. To die fighting in the outlawed paths of a flamboyant, understandable universe was as nothing to having lived and seen the gulfs of unsuspected things yawn below.

"For knowledge." She frowned slightly. "Our work here is done. Once we thought that we could project suggestions to them, influence their minds, but the patterns are too different. It is fighting that must be done now, star against star, before they can reach our system and carry out whatever purpose may be back of those deadly waves. And we cannot build a ship! None of us are technicians. The work on the Hall was done under

the direction of a man now dead; we need you now for that knowledge."

He digested that. "Why didn't you warn the world, instead of sprawling here thinking at—Them?"

"The world has no weapons against such forces."

"But you must have—"

"The weapons are important, yet remember—we are meeting minds as well; minds skilled in all the powers of thought. We are the only ones equipped to fight a mental battle. With an ally for the physical fighting we may win. You must be that ally. We can protect your mind, but to call an Earth fleet would be throwing lives away—we could not possibly shield them all."

She arose, and as if it were a signal, the lights flashed yellow. It was a grateful change, and made the vast stone cavern seem almost cosy. A stir of motion ran over the Hall. Even the emotionless face of the immortal girl seemed more real. The men on the couches were arising and moving toward them.

"Tell me," she said. "Will you fight for Earth now, instead of against it?"

This was, at last, something that Dan Lothar understood. This talk of immortality, the powers of the mind, the dreadful power which had held him for a moment, had built but a hazy picture in his mind. But how clearly he could see himself riding a mighty cruiser, fighting some invader, burning space with lancing rays, riding the red clouds of dinitron recklessly as of yore! He smiled a little. It wouldn't be bad, and . . . he glanced sidewise at the girl. She was still lovely, no matter how many centuries she had lived, or how far back her hair was combed; she still had something to learn, with all her centuries, that no one in the Hall had thought to teach her but himself. . . .

His smile broadened, and he nodded.

VI

He was glad when the ship was finished. A wonderful ship, fast and powerful as none on Earth had ever been; but the way it had built itself under the lashing thoughts of the Hall as he ran the plans carefully through his

mind was nerve-wracking and weird. The whole process took less than a week, during which no one ate, or seemed to require food, and no one slept but himself. Strange devices were attached to the generators, fitted awkwardly into the standard rayports he had supplied. He insisted also on a standard rocket rifle being installed in one turret. The girl was constantly at his side, her emotionless voice topping the crashing of the ship as it seemed to fling itself together; he noticed that she had undone the bun at the back of her head and arranged her hair more naturally. He grinned to himself. She was learning without knowing it. She looked almost attractive now, he admitted, even though the jarring mercury-vapor lights had been restored for the use of the proxies, which had appeared from nowhere in swarms.

At last the job was done. The intellectuals, like a group of eager children, wanted to get under way at once, but Lothar insisted on a week of training in the handling of the mechanisms and in astronautics. "Damned if I'll blast off with a crew of walking brains who don't know a C-tube from a ray-tube," he said. Finally he considered the requirements met, named the ship the *Ganymedian II* ("Bad luck to fly a nameless ship," he said, against the scoffings of the metaphysicians), and, surrounded by meteor screens drawn in close to prevent the "waters" of the Sea from crystallizing the metal skin, the great flier burst from the airlocks and mounted space over Neptune.

He locked the controls, sending the ship outward in a great arc which would bring it eventually to rest far beyond the boundaries of the Solar System, and turned to the girl.

"There's nothing to do now but sit," he told her. "You can put your organic robots back to bed."

She smiled for the second time since he had seen her. "I'm sorry that we all seem so inhuman to you," she said. "We've all been trained so thoroughly in abstractions that, well . . . we lose our hold on the things that are real to most people." She looked down at the loose mud-colored gown that she had worn since the first day. "I don't look much like a woman, do I?"

At that moment Dan Lothar could not imagine her

two hundred years older than he. He grinned broadly.

"There seems to be a stock of space-harnesses in the stores, since I thought of them in conjunction with the food and the other unnecessary items when we were building. Why don't you climb into one of those?"

The harness needed a few discreet adaptations involving small spare metal reflectors and several feet of leather to fit it for feminine use, but eventually she got it on. She looked even more human now. The shorts were very enhancing to unsuspected beauty.

"Now," she said. "Teach me something about the ship. I don't want to be so much useless brains."

They sat together at the board, and Lothar began the job of showing her the complexities of astronautics. It was a very pleasant few minutes, but only a few, because he never had to repeat anything or even explain complicated facts. She absorbed them instantly.

And just when Dan was feeling more natural the ominous nightmare reasserted itself. One of the younger metaphysicians popped into view from thin air, his white face strained.

"They are near," he said. "Nearer than we thought. We can feel them. And Di Falco and Guyer cannot handle the machine in chamber two."

Dan muttered to himself and punched buttons. "Damn' intellectuals," he commented, with additions. "What's the matter down there?"

"Something is wrong," the speaker rasped tinnily. "Come and see. We cannot control the current."

"I don't have to come and see," Dan roared. "What do you think I've got meters for? Cut the power on the condensers before you burn us all to a cinder. Watch your input. Wake up. Think about something useful." The girl was actually grinning like a gamin when he turned away; he felt happy himself, although the specter of dread hung over him as it did over the whole ship.

"Now you," he said to the startled young man. "Where are they?"

"Near," replied the other, waving his hands helplessly.

"Great Leonids! Where?"

"Wait a minute," the girl broke in. "They are 20 degrees off starboard, down ten degrees, and about a million miles away." Her face was expressionless again, but her tone seemed to be saying, "How am I doing?"

He turned to the boards and watched the detectors, flinging them out in a spherical screen to their farthest range. It seemed that his brief experience had sensitized him, for he could feel the cold alien breath faintly now. The indicators gave no sign.

And then suddenly, the needles bobbed; simultaneously the *Ganymedian II* gave a terrible lurch which threw them all to the floor. The First Interstellar War was begun!

VII

They struggled to their feet, faces white. Dan climbed back into his seat and watched the detectors, the girl peering over his shoulder.

"What is it?" she cried.

"Tractor. Tripped automatically by the detector field. Nothing new." But he felt a chill as he fingered the buttons. This sudden blow out of trackless and seemingly empty space! What horrors did it herald?

He bawled orders into the microphone; the ship, answering clumsily to the unskillful hands of the drivers, bounded free of the beam, arced in an unpredictable hyperbola toward the unseen enemy. The girl crouched breathlessly in the copilot seat; the young metaphysician climbed into the spacesuit locker and hid.

"Big help," grunted Lothar. His eyes remained glued to the screen, watching for the first sign of the approaching invaders. He had shut down the detectors for fear of setting off another relay. The floors quivered to straining generators.

"Balance that flow!" he ordered into the microphones. "Number Two, you're still using too much power. You're shaking the whole ship."

A tiny bright dot—too bright, it seemed, for reflected starlight—appeared on the screen, grew with agonizing slowness.

"Port turret," he snapped tersely. "Range four

hundred thousand. Three hundred. Two hundred. Fire!"

Nothing happened. There was no flash of rocket rifle, no streak of ray. But a tenuous, almost invisible network of green light burst like fireworks far to one side of the white point and died away. Not bad shooting for this distance.

But from the white point on the visor screen, now fast becoming a disc, another point detached itself, floated deliberately toward them, seemed to pause a breathless instant, then arrowed for the stern as if magnetized. There was a flare and a racing tide of flame engulfed the whole tail of the *Ganymedian II*, growing like a fiery amoeba. Dials quivered; the song of the generators rose to a tortured howl.

"Cut the drivers!" he cried. The howling died out mournfully, but the sheath of flame still advanced, silently, swiftly, like a sentient cocoon. On a hunch Dan turned off the screens.

Immediately the white fire quivered, paused indecisively, and then streamed indifferently off into space and faded. Sweat broke out on his body. He jerked the ship forward again; again the pale green network flowered briefly beside the alien. It was fully visible now, not more than a thousand miles away, a windowless ball of metal, seeming to shine by its own radiance. The green network was flung across it, and Dan held his breath.

But beyond a slight temporary dimming of the white glow, the invader was unharmed when the green light faded.

"Stymied," Dan whispered.

As if hearing and understanding, the sphere broke its headlong drive toward them and looped over them toward the distant sun.

"After them," the girl panted. "Quick!"

And now began the grim chase. . . .

VIII

Without hope, Dan tried one more shot from the regulation gun. As he expected, it rebounded harmlessly in

a red dinitron flower before touching the fleeing sphere. It would have done so from an Earth vessel.

After that no further shots were exchanged. The two, alien and Earthman, matched astronautics in silence, the one bent with deadly ferocity upon reaching some inhabited planet, the other doggedly clinging, hoping, waiting for an opening. Weird battle! The white sphere dodging, putting on speed, trying to lose its tiny bulk in the vastness of space, yet unable to hide; the cruiser from the Hall of Thought pursuing always, while mentalities meeting action for the first time in their cloistered lives fastened grimly upon the betraying thought-waves, holding that fearsome spoor for the merely human pilot at the controls. Faster, faster, while the motionless stars mocked the climbing speed indicators. . . . Pluto's orbit was passed. . . .

Abruptly the white sphere vanished from the screen, vanished utterly. In vain Dan Lothar searched the space ahead. The girl sat beside him, eyes burning coldly, white brow furrowed, and he felt once more the awe and sense of smallness at her aspect. She broke her strained silence as he scanned the meters frantically.

"They've stopped."

"What!"

"Yes . . . they're turning back."

"It isn't possible. They'd be crushed."

"Nevertheless, they did."

Dan braked the *Ganymedian II* until it seemed the acceleration would squeeze his bones to jelly despite the compensators. The girl gasped for breath, then was silent again, her face strained with concentration. He swung the ship laboriously around, while precious seconds flew by, and wondered what manner of things the silver sphere contained, to stop dead at full speed.

"There they—are—they did stop—how on earth—"

But there was no time for wondering, for the white sphere was plunging back toward Pluto. It was going to land!

Dan dropped after it and braked furiously, sweeping around the planet in a deceleration arc. The enemy ship flashed below them for an instant; the intellectuals on the gun deck fired four times at close range. All four

shots were hits but they were out of sight before the effect could be determined.

"Nice," Dan breathed in surprise. "I wonder . . ."

"No," said the girl. "I can still feel them."

The cruiser struck the frozen ground, bounced, and Dan let it ride free a moment. At last he grounded it in rough haste, and the keelplates screamed in protest through the very beams of the ship.

"We're only a few miles from them," the girl whispered. "You circled almost the whole planet."

"Yes," said Dan Lothar grimly, "and we're plunk in the middle of the Plutonian penal colony."

Indeed, the single dome which covered the main mine shaft, and the small field for receiving the infrequent freighters were visible through the ports. The few human guards who occupied the dome were running out toward them in spacesuits. There were, Dan estimated hastily, about twenty of them. "Glad of the diversion, I'll bet," he thought. He switched on the radiophone.

"Commander!"

"Commander Cameron speaking. Who are you—that other ship—"

"Interstellar invaders. Dangerous, inimical, down about ten miles from here."

"What! Who are you, I say—"

"No time. Don't argue. It's life and death for you and the Earth as well. Break out your prisoners and arm them. They're ray-screened, but I think they're vulnerable to gunfire now that their meteor screens are down. Quick!"

"We can't arm them all—and besides—"

"Never mind, arm as many as you can and get them into suits. No time for legal worries. This is interstellar war, you fool."

He cut the connection and opened the suit-locker, jerking the terrified young intellectual out of it. "Everyone into suits—no, not you—"

"I'm going," said the immortal woman, and he was too much in awe of her now to protest further.

As the airlock shut behind them the prisoners were bounding out of the dome in their suits. "Most of them

trusties," said the commander. "The others have no love for Earth."

"I can imagine," Dan thought sardonically to himself, remembering the radium-eaten inmates.

Then, "Let's go!"

IX

Against the light gravity of Pluto the trip was short. Behind them some of the guards dragged a few hastily dismounted rifles, and others clutched futile-looking rocket guns. The intellectuals carried long ray-tubes without grips, clumsy affairs obviously designed by amateurs but containing unknown powers. In a moment the white light of the invader glowed over the jagged, rocky horizon, and Dan again sensed faintly the terrible emanations.

"All right," he whispered, as if afraid the unguessable intelligences within that malign craft could hear. "Scatter. Their detectors must have us spotted but we're too small to hit individually." The order had barely been a minute in execution when one of the fireballs floated silently over the hills and sent a creeping pool groping toward them. There were no attracting screens around their suits, however; the shots had been blind, had caught no one. Quickly, taking advantage of every cover, the little party crept forward. The white sphere came slowly into full view, and into Dan's brain the evil thought-waves beat overpoweringly.

"Let 'em have it," he hissed softly, and raised his own gun, trying to shield his eyes against the white light, which seemed at this distance to be penetrating his whole body. The dread current of fear rocked his mind, made him dizzy and sick, and he could not pull the trigger . . . the stars spun before him.

"Dan!" the girl's voice cut across the whirling universe, and it was as if a veil had lifted. Her own will had seized upon his, held it against the deadly force.

But not so with the others. Guns hanging limp, the prisoners and guards were straggling forward, rapt, powerless, toward the gleaming, radiant ship. And as

they advanced, little balls of white fire, like monstrous eggs, rolled to meet them. . . .

Around him the intellectuals crouched, their trained minds fighting the hypnotic effulgency, holding out mentally, yet with no power left over for physical movement. He tried to help the girl with his own will, the power with which he fought five worlds and death itself in his little *Ganymedian*, and suddenly found himself unshackled. He leapt to one of the discarded rifles, righted it, crowded a clip of five shells into it in terrible haste, pulled the cord blindly.

The shot was soundless, but the ground jolted under him and a red flash of dinitron marked the alien's hull. Around it the white light dimmed and began to disappear! He roared an insane laugh, pulled the cord again and again, continued pulling it in a scarlet haze long after the clip was exhausted. There was a huge dark patch on the glowing sphere—but the shots had not penetrated!

Not penetrated . . . but the intellectuals, their mighty minds pitted successfully against the now-dimmed light, raised their awkward tubes, concentrated on that crater; the green network flowered, grew, and ate mordantly where the screening radiation was gone.

Abruptly it was all over. There was a silent burst of energy, green and white intermingled; the alien ship shattered like a glass bubble. Within they caught brief, horror-sickened glimpses of things forever unknowable and indescribable; then, that too, was gone; there was but a heap of scrap metal, dull and lifeless.

The girl sat back on a rock, slumped; for a moment it seemed she would faint under the release of the ghastly strain. But she was still the immortal mistress of the Hall of Thought, and after a moment she straightened with an effort, looked squarely at him.

"Now you see the power of the mind," she whispered. "Are you sorry I am so much an intellectual, Dan Lothar?"

It was an utterly human question.

"You still have something to learn," he replied.

"There are other powers." He leaned toward her. The glass of their face-plates clinked, and then they both laughed—an explosive, free, and human sound beneath the black Plutonian heavens.

The Box

WHEN MEISTER GOT out of bed that Tuesday morning, he thought it was before dawn. He rarely needed an alarm clock these days—a little light in his eyes was enough to awaken him and sometimes his dreams brought him upright long before the sun came up.

It had seemed a reasonably dreamless night, but probably he had just forgotten the dreams. Anyhow, here he was, awake early. He padded over to the window, shut it, pulled up the blind and looked out.

The street lights were not off yet, but the sky was already a smooth, dark gray. Meister had never before seen such a sky. Even the dullest overcast before a snowfall shows some variation in brightness. The sky here—what he could see of it between the apartment houses—was like the inside of a lead helmet.

He shrugged and turned away, picking up the clock from the table to turn off the alarm. Some day, he promised himself, he would sleep long enough to hear it ring. That would be a good day; it would mean that the dreams were gone. In Concentration Camp Dora, one had awakened the moment the tunnel lights were put on; otherwise one might be beaten awake, or dead. Meister was deaf in the left ear on that account. For the first three days at Dora he had had to be awakened.

He became aware suddenly that he was staring fixedly at the face of the clock, his subconscious ringing

alarm bells of its own. *Nine o'clock!* No, it was not possible. It was obviously close to sunrise. He shook the clock stupidly, although it was ticking and had been since he first noticed it. Tentatively he touched the keys at the back.

The alarm had run down.

This was obviously ridiculous. The clock was wrong. He put it back on the table and turned on the little radio. After a moment it responded with a terrific thrumming, as if a vacuum cleaner were imprisoned in its workings.

"B-flat," Meister thought automatically. He had only one good ear, but he still had perfect pitch—a necessity for a resonance engineer. He shifted the setting. The hum got louder. Hastily he reversed the dial. Around 830 kc, where WNYC came in, the hum was almost gone, but of course it was too early yet for the city station to be on the air—

" . . . in your homes," a voice struck in clearly above the humming. "We are awaiting a report from Army headquarters. In the meantime, any crowding at the boundaries of the barrier will interrupt the work of the Mayor's inquiry commission . . . Here's a word just in from the Port Authority: all ferry service has been suspended until further notice. Subways and tubes are running outbound trains only; however, local service remains normal so far."

Barrier? Meister went to the window again and looked out. The radio voice continued:

"NBC at Radio City disclaims all knowledge of the persistent signal which has blotted out radio programs from nine hundred kilocycles on up since midnight last night. This completes the roster of broadcasting stations in the city proper. It is believed that the tone is associated with the current wall around Manhattan and most of the other boroughs. Some outside stations are still getting through, but at less than a fiftieth of their normal input." The voice went on:

"At Columbia University, the dean of the Physics Department estimates that about the same proportion of sunlight is also getting through. We do not yet have any report about the passage of air through the barrier. The

flow of water in the portions of the East and Hudson Rivers which lie under the screen is said to be normal, and no abnormalities are evident at the Whitehall Street tidal station."

There was a pause; the humming went on unabated. Then there was a sharp *beep!* and the voice said, "At the signal—9 A.M., Eastern Daylight Savings Time."

Meister left the radio on while he dressed. The alarming pronouncements kept on, but he was not yet thoroughly disturbed, except for Ellen. She might be frightened; but probably nothing more serious would happen. Right now, he should be at the labs. If the Team had put this thing up overnight, they would tease him unmercifully for sleeping through the great event.

The radio continued to reel off special notices, warnings, new bulletins. The announcer sounded as if he were on the thin edge of hysteria; evidently he had not yet been told what it was all about. Meister was tying his left shoe when he realized that the reports were beginning to sound much worse.

"From LaGuardia Field we have just been notified that an experimental plane has been flown through the barrier at a point over the jammed Triboro Bridge. It has not appeared over the city and is presumed lost. On the *Miss New York* disaster early this morning we still have no complete report. Authorities on Staten Island say the ferry ordinarily carried less than two hundred passengers at that hour, but thus far only eleven have been picked up. One of these survivors was brought in to a Manhattan slip by the tub *Marjorie Q*; he is still in a state of extreme shock and Bellevue Hospital says no statement can be expected from him until tomorrow. It appears, however, that he swam *under* the barrier."

His voice carried the tension he evidently felt. "Outside the screen a heavy fog still prevails—the same fog which hid the barrier from the ferry captain until his ship was destroyed almost to the midpoint. The Police Department has again requested that all New Yorkers stay—"

Alarmed at last, Meister switched off the machine and left the apartment, locking it carefully. Unless those

idiots turned off their screen, there would be panic and looting before the day was out.

Downstairs in the little grocery there was a mob arguing in low, terrified voices, their faces as gray as the ominous sky. He pushed through them to the phone.

The grocer was sitting behind it. "Phone service is tied up, Mr. Meister," he said hoarsely.

"I can get through, I think. What has happened?"

"Some foreign enemy, is *my* guess. There's a big dome of somethin' all around the city. Nobody can get in or out. You stick your hand in, you draw back a bloody stump. Stuff put through on the other side don't come through." He picked up the phone with a trembling hand and passed it over. "Good luck."

Meister dialed Ellen first. He needed to know if she were badly frightened, and to reassure her if she were. Nothing happened for a while; then an operator said, "I'm sorry, sir, but there will be no private calls for the duration of the emergency, unless you have a priority."

"Give me Emergency Code B-Nineteen, then," Meister said.

"Your group, sir?"

"Screen Team."

There was a faint sound at the outer end of the line, as if the girl had taken a quick breath. "Yes, sir," she said. "Right away." There was an angry crackle, and then the droning when the number was being rung.

"Screen Team," a voice said.

"Resonance section, please," Meister said, and when he was connected and had identified himself, a voice growled:

"Hello, Jake, this is Frank Schafer. Where the deuce are you? I sent you a telegram—but I suppose you didn't get it, the boards are jammed. Get on down here, quick!"

"No, I haven't any telegram," Meister said. "Whom do I congratulate?"

"Nobody, you fool! *We* didn't do this. We don't even know how it's been done!"

Meister felt the hairs on the back of his neck stirring. It was as if he were back in the tunnels of Concentra-

tion Camp Dora again. He swallowed and said, "But it is the antibomb screen?"

"The very thing." Schafer's tinny voice said bitterly. "Only somebody else has beat us to it—and we're trapped under it."

"It's really bombproof—you're sure of that?"

"It's anything-proof! Nothing can pass it! *And we can't get out of it, either!*"

It took quite a while to get the story straight. Project B-19, the meaningless label borne by the top-secret, billion-dollar Atomic Defense Project, was in turmoil. Much of its laboratory staff had been in the field or in Washington when the thing happened, and the jam in phone service had made it difficult to get the men who were still in the city back to the central offices.

"It's like this," Frank Schafer said, kneading a chunk of art gum rapidly. "This dome went up last night. It lets in a little light and a few of the strongest outside radio stations near by. But that's all—or anyhow, all that we've been able to establish so far. It's a perfect dome, over the whole island and parts of the other boroughs and New Jersey. It doesn't penetrate the ground or the water, but the only really big water frontage is way out in the harbor, so that lets out much chance of everybody swimming under it like that man from the *Miss New York*."

"The subways are running, I heard," Meister said.

"Sure; we can evacuate the city if we have to, but not fast enough." The mobile fingers crumbled bits off the sides of the art gum. "It won't take long to breathe up the air here, and if any fires start it'll be worse. Also there's a layer of ozone about twenty feet deep all along the inside of the barrier—but don't ask me why! Even if we don't have any big blazes, we're losing oxygen at a terrific rate by ozone-fixing and surface oxidation of the ionized area."

"Ionized?" Meister frowned. "Is there much?"

"Plenty!" Schafer said. "We haven't let it out, but in another twenty hours you won't be able to hear anything on the radio but a noise like a tractor climbing a

pile of cornflakes. There's been an increase already. Whatever we're using for ether these days is building up tension fast."

A runner came in from the private wires and dropped a flimsy on Frank's desk. The physicist looked at it quickly, then passed it to Meister.

"That's what I figured. You can see the spot we're in."

The message reported that oxygen was diffusing inward through the barrier at about the same rate as might be accounted for by osmosis. The figures on loss of CO_2 were less easy to establish, but it appeared that the rate here was also of an osmotic order of magnitude. It was signed by a top-notch university chemist.

"Impossible!" Meister said.

"No, it's so. And New York is entirely too big a cell to live, Jake. If we're getting oxygen only osmotically, we'll be suffocated in a week. And did you ever hear of semipermeable membrane passing a lump of coal, or a tomato? Air, heat, food—all cut off."

"What does the Army say?"

"What they usually say: 'Do something, on the double!' We're lucky we're civilians, or we'd be court-martialed for dying!" Schafer laughed angrily and pitched the art gum away. "It's a very pretty problem, in a way," he said. "We have our antibomb screen. Now we have to find how to make ourselves *vulnerable* to the bomb—or cash in our chips. And in six days—"

The phone jangled and Schafer snatched at it. "Yeah, this is Dr. Schafer . . . I'm sorry, Colonel, but we have every available man called in now except those on the Mayor's commission . . . No, I don't know. Nobody knows, yet. We're tracing that radio signal now. If it has anything to do with the barrier, we'll be able to locate the generator and destroy it."

The physicist slammed the phone into its cradle and glared at Meister. "I've been taking this phone stuff all morning! I wish you'd showed up earlier. Here's the picture, briefly: The city is dying. Telephone and telegraph lines give us some communication with the outside, and we will be able to use radio inside the dome for a little while longer. There are teams outside trying

to crack the barrier, but all the significant phenomena are taking place inside. Out there it just looks like a big black dome—no radiation effects, no ionization, no radio tone, no nothin'!

"We are evacuating now," he went on, "but if the dome stays up, over three quarters of the trapped people will die. If there's any fire or violence, almost all of us will die."

"You talk," Meister said, "as if you want me to kill the screen all by myself."

Schafer grinned nastily. "Sure, Jake! This barrier obviously doesn't act specifically on nuclear reactions; it stops almost everything. Almost everyone here is a nuclear man, as useless for this problem as a set of cookycutters. Every fact we've gotten so far shows this thing to be an immense and infinitely complicated form of cavity-resonance—and you're the only resonance engineer inside."

The grin disappeared. Schafer said, "We can give you all the electronics technicians you need, plenty of official backing, and general theoretical help. It's not much but it's all we've got. We estimate about eleven million people inside this box—eleven million corpses unless you can get the lid off it."

Meister nodded. Somehow, the problem did not weigh as heavily upon him as it might have. He was remembering Dora, the wasted bodies jammed under the stairs, in storerooms, fed into the bake-oven five at a time. One could survive almost anything if one had had practice in surviving. There was only Ellen—

Ellen was probably in The Box—the dome. That meant something, while eleven million was only a number.

"*Entdecken*," he murmured.

Schafer looked up at him, his blue eyes snapping sparks. Schafer certainly didn't look like one of the world's best nuclear physicists. Schafer was a sandy-haired runt—with the bomb hung over his head by a horsehair.

"What's that?" he said.

"A German word," Meister answered. "It means, to discover—literally, to take the roof off. That is the first

step, it seems. To take the roof off, we must discover that transmitter."

"I've got men out with loop antennae. The geometrical center of the dome is right at the tip of the Empire State Building, but WNBT says there's nothing up there but their television transmitters."

"What they mean," Meister said, "is that there was nothing else up there two weeks ago. There *must* be a radiator at a radiant point no matter how well it is disguised."

"I'll send a team." Schafer got up, fumbling for the art gum he had thrown away. "I'll go myself, I guess. I'm jittery here."

"With your teeth? I would not advise it. You would die slain, as the Italians say!"

"Teeth?" Schafer said. He giggled nervously. "What's that got to—"

"You have metal in your mouth. If the mast is actually radiating this effect, your jawbones might be burnt out of your head. Get a group with perfect teeth, or porcelain fillings at best. And wear nothing with metal in it, not even shoes."

"Oh," Schafer said. "I knew we needed you, Jake." He rubbed the back of his hand over his forehead and reached into his shirt pocket for a cigarette.

Meister struck it out of his hand. "Six days' oxygen remaining," he said.

Schafer lunged up out of his chair, aimed a punch at Meister's head, and fainted across the desk.

The dim city stank of ozone. The street lights were still on. Despite radioed warnings to stay indoors surging mobs struggled senselessly toward the barrier. Counterwaves surged back, coughing, from the unbreathable stuff pouring out from it. More piled up in subway stations; people screamed and trampled one another. Curiously, the city's take that day was enormous. Not even disaster could break the deeply entrenched habit of putting a token in the turnstile.

The New York Central and Long Island Railroads, whose tracks were above ground where the screen cut across them, were shut down, as were the underground

lines which came to the surface inside The Box. Special trains were running every three minutes from Pennsylvania Station, with passengers jamming the aisles and platforms.

In the Hudson Tubes the situation was worse. So great was the crush of fleeing humans there, they could hardly operate at all. The screen drew a lethal line between Hoboken and Newark, so that Tube trains had to make the longer of the two trips to get their passengers out of The Box. A brief power interruption stopped one train in complete darkness for ten minutes beneath the Hudson River, and terror and madness swept through it.

Queens and Brooklyn subways siphoned off a little pressure, but only a little. In a major disaster the normal human impulse is to go north, on the map-fostered myth that north is "up."

Navy launches were readied to ferry as many as cared to make the try out to where The Box lay over the harbor and the rivers, but thus far there were no such swimmers. Very few people can swim twenty feet under water, and to come up for air short of that twenty feet would be disastrous. That would be as fatal as coming up in the barrier itself; ozone is lung-rot in high concentrations. That alone kept most of the foolhardy from trying to run through the wall—that, and the gas-masked police cordon.

From Governor's Island, about half of which was in The Box, little Army ferries shipped over several cases of small arms which were distributed to subway and railroad guards. Two detachments of infantry also came along, relieving a little of the strain on the police.

Meister, hovering with two technicians and the helicopter pilot over a building on the edge of the screen, peered downward in puzzlement. It was hard to make any sense of the geometry of shadows below him.

"Give me the phone," he said.

The senior technician passed him the mike. A comparatively long-wave channel had been cleared by a major station for the use of emergency teams and prowling cars, since nothing could be heard on short-wave above that eternal humming.

"Frank, are you on?" Meister called. "Any word from Ellen yet?"

"No, but her landlady says she went to Jersey to visit yesterday," came over the airwaves. There was an unspoken understanding between them that the hysterical attack of an hour ago would not be mentioned. "You'll have to crack The Box to get more news, I guess, Jake. See anything yet?"

"Nothing but more trouble. Have you thought yet about heat conservation? I am reminded that it is summer; we will soon have an oven here."

"I thought of that, but it isn't so," Frank Schafer's voice said. "It seems hotter only because there's no wind. Actually, the Weather Bureau says we're *losing* heat pretty rapidly; they expect the drop to level at fifteen to twenty above."

Meister whistled. "So low! Yet there is a steady supply of calories in the water—"

"Water's a poor conductor. What worries me is this accursed ozone. It's diffusing through the city—already smells like the inside of a transformer around here!"

"What about the Empire State Building?"

"Not a thing. We ran soap bubbles along the power leads to see if something was tapping some of WNBT's power, but there isn't a break in them anywhere. Maybe you'd better go over there when you're through at the barrier. There are some things we can't make sense of."

"I shall," Meister said. "I will leave here as soon as I start a fire."

Schafer began to sputter. Meister smiled gently and handed the phone back to the technician.

"Break out the masks," he said. "We can go down now."

A rooftop beside the barrier was like some hell dreamed up in the violent ward of a hospital. Every movement accumulated a small static charge on the surface of the body, which discharged stingingly and repeatedly from the fingertips and even the tip of the nose if it approached a grounded object too closely.

Only a few yards away was the unguessable wall itself, smooth, deep gray, featureless, yet somehow quiv-

ering with a pseudo-life of its own—a shimmering haze just too dense to penetrate. It had no definite boundary. Instead, the tarpaper over which it lay here began to dim, and within a foot faded into the general mystery.

Meister looked at the barrier. The absence of anything upon which the eye could fasten was dizzying. The mind made up patterns and flashes of lurid color and projected them into the grayness. Sometimes it seemed that the fog extended for miles. A masked policeman stepped over from the inside parapet and touched him on the elbow.

"Wouldn't look at her too long, sir," he said. "We've had ambulances below carting away sightseers who forgot to look away. Pretty soon your eyes sort of get fixed."

Meister nodded. The thing was hypnotic all right. And yet the eye was drawn to it because it was the only source of light here. The ionization was so intense that it bled off power from the lines, so that street lamps had gone off all around the edge. From the helicopter, the city had looked as if its rim was inked out in a vast ring. Meister could feel the individual hairs all over his body stirring; it made him feel infested. Well, there'd been no shortage of lice at Dora!

Behind him the technicians were unloading the apparatus from the 'copter. Meister beckoned. "Get a reading on field strength first of all," he said gloomily. "Whoever is doing this has plenty of power. Ionized gas, a difficult achievement—"

He stopped suddenly. Not so difficult. The city was enclosed; it was, in effect, a giant Geissler tube. Of course the concentration of rare gases was not high enough to produce a visible glow, but—

"Plenty high," the technician with the loop said. "Between forty-five and fifty thousand. Seems to be rising a little, too."

"Between—" Meister stepped quickly to the instrument. Sure enough, the black needle was wavering, so rapidly as to be only a fan-shaped blur between the two figures. "This is ridiculous! Is that instrument reliable?"

"I just took the underwriters' seal off it," the techni-

cian said. "Did you figure this much ozone could be fixed out without any alteration?"

"Yes, I had presupposed the equivalent of UV bombardment. This changes things. No wonder there is light leaking through that screen! Sergeant—"

"Yes sir?" the policeman mumbled through his mask.

"How much of the area below can you clear?"

"As much as you need."

"Good." Meister reached into his jacket pocket and produced the map of the city the pilot had given him. "We are here, yes? Make a cordon, then, from here to here." His soft pencil scrawled a black line around four buildings. "Then get as much fire-fighting equipment outside the line as you can muster."

"You're expecting a bad fire?"

"No, a *good* one. But hurry!"

The cop scratched his head in puzzlement, but he went below. Meister smiled. Members of the Screen Team were the Mister Bigs in this city now. Twenty hours ago nobody'd ever heard of the Screen Team.

The technician, working with nervous quickness, was tying an oscilloscope into the loop circuit. Meister nodded approvingly. If there was a pulse to this phenomenon, it would be just as well to know its form. He snapped his fingers.

"What's wrong, doctor?"

"My memory. I have put my head on backwards when I got up this morning, I think. We will have to photograph the wave form; it will be too complex to analyze here."

"How do you know?" the technician asked.

"By that radio tone," Meister said. "You Americans work by sight. There are almost no resonance electronics men in this country. But in Germany we worked as much by ear as by eye. Where you convert a wave into a visible pattern, we turned it into an audible one. We had a saying that resonance engineers were disappointed musicians."

The face of the tube suddenly produced a green wiggle. It was the kind of wiggle a crazy man might make. The technician looked at it in dismay. "That," he said,

"doesn't exist. I won't work in a science where it *could* exist!"

Meister grinned. "That is what I meant. The radio sound was a fundamental B-flat, but with hundreds of harmonics and overtones. You don't have it all in the field yet."

"I don't?" He looked. "So I don't! But when I reduce it that much, you can't see the shape of the modulations."

"We will have to photograph it by sections."

Bringing over the camera, the other man set it up. They worked rapidly, oppressed by the unnatural pearly glimmer, the masks, the stink of ozone which crept in at the sides of the treated cloth, the electrical pricking, above all by the silent terror of any trapped animal.

While they worked, the cop came back and stood by silently, watching. The gas mask gave no indication of his expression, but Meister could feel the pressure of faith radiating from the man. Doubtless these bits of equipment were meaningless to him—but bits of equipment like these had put up The Box, beyond the powers of policemen or presidents to take down again. Men who knew about such things were as good as gods now.

Unless they failed.

"That does it," the technician said.

The cop stepped forward. "I've got the area you marked roped off," he said diffidently. "We've searched the apartments and there's nobody in them. If there's any fire here, we'll be able to control it."

"Excellent!" Meister said. "Remember that this gas will feed the flames, however. You will need every possible man."

"Yes, sir. Anything else?"

"Just get out of the district yourself."

Meister climbed into the plane and stood by the open hatch, looking at his wrist watch. He gave the cop ten minutes to leave the tenement and get out to the fire lines. Then he struck a match and pitched it out onto the roof.

"Up!" he shouted.

The rotors roared. The pitch on the roof began to smolder. A tongue of flame shot up. In three seconds

the whole side of the roof nearest the gray screen was blazing.

The helicopter lurched and clawed for altitude.

Behind the plane arose a brilliant and terrifying yellow glare. Meister didn't bother to watch it. He squatted with his back to the fire and waved pieces of paper over the neck of a bottle.

The ammonia fumes were invisible and couldn't be smelled through the mask, but on the dry-plates wiggly lines were appearing. Meister studied them, nibbling gently at his lower lip. With luck, the lines would answer one question at least: they would tell what The Box was. With luck, they might even tell how it was produced.

They would *not* tell where it came from.

The motion of the 'copter changed suddenly, and Meister's stomach stirred uneasily under his belt. He stowed the plates and looked up. The foreshortened spire of the Empire State Building pointed up at him through the transparent deck; another 'copter hovered at its tip. The television antennae were hidden now in what seemed to be a globe of some dark substance.

Meister picked up the radio-phone. "Schafer?" he called—this to the Empire State Building.

"No, this is Talliafero," came back an answer. "Schafer's back at the labs. We're about ready to leave. Need any help?"

"I don't think so," Meister said. "Is that foil you have around the tower mast?"

"Yes, but it's only a precaution. The whole tower's radiating. The foil radiates, too, now that we've got it up. See you later."

The other 'copter stirred and swooped away.

Meister twisted the dial up into the short-wave region. The humming surged in; he valved down the volume and listened intently. The sound was different somehow. After a moment his mind placed it. The fundamental B-flat was still there, but some of the overtones were gone; that meant that hundreds of them, which the little amplifier could not reproduce, were also gone. He was listening on an FM set; his little table set

at the apartment was AM. So the wave was modulated along both axes, and probably pulse-modulated as well. But why would it simplify as one approached its source?

Resonance, of course. The upper harmonics were echoes. Yet a simple primary tone in a well-known frequency range couldn't produce The Box by itself. It was the harmonics that made the difference, and the harmonics couldn't appear without the existence of some chamber like The Box. Along this line of reasoning, The Box was a precondition of its own existence. Meister felt his head swimming.

"Hey," the pilot said. "It's started to snow!"

Meister turned off the set and looked out. "All right, let's go home now."

Despite its depleted staff, the Screen Team was quiet with the intense hush of concentration that was its equivalent of roaring activity. Frank Schafer's door was closed, but Meister didn't bother to knock. He was on the edge of an idea and there was no time to be lost in formalities.

There were a number of uniformed men in the office with Frank. There was also a big man in expensive clothes, and a smaller man who looked as if he needed sleep. The smaller man had dark circles under his eyes, but despite his haggardness Meister knew him. The mayor. The big man did not look familiar—nor pleasant.

As for the high brass, nothing in a uniform looked pleasant to Meister. He pushed forward and put the dry-plates down on Schafer's desk. "The resonance products," he said. "If we can duplicate the fundamental in the lab—"

There came a roar from the big man. "Dr. Schafer, is this the man we've been waiting for?"

Schafer made a tired gesture. "Jake, this is Roland Dean," he said. "You know the mayor, I think. These others are security officers. They seem to think you made The Box."

Meister stiffened. "I? That's idiotic!"

"Any noncitizen is automatically under suspicion,"

one of the Army men said. "However, Dr. Schafer exaggerates. We just want to ask a few questions."

The mayor coughed. He was obviously tired, and the taint of ozone did not make breathing very comfortable.

"I'm afraid there's more to it than that, Dr. Meister," he added. "Mr. Dean here has insisted upon an arrest. I'd like to say for myself that I think it all quite stupid."

"Thank you," Meister said. "What is Mr. Dean's interest in this?"

"Mr. Dean," Schafer growled, "is the owner of that block of tenements you're burning out up north. The fire's spreading, by the way. When I told him I didn't know why you lit it, he blew his top."

"Why not?" Dean said, glaring at Meister. "I fail to see why this emergency should be made an excuse for irresponsible destruction of property. Have you any reason for burning my buildings, Meister?"

"Are you having any trouble with breathing, Mr. Dean?" Meister asked.

"Certainly! Who isn't? Do you think you can make it easier for us by filling The Box with smoke?"

Meister nodded. "I gather that you have no knowledge of elementary chemistry, Mr. Dean. The Box is rapidly converting our oxygen into an unbreathable form. A good hot fire will consume some of it, but it will also break up the ozone molecules. The ratio is about two atoms of oxygen consumed for every one set free—out of three which in the form of ozone could not have been breathed at all."

Schafer sighed gustily. "I should have guessed. A neat scheme, Jake. But what about the ratio between reduction of ozone and over-all oxygen consumption?"

"Large enough to maintain five of the six days' grace with which we started. Had we let the ozone-fixing process continue unabated, we should not have lasted forty hours longer."

"Mumbo jumbo!" Dean said stonily, turning to Schafer. "A halfway measure. The problem is to get us out of this mess, not to stretch our sufferings out by three days by invading property rights. This man is a German, probably a Nazi! By your own admission, he's the only man in your whole section who's seemed to

know what to do. And nothing he's done so far has shown any result, except to destroy some of my buildings!"

"Dr. Meister, just what *has* been accomplished thus far?" a colonel of Intelligence said.

"Only a few tentative observations," Meister said. "We have most of the secondary phenomena charted."

"Charts!" Dean snorted.

"Can you offer any assurance that The Box will be down in time?" the colonel asked.

"That," Meister said, "would be very foolish of me. The possibility exists, that is all. Certainly it will take time—we have barely scratched the surface."

"In that case, I'm afraid you'll have to consider *yourself* under arrest—"

"See here, Colonel!" Schafer surged to his feet, his face flushed. "Don't you know that he's the only man in The Box who can crack it? That fire was good common sense. If you arrest my men for *not* doing anything, we'll never get anything done!"

"I am not exactly stupid, Dr. Schafer," the colonel said harshly. "I have no interest in Mr. Dean's tenelements, and if the mayor is forced to jail Dr. Meister we will spring him at once. All I'm interested in is the chance that Dr. Meister may be *maintaining* The Box instead of trying to *crack it*."

"Explain, please," Meister said mildly.

Pulling himself up to military straightness, the colonel cleared his throat and said:

"You're inside The Box. If you put it up, you have a way out of it, and know where the generator is. You may go where you please, but from now on we'll have a guard with you. . . . Satisfied, Dr. Schafer?"

"It doesn't satisfy me!" Dean rumbled. "What about my property? Are you going to let this madman burn buildings with a guard to help?"

The colonel looked at the landlord. "Mr. Dean," he said quietly, "you seem to think The Box was created to annoy you personally. The Army hasn't the technical knowledge to destroy it, but it has sense enough to realize that more than just New York is under attack here. The enemy, whoever he may be, thinks his screen un-

crackable, otherwise he wouldn't have given us this chance to work on it by boxing in one city alone. If The Box is not down in, say, eight days, he'll know that New York failed and died—and every city in the country will be bombed to slag the next morning."

Schafer sat down again, looking surly. "Why?" he asked the army man. "Why would they waste the bombs when they could just box in the cities?"

"Inefficient. America's too big to occupy except slowly, piecemeal. They'd have no reason to care if large parts of it were uninhabitable for a while. The important thing is to knock us out as a military force, as a power in world affairs."

"If they boxed in all the cities at once—"

The colonel shook his head. "We have rocket emplacements of our own, and they *aren't* in large cities. Neither Box nor bomb would catch more than a few of them. No. They have to know that The Box is uncrackable, so they can screen their own cities against our bombs until our whole country is knocked out. With The Box, that would take more than a week, and their cities would suffer along with ours. With bombs, a day would be enough. So they've allowed us this test. If New York comes out of this, there'll be no attack, at least until they've gotten a better screen. The Box seems good enough so far!"

"Politics," Schafer said, shaking his head disgustedly. "It's much too devious for me! Doesn't The Box constitute an attack?"

"Certainly—but who's doing the attacking?" the colonel demanded. "We can guess, but we don't know. And I doubt very much that the enemy has left any traces."

Meister stiffened suddenly, a thrill of astonishment shooting up his backbone. Schafer stared at him.

"Traces!" Meister said. "Of course! That is what has been stopping us all along. Naturally there would be no traces. We have been wasting time looking for them. Frank, the generator is not in the Empire State Building. *It is not even in The Box!*"

"But, Jake, it's got to be," Schafer said. "It's physically impossible for it to be outside!"

"A trick," Dean rumbled.

Meister waved his hands excitedly. "No, no! This is the reasoning which has made our work so fruitless. Observe. As the colonel says, the enemy would not dare leave traces. Now, workmanship is traceable, particularly if the device is revolutionary, as this one is. Find that generator and you know at once which country has made it. You observe the principle, and you say to yourself, 'Ah, yes, there were reports, rumors, whispers of shadows of rumors of such a principle, but I discounted them as fantasy; they came out of Country X.' Do you follow?"

"Yes, but—"

"But no country would leave such a fingerprint where it could be found. This we can count upon. Whereas we know as yet next to nothing about the physics of The Box. Therefore, if it is physically impossible for the generator to be outside The Box, this does not mean that we must continue to search for it inside. It means that we must find a physical principle which makes it possible to be outside!"

Frank Schafer threw up his hands. "Revise basic physics in a week! Well, let's try. I suppose Meister's allowed lab work, Colonel?"

"Certainly, as long as my guards aren't barred from the laboratory."

Thirty hours later the snow stopped falling, leaving a layer a little over three inches deep. The battling mobs were no longer on the streets. Hopeless masses were jammed body to body in railroad stations and subways. The advancing ozone had driven the people in upon themselves, and into the houses and basements where rooms could be sealed against the searing stench.

Thousands had already died along the periphery. The New Jersey and Brooklyn shores were charnel heaps of those who had fought to get back across the river to Manhattan and cleaner air. The tenements along the West Side of the island still blazed,—twenty linear blocks of them,—but the fire had failed to jump Ninth Avenue and was dying for want of fuel. Elsewhere it was very cold. The city was dying.

Over it, The Box was invisible. It was the third night.

In the big lab at the Team Office, Meister, Schafer, and the two technicians suddenly disappeared under a little Box of their own, leaving behind four frantic soldiers. Meister sighed gustily and looked at the black screen a few feet from his head.

"Now we know," he said. "Frank, you can turn on the light now."

The desk lamp clicked on. In the shaded glow Meister saw that tears were trickling down Schafer's cheeks.

"No, no, don't weep yet, the job is not quite done!" Meister cried. "But see—so simple, so beautiful!" He gestured at the lump of metal in the exact center of the Boxed area. "Here we are—four men, a bit of metallic trash, an empty desk, a lamp, a cup of foil. Where is the screen generator? Outside!"

Schafer swallowed. "But it isn't," he said hoarsely. "Oh, you were right, Jake—the key projector *is* outside. But it doesn't generate the screen; it just excites the iron there, and that does the job." He looked at the scattered graphs on the desk top. "I'd never have dreamed such a jam of fields was possible! Look at those waves—catching each other, heterodyning, slowing each other up as the tension increases. No wonder the whole structure of space gives way when they finally get in phase!"

One of the technicians looked nervously at the little Box and cleared his throat. "I still don't see why it should leak light, oxygen, and so forth, even the little that it does. The jam has to be radiated away, and the screen should be the subspatial equivalent of a perfect radiator, a black body. But it's gray."

"No, it's black," Schafer said. "But it isn't turned on all the time. If it were, the catalyst radiation couldn't get through. It's a perfect electromagnetic push-me-pull-you. The apparatus outside projects the catalyst fields in. The lump of iron—in this case the Empire State Building—is excited and throws off the screen fields. The screen goes up. The screen cuts off the catalyst radiation. The screen goes down. In comes the primary beam again. And so on. The kicker is that without the off-again-on-again, you wouldn't get anything—the screen

couldn't exist because the intermittence supplies some of the necessary harmonics."

He grinned ruefully. "Here I am explaining it as if I understood it. You're a good teacher, Jake!"

"Once one realizes that the screen has to *be* up before it can *go* up," Meister said, grinning back, "one has the rest—or most of it. Introducing a rhythmic interruption of the very first pulses is a simple trick. The hardest thing about it is timing—to know just when the screen goes up for the first time, so that the blinker can be cut out at precisely that moment."

"So how do we get out?"

"Feedback," Meister said. "There must be an enormous back EMF in the incoming beam. And whether it is converted and put back into the system again at the source, or just efficiently wasted, we can burn it out." He consulted a chalk line which ran along the floor from the edge of the little Box to the lump of iron, then picked up the cup of foil and pointed it along the mark away from the lump. "The trick," he said soberly, "is not to nullify, but to amplify—"

The glare of the overheads burst in upon them. The lab was jammed with soldiers, all with rifles at the ready and all the rifles pointing in at them. The smell of burned insulation curled from an apparatus at the other end of the chalk line.

"Oh," said Schafer. "We forgot the most important thing! Which way does our chalk line run from the Empire State Building, I wonder?"

"It could be anywhere above the horizon," Meister said. "Try pointing your reflector straight up, first."

Schafer swore. "Anytime you want a diploma for unscrewing the inscrutable, Jake," he said, "I'll write you one with my nose!"

It was cold and quiet now in the city. The fires on the West Side, where one of the country's worst slums had been burned out, smoldered and flickered.

The air was a slow, cumulative poison. It was very dark.

On top of the Empire State Building a great, shining bowl swung in a certain direction, stopped, waited. Fifty

miles above it, in a region where neither *cold* nor *air* have any human meaning, a clumsy torpedo began to warm slightly. Inside it, delicate things glowed, fused—melted. There was no other difference; the torpedo kept on, traveled at its assigned twenty-one and eight-tenths miles per minute. It would always do so.

The Box vanished. The morning sunlight glared in. There was a torrent of rain as cold air hit hot July. Within minutes the city was as gray as before, but with roiling thunderheads. People poured out of the buildings into the downpour, hysterical faces turned to the free air, shouting amid the thunder, embracing each other, dancing in the lightning flares.

The storm passed almost at once, but the dancing went on quite a while.

"Traces!" Meister said to Frank Schafer. "Where else could you hide them? An orbital missile was the only answer."

"That sunlight," Schafer said, "sure looks good! You'd better go home to bed, Jake, before the official hero-worshippers catch up with you."

But Meister was already dreamlessly asleep.

There Shall Be No Darkness

IT WAS ABOUT 10:00 P.M. when Paul Foote decided that there was a monster at Newcliffe's houseparty.

Foote was tight at the time—tighter than he liked to be ever. He sprawled in a too-easy chair in the front room on the end of his spine, his arms resting on the high arms of the chair. A half-empty glass depended laxly from his right hand. A darker spot on one gray trouser-leg showed where some of the drink had gone.

Through half-shut eyes he watched Jarmoskowski at the piano.

The pianist was playing, finally, the Scriabin sonata for which the rest of the gathering had been waiting but for Foote, who was a painter with a tin ear, it wasn't music at all. It was a cantrap, whose implications were secret and horrible.

The room was stuffy and was only half as large as it had been during the afternoon and Foote was afraid that he was the only living man in it except for Jan Jarmoskowski. The rest were wax figures, pretending to be humans in an aesthetic trance.

Of Jarmoskowski's vitality there could be no question. He was not handsome but there was in him a pure brute force that had its own beauty—that and the beauty of precision with which the force was controlled. When his big hairy hands came down it seemed that the piano should fall into flinders. But the impact of fingers on keys was calculated to the single dyne.

It was odd to see such delicacy behind such a face. Jarmoskowski's hair grew too low on his rounded head despite the fact that he had avoided carefully any suggestion of Musician's Haircut. His brows were straight, rectangular, so shaggy that they seemed to meet.

From where Foote sat he noticed for the first time the odd way the Pole's ears were placed—tilted forward as if in animal attention, so that the vestigial "point" really was in the uppermost position.

They were cocked directly toward the keyboard, reminding Foote irresistibly of the dog on the His Master's Voice trade-mark.

Where had he seen that head before? In Matthias Gruenwald, perhaps—in that panel on the Isenheim Altar that showed the Temptation of St. Anthony. Or was it one of the illustrations in the *Red Grimoire*, those odd old woodcuts that Chris Lundgren called "Rorschach tests of the mediaeval mind"?

Jarmoskowski finished the Scriabin, paused, touched his hands together reflectively, began a work of his own, the *Galliard Fantastique*.

The wax figures did not stir, but a soft eerie sigh of

recognition came from their frozen lips. There was another person in the room but Foote could not tell who it was. When he turned his unfocused eyes to count, his mind went back on him and he never managed to reach a total. But somehow there was the impression of another presence that had not been of the party before.

Jarmoskowski was not the presence. He had been there before. But he had something to do with it. There was an eighth presence now and it had something to do with Jarmoskowski.

What was it?

For it was there—there was no doubt about that. The energy which the rest of Foote's senses ordinarily would have consumed was flowing into his instincts now because his senses were numbed. Acutely, poignantly, his instincts told him of the Monster. It hovered around the piano, sat next to Jarmoskowski as he caressed the musical beast's teeth, blended with the long body and the serpentine fingers.

Foote had never had the horrors from drinking before and he knew he did not have them now. A part of his mind which was not drunk had recognized real horror somewhere in this room. And the whole of his mind, its skeptical barriers down, believed and trembled within itself.

The batlike circling of the frantic notes was stilled abruptly. Foote blinked, startled. "Already?" he said stupidly.

"Already?" Jarmoskowski echoed. "But that's a long piece, Paul. Your fascination speaks well for my writing."

His eyes flashed redly as he looked directly at the painter. Foote tried frantically to remember whether or not his eyes had been red during the afternoon. Or whether it was possible for any man's eyes to be as red at any time as this man's were now.

"The writing?" he said, condensing the far-flung diffusion of his brain. Newcliffe's highballs were damn strong. "Hardly the writing, Jan. Such fingers as those could put fascination into *Three Blind Mice*."

He laughed inside at the parade of emotions which marched across Jarmoskowski's face. Startlement at a compliment from Foote—for there had been an inexplicable antagonism between the two since the pianist had first arrived—then puzzled reflection—then finally veiled anger as the hidden slur bared its fangs in his mind. Nevertheless the man could laugh at it.

"They are long, aren't they?" he said to the rest of the group, unrolling them like the party noisemakers which turn from snail to snake when blown through. "But it's a mistake to suppose that they assist my playing, I assure you. Mostly they stumble over each other. Especially over this one."

He held up his hands for inspection. Suddenly Foote was trembling. On both hands, the index fingers and the middle fingers were exactly the same length.

"I suppose Lundgren would call me a mutation. It's a nuisance at the piano."

Doris Gilmore, once a student of Jarmoskowski in Prague, and still obviously, painfully, in love with him, shook coppery hair back from her shoulders and held up her own hands.

"My fingers are so stubby," she said ruefully. "Hardly pianist's hands at all."

"The hands of a master pianist," Jarmoskowski said. He smiled, scratching his palms abstractedly, and Foote found himself in a universe of brilliant perfectly-even teeth. No, not perfectly even. The polished rows were bounded almost mathematically by slightly longer cuspids. They reminded him of that idiotic Poe story—was it *Berenice*? Obviously Jarmoskowski would not die a natural death. He would be killed by a dentist for possession of those teeth.

"Three fourths of the greatest pianists I know have hands like truck drivers," Jarmoskowski was saying. "Surgeons too, as Lundgren will tell you. Long fingers tend to be clumsy."

"You seem to manage to make tremendous music, all the same," Newcliffe said, getting up.

"Thank you, Tom." Jarmoskowski seemed to take his host's rising as a signal that he was not going to be required to play any more. He lifted his feet from the

pedals and swung them around to the end of the bench. Several of the others rose also. Foote struggled up to numb feet from the infernal depths of the armchair. He set his glass cautiously on the side-table and picked his way over to Christian Lundgren.

"I read your paper, the one you read to the Stockholm Congress," he said, controlling his tongue with difficulty. "Jarmoskowski's hands are—"

"Yes," the psychiatrist said, looking at Foote with sharp, troubled eyes. Suddenly Foote was aware of Lundgren's chain of thought. The gray, chubby little man was assessing his drunkenness, and wondering whether or not Foote would have forgotten the whole business in the morning.

Lundgren made a gesture of dismissal. "I saw them," he said, his tone flat. "A mutation probably, as he himself suggests. This is the twentieth century. I'm going to bed and forget it. Which you may take for advice as well as information."

He stalked out of the room, leaving Foote standing alone, wondering whether to be reassured or more alarmed than before. Lundgren should know. Still, if Jarmoskowski was what he seemed—

The party appeared to be surviving quite nicely without Foote. Conversations were starting up about the big room. Jarmoskowski and Doris shared the piano bench and were talking in low tones, punctuated now and then by brilliant arpeggios as the Pole showed her easier ways of handling the work she had played before dinner.

James and Bennington, the American critic, were dissecting James' most recent novel for a fascinated Newcliffe. Blandly innocent Caroline Newcliffe was talking to the air about nothing at all. Nobody missed Lundgren and it seemed unlikely that Foote would be missed.

He walked with wobbly nonchalance into the dining room, where the butler was still clearing the table.

"Scuse me," he said. "Little experiment. Return in the morning." He snatched a knife from the table, looked for the door which led from the dining room into the foyer, propelled himself through it. The hallway was dim but intelligible.

As he closed the door to his room he paused for a moment to listen to Jarmoskowski's technical exhibition on the keys. It might be that at midnight Jarmoskowski would give another sort of exhibition. If he did Foote would be glad to have the knife. He shrugged uneasily, closed the door all the way and walked over to his bedroom window.

At 11:30, Jarmoskowski stood alone on the terrace of Newcliffe's country house. Although there was no wind the night was frozen with a piercing cold—but he did not seem to notice it. He stood motionless, like a black statue, with only the long streamers of his breathing, like twin jets of steam from the nostrils of a dragon, to show that he was alive.

Through the haze of lace that curtained Foote's window Jarmoskowski was an heroic pillar of black stone—but a pillar above a fumarole.

The front of the house was entirely dark and the moonlight gleamed dully on the snow. In the dim light the heavy tower which was the central structure was like some ancient donjon-keep. Thin slits of embrasures watched the landscape with a dark vacuity and each of the crowning merlons wore a helmet of snow.

The house huddled against the malice of the white night. A sense of age invested it. The curtains smelt of dust and antiquity. It seemed impossible that anyone but Foote and Jarmoskowski could be alive in it. After a long moment Foote moved the curtain very slightly and drew it back.

His face was drenched in moonlight and he drew back into the dark again, leaving the curtains parted.

If Jarmoskowski saw the furtive motion he gave no sign. He remained engrossed in the acerb beauty of the night. Almost the whole of Newcliffe's estate was visible from where he stood. Even the black border of the forest, beyond the golf course to the right, could be seen through the dry frigid air. A few isolated trees stood nearer the house, casting grotesque shadows on the snow, shadows that flowed and changed shape with infinite slowness as the moon moved.

Jarmoskowski sighed and scratched his left palm. His lips moved soundlessly.

A wandering cloud floated idly toward the moon, its shadow preceding it, gliding in a rush of darkness toward the house. The gentle ripples of the snowbanks contorted in the vast umbra, assumed demon shapes, twisted bodies half-rising from the earth, sinking back, rising again, whirling closer. A damp frigid wind rose briefly, whipping crystalline showers of snow from the terrace flagstones.

The wind died as the shadow engulfed the house. For a long instant the darkness and silence persisted. Then, from somewhere among the stables behind the house, a dog raised his voice in a faint sustained throbbing howl. Others joined him.

Jarmoskowski's teeth gleamed dimly in the occluded moonlight. He stood a moment longer—then his head turned with startling quickness and his eyes flashed a feral scarlet at the dark window where Foote hovered. Foote released the curtains hastily. Even through them he could see the pianist's grim phosphorescent smile. Jarmoskowski went back into the house.

There was a single small light burning in the corridor. Jarmoskowski's room was at the end of the hall next to Foote's. As he walked reflectively toward it the door of the room across from Foote's swung open and Doris Gilmore came out, clad in a housecoat, a towel over her arm and a toothbrush in her hand.

"Oh!" she said. Jarmoskowski turned toward her. Foote slipped behind his back and into Jarmoskowski's room. He did not propose to have Doris a witness to the thing he expected from Jarmoskowski.

In a quieter voice Doris said, "Oh, it's you, Jan. You startled me."

"So I see," Jarmoskowski's voice said. Foote canted one eye around the edge of the door. "It appears that we are the night-owls of the party."

"The rest are tight. Especially that horrible painter. I've been reading the magazines Tom left by my bed and I finally decided to go to sleep too. What have you been doing?"

"Oh, I was just out on the terrace, getting a breath of air. I like the winter night—it bites."

"The dogs are restless, too," she said. "Did you hear them?"

"Yes," Jarmoskowski said and smiled. "Why does a full moon make a dog feel so sorry for himself?"

"Maybe there's a banshee about."

"I doubt it," Jarmoskowski said. "This house isn't old enough to have any family psychopomps. As far as I know none of Tom's or Caroline's relatives have had the privilege of dying in it."

"You talk as if you almost believed it." There was a shiver in her voice. She wrapped the housecoat more tightly about her slim waist.

"I come from a country where belief in such things is common. In Poland most of the skeptics are imported."

"I wish you'd pretend to be an exception," she said. "You give me the creeps."

He nodded seriously. They looked at each other. Then he stepped forward and took her hands in his.

Foote felt a belated flicker of embarrassment. If he were wrong he'd speedily find himself in a position for which no apology would be possible.

The girl was looking up at Jarmoskowski, smiling uncertainly. "Jan," she said.

"No," Jarmoskowski said. "Wait. It has been a long time since Prague."

"I see," she said. She tried to release her hands.

Jarmoskowski said sharply, "You don't see. I was eighteen then. You were—what was it?—eleven, I think. In those days I was proud of your schoolgirl crush but of course infinitely too old for you: I am not so old any more and you are so lovely—no, no, hear me out, please! Doris, I love you now, as I can see you love me, but—"

In the brief pause Foote could hear the sharp in-drawn breaths that Doris Gilmore was trying to control. He writhed with shame for himself. He had no business being—

"But we must wait, Doris—until I warn you of something neither of us could have dreamed in the old days."

"Warn me?"

"Yes," Jarmoskowski paused again. Then he said, "You will find it hard to believe. But if you do we may yet be happy. Doris, I cannot be a skeptic. I am—"

He stopped. He had looked down abstractedly at her hands as if searching for precisely the right words. Then, slowly, he turned her hands over until they rested palms up upon his. An expression of inexpressible shock crossed his face and Foote saw his grip tighten spasmodically.

In that silent moment, Foote knew that he had been right about Jarmoskowski and despite his pleasure he was frightened.

For an instant Jarmoskowski shut his eyes. The muscles along his jaw stood out with the violence with which he was clenching his teeth. Then, deliberately, he folded Doris' hands together and his curious fingers made a fist about them. When his eyes opened again they were red as flame in the weak light.

Doris jerked her hands free and crossed them over her breasts. "Jan—what is it? What's the matter?"

His face, that should have been flying into flinders under the force of the thing behind it, came under control muscle by muscle.

"Nothing," he said. "There's really no point in what I was going to say. Nice to have seen you again, Doris. Goodnight."

He brushed past her, walked the rest of the way down the corridor, wrenched back the doorknob of his own room. Foote barely managed to get out of his way.

Behind the house a dog howled and was silent again.

II

In Jarmoskowski's room the moonlight played in through the open window upon a carefully turned-down bed and the cold air had penetrated every cranny. He shut the door and went directly across the room to the table beside his bed. As he crossed the path of silvery light his shadow was oddly foreshortened, so that it looked as if it were walking on all fours. There was a lamp on the side table and he reached for it.

Then he stopped dead still, his hand halfway to the switch. He seemed to be listening. Finally, he turned and looked back across the room, directly at the spot behind the door where Foote was standing.

It was the blackest spot of all, for it had its back to the moon. But Jarmoskowski said immediately, "Hello, Paul. Aren't you up rather late?"

Foote did not reply for a while. His senses were still a little alcohol-numbed and he was overwhelmed by the thing he knew to be. He stood silently in the darkness, watching the Pole's barely-visible figure beside the fresh bed, and the sound of his own breathing was loud in his ears. The broad flat streamer of moonlight lay between them like a metallic river.

"I'm going to bed shortly," he said at last. His voice sounded flat and dead and faraway, as if belonging to someone else entirely. "I just came to issue a little warning."

"Well, well," said Jarmoskowski pleasantly. "Warnings seem to be all the vogue this evening. Do you customarily pay your social calls with a knife in your hand?"

"That's the warning, Jarmoskowski. The knife is a—*silver* knife."

"You must be drunker than ever," said the pianist. "Why don't you just go to bed? We can talk about it in the morning."

"Don't give me that," Foote snapped savagely. "You can't fool me. I know you for what you are."

"All right. I'll bite, as Bennington would say."

"Yes, you'd bite," Foote said and his voice shook a little despite himself. "Shall I give it a name, Jarmoskowski? In Poland they called you *Vrolok*, didn't they? And in France it was *loup-garou*. In the Carpathians it was *stregoica* or *strega* or *Vlkoslak*."

"Your command of languages is greater than your common sense. But you interest me strangely. Isn't it a little out of season for such things? The aconites do not bloom in the dead of winter. And perhaps the thing you call so many fluent names is also out of the season in nineteen sixty-two."

"The dogs hate you," Foote said softly. "That was a

fine display Brucey put on when Tom brought him in from his run and he found you here. Walked sidewise through the room, growling, watching you with every step until Tom dragged him out. He's howling now. And that shock you got from the table silver at dinner—I heard your excuse about rubber-soled shoes.

"I looked under the table, if you recall, and your shoes turned out to be leather-soled. But was a pretty feeble excuse anyhow, for anybody knows that you can't get an electric shock from an ungrounded piece of tableware, no matter how long you've been scuffing rubber. It was the silver that hurt you the first time you touched it. Silver's deadly, isn't it?

"And those fingers—the index fingers as long as the middle ones—you *were* clever about those. You were careful to call everybody's attention to them. It's supposed to be the obvious that everybody misses. But Jarmoskowski, that 'Purloined Letter' gag has been worked too often in detective stories. It didn't fool Lundgren and it didn't fool me."

"Ah," Jarmoskowski said. "Quite a catalogue."

"There's more. How does it happen that your eyes were gray all afternoon and turned red as soon as the moon rose? And the palms of your hands—there was some hair growing there, but you shaved it off, didn't you, Jarmoskowski? I've been watching you scratch them. Everything about you, the way you look, the way you act—everything you say screams your nature in a dozen languages to anyone who knows the signs."

After a long silence Jarmoskowski said, "I see. You've been most attentive, Paul—I see you are what people call the suspicious drunk. But I appreciate your warning, Paul. Let us suppose that what you say of me is true. Have you thought that, knowing that you know, I would have no choice any more? That the first word you said to me about it all might brand *your* palm with the pentagram?"

Foote had not thought about it. He had spent too much time trying to convince himself that it was all a pipe dream. A shock of blinding terror convulsed him. The silver knife clattered to the floor. He snatched up his hands and stared frantically at them, straining his

eyes through the blackness. The full horror implicit in Jarmoskowski's suggestion struck him all at once with paralyzing force.

From the other side of his moonlit room, Jarmoskowski's voice came mockingly. "So—you hadn't thought. *Better never* than late, Paul!"

The dim figure of Jarmoskowski began to writhe and ripple in the reflected moonlight. It foreshortened, twisting obscenely, sinking toward the floor, flesh and clothing alike *changing* into something not yet describable.

A cry ripped from Foote's throat and he willed his legs to move with frantic, nightmarish urgency. His clutching hand grasped the doorknob. Tearing his eyes from the hypnotic fascination of the thing that was going on across from him he leaped from his corner and out into the corridor.

A bare second after he had slammed the door, something struck it a frightful blow from the inside. The paneling split. He held it shut with all the strength in his body.

A dim white shape drifted down upon him through the dark corridor and a fresh spasm of fear sent rivers of sweat down on his back, his sides, into his eyes. But it was only the girl.

"Paul! What on earth! What's the *matter!*"

"Quick!" he choked out. "Get something silver—something heavy made out of silver—quick, *quick!*"

Despite her astonishment the frantic urgency in his voice was enough. She darted back into her room.

To Foote it seemed eternity before she returned—an eternity while he listened with abnormally sensitized ears for a sound inside the room. Once he thought he heard a low growl but he was not sure. The sealike hissing and sighing of his blood, rushing through the channels of the inner ear, seemed very loud to him. He couldn't imagine why it was not arousing the whole countryside. He clung to the doorknob and panted.

Then the girl was back, bearing a silver candlestick nearly three feet in length—a weapon that was almost too good, for his fright-weakened muscles had some dif-

ficulty in lifting it. He shifted his grip on the knob to his left hand, hefted the candlestick awkwardly.

"All right," he said, in what he hoped was a grim voice. "Now let him come."

"What in heaven's name is this all about?" Doris said. "You're waking everybody in the house with this racket. Look—even one of the dogs is in to see—"

"The dog!"

He swung around, releasing the doorknob. Not ten paces from them, an enormous coal-black animal, nearly five feet in length, grinned at them with polished fangs. As soon as it saw Foote move it snarled. Its eyes gleamed red in the single bulb.

It sprang.

Foote lifted the candlestick high and brought it down—but the animal was not there. Somehow the leap was never completed. There was a brief flash of movement at the open end of the corridor, then darkness and silence.

"He saw the candlestick," Foote panted. "Must have jumped out the window and come around through the front door. Saw the silver and beat it."

"Paul!" Doris cried. "What—how did you know that thing would jump? It was so big! Silver—"

He chuckled, surprising even himself. He had a mental picture of what the truth would sound like to Doris. "That," he said, "was a wolf and a whopping one. Even the usual kind of wolf isn't very friendly and—"

Footsteps sounded on the floor above and the voice of Newcliffe, grumbling loudly, came down the stairs. Newcliffe liked his evenings noisy and his nights quiet. The whole house seemed to have heard the commotion, for in a moment a number of half-clad figures were elbowing out into the corridor, wanting to know what was up.

Abruptly the lights went on, revealing blinking faces and pajama-clad forms struggling into robes. Newcliffe came down the stairs. Caroline was with him, impeccable even in disarray, her face openly and honestly ignorant and unashamedly beautiful. She made an excellent foil for Tom. She was no lion-hunter but she loved

parties. Evidently she was pleased that the party was starting again.

"What's all this?" Newcliffe demanded in a gravelly voice. "Foote, are you the center of this whirlpool? Why all the noise?"

"Werewolf," said Foote, suddenly very conscious of how meaningless the word would be here. "We've got a werewolf here. And somebody's marked out for him."

How else could you put it? Let it stand.

There was a chorus of "What's" as the group jostled about him. "Eh? What was that? . . . Werewolf, I thought he said . . . What's this all about? . . . Somebody's been a wolf . . . Is that new? What an uproar!"

"Paul," Lundgren's voice cut through. "Details, please."

"Jarmoskowski's a werewolf," Foote said grimly, making his tone as emotionless and factual as he could. "I suspected it earlier tonight and went into his room and accused him of it. He changed shape, right on the spot while I was watching."

The sweat started out afresh at the recollection of that horrible, half-seen mutation. "He came around into the hall and went for us and I scared him off with a silver candlestick for a club." He realized suddenly that he still held the candlestick, brandished it as proof. "Doris saw the wolf—she'll vouch for that."

"I saw a big doglike thing, all right," Doris admitted. "And it did jump at us. It was black and had huge teeth. But—Paul, was that supposed to be Jan? Why, that's ridiculous!"

"It certainly is," Newcliffe said feelingly. "Getting us all up for a practical joke. Probably one of the dogs is loose."

"Do you have any coal-black dogs five feet long?" Foote demanded desperately. "And where's Jarmoskowski now. Why isn't he here? Answer me that!"

Bennington gave a skeptical grunt from the background and opened Jarmoskowski's door. The party tried to jam itself into the room. Foote forced his way through the jam.

"See? He isn't here, either. And the bed's not been

slept in. Doris, you saw him go in there. Did you see him come out?"

The girl looked startled. "No, but I was in my room—"

"All right. Here. Look at this." Foote led the way over to the window and pointed. "See? The prints on the snow?"

One by one the others leaned out. There was no arguing it. A set of animal prints, like large dogtracks, led away from a spot just beneath Jarmoskowski's window—a spot where the disturbed snow indicated the landing of some heavy body.

"Follow them around," Foote said. "They lead around to the front door, and in."

"Have you traced them?" James asked.

"I don't have to. I saw the thing, James."

"Maybe he just went for a walk," Caroline suggested.

"Barefoot? There are his shoes."

Bennington vaulted over the windowsill with an agility astonishing for so round a man and plowed away with slippered feet along the line of tracks. A little while later he entered the room behind their backs.

"Paul's right," he said, above the hub-bub of excited conversation. "The tracks go around to the front door, then come out again and go away around the side of the house toward the golf course." He rolled up his wet pajama-cuffs awkwardly.

"This is crazy," Newcliffe declared angrily. "This is the twentieth century. We're like a lot of little children, panicked by darkness. There's no such thing as a werewolf!"

"I wouldn't place any wagers on that," James said. "Millions of people have thought so for hundreds of years. That's a lot of people."

Newcliffe turned sharply to Lundgren. "Chris, I can depend upon you at least to have your wits about you."

The psychiatrist smiled wanly. "You didn't read my Stockholm paper, did you, Tom? I mean my paper on mental diseases. Most of it dealt with lycanthropy—werewolfism."

"You mean—you believe this idiot story?"

"I spotted Jarmoskowski early in the evening,"

Lundgren said. "He must have shaved the hair on his palms but he has all the other signs—eyes bloodshot with moonrise, first and second fingers of equal length, pointed ears, domed prefrontal bones, elongated upper cuspids or fangs—in short, the typical hyperpineal type—a lycanthrope."

"Why didn't you say something?"

"I have a natural horror of being laughed at," Lundgren said drily.

"And I didn't want to draw Jarmoskowski's attention to me. These endocrine-imbalance cases have a way of making enemies very easily."

Foote grinned ruefully. If he had thought of that part of it before accusing Jarmoskowski he would have kept his big mouth shut.

"Lycanthropy is quite common," Lundgren droned, "but seldom mentioned. It is the little-known aberration of a little-known ductless gland. It appears to enable the victim to control his body."

"I'm still leery of this whole business," Bennington growled, from somewhere deep in his pigeon's chest. "I've known Jan for years. Nice fella—did a lot for me once. And I think there's enough discord in this house so that I won't add to it much if I say I wouldn't trust Paul Foote as far as I could throw him. By heaven, Paul, if this does turn out to be some practical joke of yours—"

"Ask Lundgren," Foote said.

There was dead silence, broken only by heavy breathing. Lundgren was known to every one of them as the world's ultimate authority on hormone-created insanity. Nobody seemed to want to ask him.

"Paul's right," Lundgren said at last. "Take it or leave it. Jarmoskowski is a lycanthrope. A hyper-pineal. No other gland could affect the blood-vessels of the eyes like that or make such a reorganization of the cells possible. Jarmoskowski is inarguably a werewolf."

Bennington sagged, the light of righteous incredulity dying from his eyes. "I'll be damned!" he muttered.

"We've got to get him tonight," Foote said. "He's seen the pentagram on somebody's palm—somebody in the party."

"What's that?" asked James.

"Common illusion of lycanthropic seizures," Lundgren said. "Hallucination, I should say. A five-pointed star inscribed in a circle—you find it in all the old mystical books, right back to the so-called fourth and fifth Books of Moses. The werewolf sees it on the palm of his next victim."

There was a gasping little scream from Doris. "So that's it!" she cried. "Dear God, I'm the one! He saw something on my hand tonight while we were talking in the hall. He was awfully startled and went away without another word. He said he was going to warn me about something and then he—"

"Steady," Bennington said in a soft voice that had all the penetrating power of a thunderclap. "There's safety in numbers. We're all here." Nevertheless, he could not keep himself from glancing surreptitiously over his shoulder.

"Well, that settles it," James said in earnest squeaky tones. "We've got to trail the—the beast and kill him. It should be easy to follow his trail in the snow. We must kill him before he kills Doris or somebody else. Even if he misses us it would be just as bad to have him roaming the countryside."

"What are you going to kill him with?" asked Lundgren matter-of-factly.

"Eh?"

"I said, what are you going to kill him with? With that pineal hormone in his blood he can laugh at any ordinary bullet. And since there are no chapels dedicated to St. Hubert around here you can't scare him to death with a church-blessed bullet."

"Silver will do," Foote said.

"Yes, silver will do. It poisons the pinearin-catalysis. But are you going out to hunt a full-grown wolf, a giant wolf, armed with table silver and candlesticks? Or is somebody here metallurgist enough to cast a decent silver bullet?"

Foote sighed. With the burden of proof lifted from him, completely sobered up by shock, he felt a little more like his old self, despite the pall of horror which hung over them.

"Like I always tell my friends," he said, "there's never a dull moment at a Newcliffe houseparty."

III

The clock struck one-thirty. Foote picked up one of Newcliffe's rifles and hefted it. It felt—useless. He said, "How are you coming?"

The group by the kitchen stove shook their heads in comical unison. One of the gas burners had been jury-rigged as a giant Bunsen burner and they were trying to melt down some soft unalloyed silver articles, mostly of Mexican manufacture.

They were using a small earthenware bowl, also Mexican, for a crucible. It was lidded with the bottom of a flower pot, the hole in which had been plugged with a mixture of garden clay and rock wool yanked forcibly out of the insulation in the attic. The awkward flame leapt uncertainly and sent fantastic shadows flickering over their intent faces.

"We've got it melted, all right," Bennington said, lifting the lid cautiously with a pair of kitchen tongs and peering in. "But what do we do now? Drop it from the top of the tower?"

"You can't kill a wolf with buckshot," Newcliffe pointed out. Now that the problem had been reduced temporarily from a hypernatural one to ordinary hunting he was in his element. "And I haven't got a decent shotgun here anyhow. But we ought to be able to whack together a mold. The bullet should be soft enough so that it won't ruin the rifling of my guns."

He opened the door to the cellar stairs and disappeared, carrying several ordinary cartridges in one hand. Faintly the dogs renewed their howling and Doris began to tremble. Foote put his arm around her.

"It's all right," he said. "We'll get him. You're safe enough."

She swallowed. "I know," she agreed in a small voice. "But every time I think of the way he looked at my hands and how red his eyes were—You don't suppose he's prowling around the house? That that's what the dogs are howling about?"

"I don't know," Foote said carefully. "But dogs are funny that way. They can sense things at great distances. I suppose a man with pinear in his blood would have a strong odor to them. But he probably knows that we're after his scalp, so he won't be hanging around if he's smart."

She managed a tremulous smile. "All right," she said. "I'll try not to be frightened." He gave her an awkward reassuring pat, feeling a little absurd.

"Do you suppose we can use the dogs?" James wanted to know.

"Certainly," said Lundgren. "Dogs have always been our greatest allies against the abnormal. You saw what a rage Jarmoskowski's very presence put Brucey in this afternoon. He must have smelled the incipient seizure. Ah, Tom—what did you manage?"

Newcliffe set a wooden box on the table. "I pried the slug out of one shell for each gun," he said, "and made impressions in clay. The cold has made the stuff pretty hard, so it's a passable mold. Bring the silver over here."

Bennington lifted his improvised crucible from the burner, which immediately shot up a tall blue flame. James carefully turned it off.

"All right, pour," Newcliffe said. "Lundgren, you don't suppose it might help to chant a blessing or something?"

"Not unless Jarmoskowski overheard it—probably not even then since we haven't a priest among us."

"Okay. Pour, Bennington, before the goo hardens."

Bennington decanted sluggishly molten silver into each depression in the clay and Newcliffe cleaned away the oozy residue from the casts before it had time to thicken. At any other time the whole scene would have been funny—now it was grimly grotesque. Newcliffe picked up the box and carried it back down to the cellar, where the emasculated cartridges awaited their new slugs.

"Who's going to carry these things, now?" Foote asked. "There are five rifles. James, how about you?"

"I couldn't hit an elephant's rump at three paces. Tom's an expert shot. So is Bennington here, with a shotgun anyhow."

"I can use a rifle," Bennington said diffidently.

"I've done some shooting," Foote said. "During the Battle of the Bulge I even hit something."

"I," Lundgren said, "am an honorary member of the Swiss Militia."

Nobody laughed. Most of them were aware that Lundgren in his own obscure way was bragging, that he had something to brag about. Newcliffe appeared abruptly from the cellar.

"I pried 'em loose, cooled 'em with snow and rolled 'em out with a file. They're probably badly crystallized but we needn't let that worry us."

He put one cartridge in the chamber of each rifle and shot the bolts home. "There's no sense in loading these any more thoroughly—ordinary bullets are no good anyhow, Chris says. Just make your first shots count. Who's elected?"

Foote, Lundgren and Bennington each took a rifle. Newcliffe took the fourth and handed the last one to his wife.

"I say, wait a minute," James objected. "Do you think that's wise, Tom? I mean, taking Caroline along?"

"Why certainly," Newcliffe said, looking surprised. "She shoots like a fiend—she's snatched prizes away from me a couple of times. I thought *everybody* was going along."

"That isn't right," Foote said. "Especially not Doris, since the wolf—that is, I don't think she ought to go."

"Are you going to leave her here by herself?"

"Oh no!" Doris cried. "Not here! I've got to go! I don't want to wait all alone in this house. He might come back, and there'd be nobody here. I couldn't stand it!"

"We're *all* going," Newcliffe concluded. "We can't leave Doris here unprotected and we need Caroline's marksmanship. Let's get going. It's two now."

He put on his heavy coat and with the heavy eyed butler, went out to get the dogs. The rest of the company got out their own heavy clothes. Doris and Caroline climbed into ski-suits. They assembled one by one in the living room. Lundgren's eyes swung on a vase of iris-like flowers.

"Hello, what's this?" he said.

"Monkshood," Caroline informed him. "We grow it in the greenhouse. It's pretty, isn't it? Though the gardener says it's poisonous."

"Chris," Foote said. "That isn't wolfbane, is it?"

The psychiatrist shook his head. "I'm no botanist. I can't tell one aconite from the other. But it hardly matters. Hyperpineals are allergic to the whole group. The pollen, you see. As in hay fever your hyperpineal breathes the pollen, anaphylaxis sets in and—"

"The last twist of the knife," James murmured.

A clamoring of dogs outside announced that Newcliffe was ready. With somber faces the party filed out through the front door. For some reason all of them avoided stepping on the wolf's prints in the snow. Their mien was that of condemned prisoners on the way to the tumbrels. Lundgren took one of the sprigs of flowers from the vase.

The moon had passed its zenith and was almost half-way down the sky, projecting the Bastille-like shadow of the house before it. But there was still plenty of light and the house itself was glowing from basement to tower room. Lundgren located Brucey in the milling yapping pack and abruptly thrust the sprig of flowers under his muzzle. The animal sniffed once, then crouched back and snarled softly.

"Wolfbane," Lundgren said. "Dogs don't react to the other aconites—basis of the legend, no doubt. Better fire your gardener, Caroline. In the end he's to blame for all this in the dead of winter. Lycanthropy normally is an autumn affliction."

James said,

"Even a man who says his prayers
Before he sleeps each night
May turn to a wolf when the wolfbane blooms
And the moon is high and bright."

"Stop it, you give me the horrors," Foote snapped angrily.

"Well, the dog knows now," said Newcliffe. "Good. It would have been hard for them to pick up the spoor from cold snow but Brucey can lead them. Let's go."

The tracks of the wolf were clear and sharp in the snow. It had formed a hard crust from which fine, powdery showers of tiny ice-crystals were shipped by a fitful wind. The tracks led around the side of the house and out across the golf course. The little group plodded grimly along beside them. The spoor was cold for the dogs but ever so often they would pick up a faint trace and go bounding ahead, yanking their master after them. For the most part however the party had to depend upon its eyes.

A heavy mass of clouds had gathered in the west. The moon dipped lower. Foote's shadow, grotesquely lengthened, marched on before him and the crusted snow crunched and crackled beneath his feet. There was a watchful unnaturally-still atmosphere to the night and they all moved in tense silence except for a few subdued growls and barks from the dogs.

Once the marks of the werewolf doubled back a short distance, then doubled again as if the monster had turned for a moment to look back at the house before continuing his prowling. For the most part however the trail led directly toward the dark boundary of the woods.

As the brush began to rise about them they stopped by mutual consent and peered warily ahead, rifles held ready for instant action. Far out across the countryside behind them, the great cloud-shadow once more began its sailing. The brilliantly-lit house stood out fantastically in the gloom.

"Should have turned those out," Newcliffe muttered, looking back. "Outlines us."

The dogs strained at their leashes. In the black west was an inaudible muttering as of winter thunder. Brucey pointed a quivering nose at the woods and growled.

"He's in there, all right."

"We'd better step on it," Bennington said, whispering. "Going to be plenty dark in about five minutes. Storm."

Still they hesitated, regarding the menacing darkness of the forest. Then Newcliffe waved his gun hand in the conventional deploy-as-skirmishers signal and plowed forward. The rest spread out in a loosely-spaced line

and followed and Foote's finger trembled over his trigger.

The forest in the shrouded darkness was a place of clutching brittle claws, contorted bodies, and the briefly-glimpsed demon-faces of ambushed horrors. It was Dante's jungle, the woods of Purgatory, where each tree was a body frozen in agony and branches were gnarled arms and fingers which groaned in the wind or gave sharp tiny tinkling screams as they were broken off.

The underbrush grasped at Foote's legs. His feet broke jarringly through the crust of snow or were supported by it when he least expected support. His shoulders struck unseen tree-trunks. Imagined things sniffed frightfully at his heels or slunk about him just beyond his range of vision. The touch of a hand was enough to make him jump and smother an involuntary outcry. The dogs strained and panted, weaving, no longer snarling, silent with a vicious intentness.

"They've picked up something, all right," Bennington whispered. "Turn 'em loose, Tom?"

Newcliffe bent and snapped the leashes free. Without a sound the animals shot ahead and disappeared.

Over the forest the oncoming storm-clouds crawled across the moon. Total blackness engulfed them. The beam of a powerful flashlight lanced from Newcliffe's free hand, picking out a path of tracks on the brush-littered snow. The rest of the night drew in closer about the blue-white ray.

"Hate to do this," Newcliffe said. "It gives us away. But he knows we're—Hello, it's snowing."

"Let's go then," Foote said. "The tracks will be blotted out shortly."

A terrible clamorous baying rolled suddenly through the woods. "That's *it!*" Newcliffe shouted. "*Listen* to them! Go get him, Brucey!"

They crashed ahead. Foote's heart was beating wildly, his nerves at an impossible pitch. The bellowing cry of the dogs echoed all around him, filling the universe with noise.

"They must have sighted him," he panted. "What a racket! They'll raise the whole countryside."

They plowed blindly through the snow-filled woods.

Then, without any interval, they stumbled into a small clearing. Snowflakes flocculated the air. Something dashed between Foote's legs, snapping savagely, and he tripped and fell into a drift.

A voice shouted something indistinguishable. Foote's mouth was full of snow. He jerked his head up—and looked straight into the red rage-glowing eyes of the wolf.

It was standing on the other side of the clearing, facing him, the dogs leaping about it, snapping furiously at its legs. It made no sound at all but crouched tiger-fashion, its lips drawn back in a grinning travesty of Jarmoskowski's smile. It lashed at the dogs as they came closer. One of the dogs already lay writhing on the ground, a dark pool spreading from it, staining the snow.

"Shoot, for heaven's sake!" somebody screamed.

Newcliffe clapped his rifle to his shoulder, then lowered it indecisively. "I can't," he said. "The dogs are in the way."

"The heck with the dogs!" James shouted. "This is no fox-hunt! Shoot, Tom, you're the only one of us that's clear."

It was Foote who fired first. The rifle's flat crack echoed through the woods and snow pulled up in a little explosion by the wolf's left hind pad. A concerted groan arose from the party and Newcliffe's voice thundered above it, ordering his dogs back. Bennington aimed with inexorable care.

The werewolf did not wait. With a screaming snarl he burst through the ring of dogs and charged.

Foote jumped in front of Doris, throwing one arm across his throat. The world dissolved into rolling, twisting pandemonium, filled with screaming and shouting and the frantic hatred of dogs. The snow flew thick. Newcliffe's flashlight rolled away and lay on the snow, regarding the tree-tops with an idiot stare.

Then there was the sound of a heavy body moving swiftly away. The shouting died gradually.

"Anybody hurt?" James' voice asked. There was a general chorus of no's. Newcliffe retrieved his flashlight and played it about but the snowfall had reached bliz-

zard proportions and the light showed nothing but shadows and cold confetti.

"He got away," Bennington said. "And the snow will cover his tracks. Better call your dogs back, Tom."

"They're back," Newcliffe said. "When I call them off they come off."

He bent over the body of the injured animal, which was still twitching feebly. "So—so," he said softly. "So—Brucey. Easy—easy. So, Brucey—so."

Still murmuring, he brought his rifle into position with one arm. The dog's tail beat feebly against the snow.

"So, Brucey."

The rifle crashed.

Newcliffe arose, and looked away. "It looks as if we lose round one," he said tonelessly.

IV

It seemed to become daylight very quickly. The butler went phlegmatically around the house, snapping off the lights. If he knew what was going on he gave no sign of it.

"Cappy?" Newcliffe said into the phone. "Listen and get this straight—it's important. Send a cable to Consolidated Warfare Service—no, no, not the Zurich office, they've offices in London—and place an order for a case of .44 calibre rifle cartridges.

"Listen to me, dammit, I'm not through yet—with *silver slugs*. Yes, that's right—silver—and it had better be the pure stuff, too. No, not sterling, that's too hard. Tell them I want them flown over, and that they've got to arrive here tomorrow. Yes, I know it's impossible but if you offer them enough—yes, of course I'll cover it. Got that?"

"Garlic," Lundgren said to Caroline. She wrote it dutifully on her marketing list. "How many windows does this place have? All right, make it one clove for each and get half a dozen boxes of rosemary, too."

He turned to Foote. "We must cover every angle," he said somberly. "As soon as Tom gets off the phone I'll try to raise the local priest and get him out here with a

truckload of silver crucifixes. Understand, Paul, there is a strong physiological basis behind all the mediaeval mumbo-jumbo.

"The herbs are anti-spasmodics—they act rather as ephedrine does in hay fever to reduce the violence of the seizure. It's possible that Jan may not be able to maintain the wolf shape if he gets a good enough sniff. As for the religious trappings, that's all psychological.

"If Jan happens to be a skeptic in such matters they won't bother him but I suspect he's—" Lundgren's English abruptly gave out. The word he wanted obviously was not in his vocabulary. "*Aberglaeubig*," he said. "*Criandre*."

"Superstitious?" Foote suggested, smiling grimly.

"Yes. Yes, certainly. Who has better reason, may I ask?"

"But how does he maintain the wolf shape at all?"

"Oh, that's the easiest part. You know how water takes the shape of a vessel it sits in? Well, protoplasm is a liquid. This pineal hormone lowers the surface tension of the cells and at the same time short-circuits the sympathetic nervous system directly to the cerebral cortex.

"Result, a plastic, malleable body within limits. A wolf is easiest because the skeletons are similar—not much pinearin can do with bone, you see. An ape would be easier, but apes don't eat people."

"And vampires? Are they just advanced cases of the same thing?"

"Vampires," said Lundgren pontifically, "are people we put in padded cells. It's impossible to change the bony structure *that* much. They just think they're bats. But yes, it's advanced hyperpinealism. In the last stages it is quite something to see.

"The surface tension is lowered so much that the cells begin to boil away. Pretty soon there is just a mess. The process is arrested when the vascular system can no longer circulate the hormone but of course the victim is dead long before that."

"No cure?"

"None yet. Someday perhaps, but until then—We will be doing Jan a favor."

"Also," Newcliffe was saying, "drive over and pick

me up six Browning automatic rifles. Never mind the bipods, just the rifles themselves. What? Well, you might call it a siege. All right, Cappy. No, I won't be in today. Pay everybody off and send them home until further notice."

"It's a good thing," Foote said, "that Newcliffe has money."

"It's a good thing," said Lundgren, "that he has me—and you. We'll see how twentieth century methods can cope with this Dark-Age disease."

Newcliffe hung up and Lundgren took possession of the phone. "As soon as my man gets back from the village I'm going to set out traps. He may be able to detect hidden metal. I've known dogs that could do it by smell in wet weather but it's worth a try."

"What's to prevent his just going away?" Doris asked. Somehow the shadows of exhaustion and fear around her eyes made her lovelier than ever.

"As I understand it he thinks he's bound by the pentagram," Foote said. At the telephone, where Lundgren evidently was listening to a different conversation with each ear, there was an energetic nod.

"In the old books, the figure is supposed to be a sure trap for demons and such if you can lure them into it. And the werewolf feels compelled to go only for the person whom he thinks is marked with it."

Lundgren said, "Excuse me," and put his hand over the mouth-piece. "Only lasts seven days," he said.

"The compulsion? Then we'll have to get him before then."

"Well, maybe we'll sleep tonight anyhow," Doris said dubiously.

Lundgren hung up and rejoined them. "I didn't have much difficulty selling the good Father the idea," he said. "But he only has crucifixes enough for our groundfloor windows. By the way, he wants a picture of Jan in case he should turn up in the village."

"There are no existing photographs of Jarmoskowski," Newcliffe said positively. "He never allowed any to be taken. It was a headache to his concert manager."

"That's understandable," Lundgren said. "With his

cell radiogens under constant stimulation any picture of him would turn out over-exposed anyhow—probably a total blank. And that in turn would expose Jan.”

“Well, that’s too bad but it’s not irreparable,” Foote said. He was glad to be of some use again. He opened Newcliffe’s desk and took out a sheet of stationery and a pencil. In ten minutes he had produced a head of Jar-moskowski in three quarter profile as he had seen him at the piano that last night so many centuries ago. Lundgren studied it.

“To the life,” he said. “I’ll send this over by messenger. You draw well, Paul.”

Bennington laughed. “You’re not telling him anything he doesn’t know,” he said. Nevertheless, Foote thought, there was considerably less animosity in the critic’s manner.

“What now?” James asked.

“We wait,” Newcliffe said. “Bennington’s gun was ruined by that one handmade slug. We can’t afford to have our weapons taken out of action. If I know Consolidated they’ll have the machine-made jobs here tomorrow. Then we’ll have some hope of getting him. Right now he’s shown us he’s more than a match for us in open country.”

The group looked at each other. Some little understanding of what it would mean to wait through nervous days and fear-stalked nights, helpless and inactive, already showed on their faces. But there were necessities before which the demands of merely human feelings were forced to yield.

The conference broke up in silence.

For Foote, as for the rest, that night was instilled with dread, pregnant every instant with terror of the outcry that the next moment might bring. The waning moon, greenish and sickly, reeled over the house through a sky troubled with fulgurous clouds. An insistent wind made distant wolf-howls, shook from the trees soft sounds like the padding of stealthy paws, rattled windows with the scrape of claws trying for a hold.

The atmosphere of the house, hot and stuffy because of the closed windows and reeking of garlic, was

stretched to an impossible tautness with waiting. In the empty room next to Foote there was the imagined coming and going of thin ghosts and the crouched expectancy of a turned-down bed—awaiting an occupant who might depress the sheets in a shocking pattern, perhaps regardless of the tiny pitiful glint of the crucifix upon the pillow. Above him, other sleepers turned restlessly, or groaned and started up from chilling nightmares.

The boundary between the real and the unreal had been let down in his mind and in the flickering shadows of the moon and the dark errands of the ghosts there was no way of making any selection. He had entered the cobwebby blackness of the borderland between the human and the demon, where nothing is ever more than half true—or half untruth.

After awhile, on the threshold of this darkness, the blasphemous voices of the hidden evil things beyond it began to seep through. The wind, abandoning the trees and gables, whispered and echoed the voices, counting the victims slowly as death stalked through the house.

One.

Two.

Three—closer now!

Four—the fourth sleeper struggled a little. Foote could hear a muffled creak of springs over his head.

Five.

Six—who was Six? Who is next? When?

Seven—Oh Lord, I'm next . . . I'm next . . . I'm next.

He curled into a ball, trembling. The wind died away and there was silence, tremendous silence. After a long while he uncurled, swearing at himself but not aloud—because he was afraid to hear his own voice. Cut that out, now. Foote, you bloody fool. You're like a kid hiding from the goblins. You're perfectly safe. Lundgren says so.

Mamma says so.

How the heck does Lundgren know?

He's an expert. He wrote a paper. Go ahead, be a kid. Remember your childhood faith in the printed word? All right then. Go to sleep, will you?

There goes that damned counting again.

But after awhile his worn-down nerves would be denied no longer. He slept a little but fitfully, falling in his dreams through such deep pits of evil that he awoke fighting the covers and gasping for the vitiated garlic-heavy air. There was a fetid foulness in his mouth and his heart pounded. He threw off the covers and sat up, lighting a cigarette with trembling hands and trying not to see the shadows the flame threw.

He was no longer waiting for the night to end. He had forgotten that there ever was such a thing as daylight, was waiting only for the inevitable growl that would herald the last horror. Thus it was a shock almost beyond bearing to look out the window and see the brightening of dawn over the forest.

After staring incredulously at it for a moment he snubbed out his cigarette in the candlestick—which he had been carrying around the house as if it had grown to him—and collapsed. With a sigh he was instantly in deep and dreamless sleep.

When he finally came to consciousness he was being shaken and Bennington's voice was in his ear. "Get up, man," the critic was saying. "No, you needn't reach for the candlestick—everything's okay thus far."

Foote grinned. "It's a pleasure to see a friendly expression on your face, Bennington," he said with a faint glow of general relief.

Bennington looked a little abashed. "I misjudged you," he admitted. "I guess it takes a crisis to bring out what's really in a man so that blunt brains like mine can see it. You don't mind if I continue to dislike your latest abstractions, I trust?"

"That's your function," Foote said cheerfully. "To be a gadfly. Now what's happened?"

"Newcliffe got up early and made the rounds of the traps. We got a good-sized rabbit out of one of them and made a stew—very good—you'll see. The other one was empty but there was blood on it and on the snow. Lundgren isn't up yet but we've saved scrapings for him."

James poked his head around the door jamb, then

came in. "Hope it cripples him," he said, dextrously snaffling a cigarette from Foote's shirt pocket. "Pardon me. All the servants have deserted us but the butler, and nobody will bring cigarettes up from the village."

"My, my," said Foote. "Everyone feels so chipper. Boy, I never thought I'd be as glad to see any sunrise as I was today's."

"If you—"

There was a sound outside. It sounded like the world's biggest tea-kettle. Something flitted through the sky, wheeled and came back.

"Cripes," Foote said, shading his eyes. "A big jet job. What's he doing here?"

The plane circled silently, jets cut. It lost flying speed and glided in over the golf course, struck and rolled at breakneck speed straight for the forest. At the last minute the pilot spun to a stop expertly.

"By heaven, I'll bet that's Newcliffe's bullets!"

They pounded downstairs. By the time they reached the front room the pilot was coming in with Newcliffe. A heavy case was slung between them.

Newcliffe pried the case open. Then he sighed. "Look at 'em," he said. "Nice, shiny brass cartridges, and dull-silver heads machined for perfect accuracy—yum, yum. I could just stand here and pet them. Where are you from?"

"Croydon," said the pilot. "If you don't mind, Mr. Newcliffe, the company said I was to collect from you. That's a hundred pounds for the cartridges and five hundred for me."

"Cheap enough. Hold on. I'll write you a check."

Foote whistled. He didn't know whether to be more awed by the trans-atlantic express service or the vast sum it had cost.

The pilot took the check and shortly thereafter the tea-kettle began to whistle again. From another huge wooden crate Newcliffe was handing out brand-new Brownings.

"Now let him come," he said grimly. "Don't worry about wasting shots—there's a full case of clips. As

soon as you see him, blaze away like mad. Use it like a hose if you have to."

"Somebody go wake Chris," Bennington said. "He should have lessons too. Doris, go knock on his door like a good girl."

Doris nodded and went upstairs. "Now this stud here," Newcliffe said, "is the fire-control button. You put it in this position and the gun will fire one shot and reload. Put it here and you have to reload it yourself like any rifle. Put it here and it goes into automatic operation, firing every shell in the clip, one after the other."

"*Thunder!*" James said admiringly. "We could stand off an army."

"Wait a minute—there seem to be two missing."

"Those are all you unpacked," Bennington said.

"Yes but there were two older models of my own. I never used 'em because it didn't seem right to hunt with such a cannon. But I got 'em out last night on account of this trouble."

"Oh," Bennington said with an air of sudden enlightenment. "I thought that thing I had looked odd. I slept with one last night. I think Lundgren has another."

"Where is Lundgren? Doris should have had him up by now. Go see, Bennington, and get that gun."

"Isn't there a lot of recoil?" Foote asked.

"Sure. These are really meant to operate from bipods. Hold the gun at your hip, not your shoulder—what's *that*?"

"Bennington's voice," Foote said, suddenly tense. "Something must be wrong with Doris." The four of them clattered for the stairs.

They found Doris at Bennington's feet in front of Lundgren's open door. Evidently she had fainted without a sound. The critic was in the process of being very sick. On Lundgren's bed lay a crimson horror.

The throat was ripped out and the face and all the soft parts of the body had been eaten away. The right leg had been gnawed in one place all the way to the bone, which gleamed white and polished in the reassuring sunlight.

V

Foote stood in the living room by the piano in the full glare of all the electric lights. He hefted the B. A. R. and surveyed the remainder of his companions, who were standing in a puzzled group before him.

"No," he said, "I don't like that. I don't want you all bunched together. String out in a line, in front of me, so I can see everybody."

He grinned briefly. "Got the drop on you, didn't I? Not a rifle in sight. Of course, there's the big candlestick behind you, Newcliffe, but I can shoot quicker than you can club me." His voice grew ugly. "*And I will*, if you make it necessary. So I would advise everybody—including the women—not to make any sudden moves."

"What is this all about, Paul?" Bennington demanded angrily. "As if things aren't bad enough!"

"You'll see directly. Now line up the way I told you. *Quick!*" He moved the gun suggestively. "And remember what I said about sudden moves. It may be dark outside but I didn't turn on all the lights for nothing."

Quietly the line formed and the eyes that looked at Foote were narrowed with suspicion of madness—or worse.

"Good. Now we can talk comfortably. You see, after what happened to Chris I'm not taking any chances. That was partly his fault and partly mine. But the gods allow no one to err twice in matters like this. He paid a ghastly price for his second error—a price I don't intend to pay or to see anyone else here pay."

"Would you honor us with an explanation of this error?" Newcliffe said icily.

"Yes. I don't blame you for being angry, Tom, since I'm your guest. But you see I'm forced to treat you all alike for the moment. I was fond of Lundgren."

There was silence for a moment, then a thin indrawing of breath from Bennington. "You were fond—my Lord!" he whispered raggedly. "What do you mean?"

"I mean that Lundgren was not killed by Jarmoskowski," Foote said coldly and deliberately. "He was

killed by someone else. Another werewolf. *One who is standing before me at this moment.*"

A concerted gasp went up.

"Surprised? But it's true. The error for which Chris paid so dearly, which I made too, was this—we forgot to examine everybody for injuries after the encounter with Jan. We forgot one of the cardinal laws of lycanthropy.

"A man who survives being bitten by a werewolf himself becomes a werewolf. That's how the disease is passed on. The pincerin in the saliva gets in the bloodstream, stimulates the victim's own pineal gland and—"

"But nobody was bitten, Paul," Doris said in a reasonable voice.

"Somebody was, lightly. None of you but Chris and myself could know about the bite-infection. Evidently somebody got a few small scratches, didn't think them worth mentioning, put iodine on them and forgot them—until it was too late."

There were slow movements in the line—heads turning surreptitiously, eyes glancing nervously at persons to left and right.

"Once the attack occurred," Foote said relentlessly, "Chris was the logical first victim. The expert, hence the most dangerous enemy. I wish I had thought of this before lunch. I might have seen which one of you was uninterested in his lunch. In any event Chris' safeguards against letting Jarmoskowski in also keep you from getting out. You won't leave this room ever again."

He gritted his teeth and brought himself back into control. "All right," he said. "This is the showdown. Everybody hold up both hands in plain view."

Almost instantly there was a ravening wolf in the room.

Only Foote, who could see at a glance the order of the people in the line, knew who it was. The frightful tragedy of it struck him such a blow that the gun dropped nervelessly from his hands. He wept convulsively. The monster lunged for his throat like a reddish projectile.

Newcliffe's hand darted back, grasped the candlestick. He leapt forward in a swift, catlike motion and

brought it down across the werewolf's side. Ribs burst with a horrible splintering sound. The beast spun, snarling with agony. Newcliffe hit it again across the backbone. It fell, screaming, fangs slashing the air.

Three times, with concentrated viciousness, Newcliffe struck at its head. Then it cried out once in an almost familiar voice—and died.

Slowly the cells of its body groped back toward their natural positions. The awful crawling metamorphosis was never completed. But the hairy-haunched thing with the crushed skull which sprawled at Newcliffe's feet was recognizable.

It had been Caroline Newcliffe.

There was a frozen tableau of wax figures in the yellow lamplight. Tears coursed along Foote's palms, dropped from under them, fell silently to the carpet. After awhile he dropped his hands. Bennington's face was gray with illness but rigidly expressionless like a granite statue. James' back was against the wall. He watched the anomalous corpse as if waiting for some new movement.

As for Newcliffe he had no expression at all. He merely stood where he was, the bloody candlestick held loosely in a limp hand.

His eyes were quite empty.

After a moment Doris walked over to Newcliffe and touched his shoulder compassionately. The contact seemed to let something out of him. He shrank visibly into himself, shoulders slumping, his whole body withering visibly into a dry husk.

The candlestick thumped against the floor, rocked wildly on its base, toppled across the body. As it struck, Foote's cigarette butt, which had somehow remained in it all day, tumbled out and rolled crazily along the carpet.

"Tom," Doris said softly. "Come away now. There's nothing you can do."

"Blood," he said emptily. "She had a cut. On her hand. Handled the scrapings from the trap—my trap. I did it. Just a breadknife cut from making canapes. I did it."

"No you didn't, Tom. Let's get some rest." She took

his hand. He followed her obediently, stumbling a little as his blood-spattered shoes scuffed over the thick rug, his breath expelling from his lungs with a soft whisper. The two disappeared up the stairs.

Bennington bolted for the kitchen sink.

Foote sat down on the piano bench, his worn face taut with dried tears, and picked at the dusty keys. The lightly-struck notes aroused James. He crossed the room and looked down at Foote.

"You did well," the novelist said shakily. "Don't condemn yourself, Paul."

Foote nodded. He felt—nothing. Nothing at all.

"The body?"

"Yes. I suppose so." He got up from the bench. Together they carried the tragic corpse out through the house to the greenhouse.

"We should leave her here," Foote said with a faint return of his old irony. "Here's where the wolfbane bloomed and started the whole business."

"Poetic justice, I suppose," James said. "But I don't think it's wise. Tom has a toolshed at the other end that isn't steam heated. It should be cold enough."

Gently they placed the body on the cement floor, laying some gunny-sacks under it. "In the morning," Foote said, "we can have someone come for her."

"How about legal trouble?" James said frowning. "Here's a woman whose skull has been crushed with a blunt instrument—"

"I think I can get Lundgren's priest to help us there," Foote said somberly. "They have some authority to make death certificates in this state. Besides, James—is that a woman? Inarguably it isn't Caroline."

James looked sidewise at the hairy, contorted haunches. "Yes. It's—legally it's nothing. I see your point."

Together they went back into the house. "Jarmoskowski?" James said.

"Not tonight. We're all too tired and sick. And we do seem to be safe enough in here. Chris saw to that."

Whatever James had to say in reply was lost in the roar of an automatic rifle somewhere over their heads, exhausting its shots in a quick stream. After a moment

there was another burst of ten. Footsteps echoed. Then Bennington came bouncing down the stairs.

"Watch out tonight," he panted. "He's around. I saw him come out of the woods in wolf form. I emptied the clip but missed and he went back again. I sprayed another ten rounds around where I saw him go in but I don't think I hit him."

"Where were you shooting from?"

"The top of the tower." His face was very grim. "Went up for a last look around and there he was. I hope he comes tonight, I want to be the one who kills him."

"How is Tom?"

"Bad. Doesn't seem to know where he is or what he's doing. Well, goodnight. Keep your eyes peeled."

James nodded and followed him upstairs. Foote remained in the empty room a few minutes longer, looking thoughtfully at the splotch of blood on the priceless Persian carpet. Then he felt of his face and throat, looked at his hands, arms and legs, inside his shirt. Not so much as a scratch—Tom had seen to that.

So hard not to hate these afflicted people, so impossible to remember that lycanthropy was a disease like any other! Caroline, like the man in *The Red Laugh*, had been noble-hearted and gentle and had wished no one evil. Yet—

Maybe God is on the side of the werewolves.

The blasphemy of an exhausted mind. Yet he could not put it from him. Suppose Jarmoskowski should conquer his compulsion and lie out of sight until the seven days were over. Then he could disappear. It was a big country. It would not be necessary for him to kill all his victims—just those he actually needed for food. But he could nip a good many. Every other one, say.

And from wherever he lived the circle of lycanthropy would grow and widen and engulf—

Maybe God had decided that proper humans had made a mess of running the world, had decided to give the *nosferatu*, the undead, a chance at it. Perhaps the human race was on the threshold of that darkness into which he had looked throughout last night.

He ground his teeth and made an exasperated noise.

Shock and exhaustion would drive him as crazy as Newcliffe if he kept this up.

He went around the room, making sure that all the windows were tightly closed and the crucifixes in place, turning out the lights as he went. The garlic was getting rancid—it smelled like mercaptan—but he was too tired to replace it. He clicked out the last light, picked up the candlestick and went out into the hall.

As he passed Doris' room, he noticed that the door was ajar. Inside two voices murmured. Remembering what he had heard before he stopped to eavesdrop.

It was years later that Foote found out exactly what had happened at the very beginning. Doris, physically exhausted by the hideous events of the day, emotionally drained by tending the childlike Newcliffe, feeding him from a spoon and seeing him into bed, had fallen asleep almost immediately.

It was a sleep dreamless except for a vague, dull undercurrent of despair. When the light tapping against the window-panes finally reached her consciousness she had no idea how long she had slumbered.

She struggled to a sitting position and forced her eyelids up. Across the room the moonlight, gleaming in patches against the rotting snow outside, glared through the window. Silhouetted against it was a tall human figure. She could not see its face but there was no mistaking the red glint of the eyes. She clutched for the rifle and brought it awkwardly into position.

Jarmoskowski did not dodge. He moved his arms out a little way away from his body, palms forward in a gesture that looked almost supplicating, and waited. Indecisively she lowered the gun again. Was he inviting death?

As she lowered the weapon she saw that the stud was in the continuous-fire position and carefully she shifted it to *repeat*. She was afraid of the recoil Newcliffe had mentioned, felt surer of her target if she could throw one shot at a time at it.

Jarmoskowski tapped again and motioned with his finger. Reasoning that he would come in if he were able, she took time out to get into her housecoat. Then, hold-

ing her finger against the trigger, she went to the window. It was closed tightly and a crucifix, suspended from a silk thread, hung exactly in the center of it. She checked it, and then opened one of the small panes directly above Jarmoskowski's head.

"Hello, Doris," he said softly.

"Hello." She was more uncertain than afraid. Was this actually happening or just the recurrent nightmare? "What do you want? I should shoot you. Can you tell me why I shouldn't?"

"Yes I can. Otherwise I wouldn't have risked exposing myself. That's a nasty-looking weapon."

"There are ten silver bullets in it."

"I know it. I've seen Brownings before. I would be a good target for you too, so I have no hope of escape—my nostrils are full of rosemary." He smiled ruefully. "And Lundgren and Caroline are dead and I am responsible. I deserve to die. That is why I am here."

"You'll get your wish, Jan," she said. "You have some other reason, I know. I will back my wits against yours. I want to ask you questions."

"Ask."

"You have your evening clothes on. Paul said they changed with you. How is that possible?"

"But a wolf has clothes," Jarmoskowski said. "He is not naked like a man. And surely Chris must have spoken of the effect of the pineal upon the cell radiogens. These little bodies act upon any organic matter, including wool or cotton. When I change my clothes change with me. I can hardly say how, for it is in the blood, like musicianship. Either you can or you can't. But they change."

His voice took on a darkly somber tone. "Lundgren was right throughout. This werewolfery is now nothing but a disease. It is not pro-survival. Long ago there must have been a number of mutations which brought the pineal gland into use.

"None of them survived but the werewolves and these are dying. Someday the pineal will come into better use and all men will be able to modify their forms without this terrible madness as a penalty. For us, the lycanthropes, the failures, nothing is left.

"It is not good for a man to wander from country to country, knowing that he is a monster to his fellow-men and cursed eternally by his God—if he can claim a God. I went through Europe, playing the piano and giving pleasure, meeting people, making friends—and always, sooner or later, there were whisperings, and strange looks and dawning horror.

"And whether I was hunted down for the beast I was or whether there was merely a vague gradually-growing revulsion, they drove me out. Hatred, silver bullets, crucifixes—they are all the same in the end.

"Sometimes, I could spend several months without incident in some one place and my life would take on a veneer of normality. I could attend to my music and have people about me that I liked and be—human. Then the wolfbane bloomed and the pollen freighted the air and when the moon shone down on that flower my blood surged with the thing I have within me.

"And then I made apologies to my friends and went north to Sweden, where Lundgren was and where spring was much later. I loved him and I think he missed the truth about me until night before last. I was careful.

"Once or twice I did *not* go North and then the people who had been my friends would be hammering silver behind my back and waiting for me in dark corners. After years of this few places in Europe would have me. With my reputation as a musician spread darker rumors.

"Towns I had never visited closed their gates to me without a word. Concert halls were booked up too many months in advance for me to use them, inns and hotels were filled indefinitely, people were too busy to talk to me, to listen to my playing, to write me any letters.

"I have been in love. That—I cannot describe.

"And then I came to this country. Here no one believes in the werewolf. I sought scientific help—not from Lundgren, because I was afraid I should do him some harm. But here I thought someone would know enough to deal with what I had become.

"It was not so. The primitive hatred of my kind lies

at the heart of the human as it lies at the heart of the dog. There was no help for me.

"I am here to ask for an end to it."

Slow tears rolled over Doris' cheeks. The voice faded away indefinitely. It did not seem to end at all but rather to retreat into some limbo where men could not hear it. Jarmoskowski stood silently in the moonlight, his eyes burning bloodily, a somber sullen scarlet.

Doris said, "Jan—Jan, I am sorry, I am so sorry. What can I do?"

"Shoot."

"I—can't!"

"Please, Doris."

The girl was crying uncontrollably. "Jan, don't. I can't. You know I can't. Go away, *please* go away."

Jarmoskowski said, "Then come with me, Doris. Open the window and come with me."

"Where?"

"Does it matter? You have denied me the death I ask. Would you deny me this last desperate love, would you deny your own love, your own last and deepest desire? It is too late now, too late for you to pretend revulsion. Come with me."

He held out his hands.

"Say goodbye," he said. "Goodbye to these self-righteous humans. I will give you of my blood and we will range the world, wild and uncontrollable, the last of our race. They will remember us, I promise you."

"Jan—"

"I am here. Come now."

Like a somnambulist she swung the panes out. Jarmoskowski did not move but looked first at her, then at the crucifix. She lifted one end of the thread and let the little thing tinkle to the floor.

"After us there shall be no darkness comparable to our darkness," Jarmoskowski said. "Let them rest—let the world rest."

He sprang into the room with so sudden, so feral a motion that he seemed hardly to have moved at all. From the doorway the automatic rifle yammered with demoniac ferocity. The impact of the slugs hurled Jar-

moskowski back against the wall. Foote lowered the smoking muzzle and took one step into the room.

"Too late, Jan," he said stonily.

Doris wailed like a little girl awakened from a dream. Jarmoskowski's lips moved but there was not enough left of his lungs. The effort to speak brought a bloody froth to his mouth. He stood for an instant, stretched out a hand toward the girl. Then the fingers clenched convulsively and the long body folded.

He smiled, put aside that last of all his purposes and died.

Surface Tension

PROLOGUE

DR. CHATVIEUX TOOK a long time over the microscope, leaving la Ventura with nothing to do but look at the dead landscape of Hydrot. Waterscape, he thought, would be a better word. From space, the new world had shown only one small, triangular continent, set amid endless ocean; and even the continent was mostly swamp.

The wreck of the seed-ship lay broken squarely across the one real spur of rock which Hydrot seemed to possess, which reared a magnificent twenty-one feet above sea-level. From this eminence, la Ventura could see forty miles to the horizon across a flat bed of mud. The red light of the star Tau Ceti, glinting upon thousands of small lakes, pools, ponds and puddles, made the watery plain look like a mosaic of onyx and ruby.

"If I were a religious man," the pilot said suddenly, "I'd call this a plain case of divine vengeance."

Chatvieux said: "Hmn?"

"It's as if we'd struck down for—is it *hubris*? Pride, arrogance?"

"*Hybris*," Chatvieux said, looking up at last. "Well, is it? I don't feel swollen with pride at the moment. Do you?"

"I'm not exactly proud of my piloting," la Ventura admitted. "But that isn't quite what I mean. I was thinking about why we came here in the first place. It takes a lot of arrogance to think that you can scatter men, or at least things very much like men, all over the face of the galaxy. It takes even more pride to do the job—to pack up all the equipment and move from planet to planet and actually make men, make them suitable for every place you touch."

"I suppose it does," Chatvieux said. "But we're only one of several hundred seed-ships in this limb of the galaxy, so I doubt that the gods picked us out as special sinners." He smiled. "If they had, maybe they'd have left us our ultraphone, so the Colonization Council could hear about our cropper. Besides, Paul, we don't make men. We adapt them—adapt them to Earthlike planets, nothing more than that. We've sense enough—or humility enough, if you like that better—to know that we can't adapt men to a planet like Jupiter, or to the surface of a sun, like Tau Ceti."

"Anyhow, we're here," la Ventura said grimly. "And we aren't going to get off. Phil tells me that we don't even have our germ-cell bank any more, so we can't seed this place in the usual way. We've been thrown onto a dead world and dared to adapt to it. What are the pantropes going to do with our recalcitrant carcasses—provide built-in waterwings?"

"No," Chatvieux said calmly. "You and I and all the rest of us are going to die, Paul. Pantropic techniques don't work on the body; that was fixed for you for life when you were conceived. To attempt to rebuild it for you would only maim you. The pantropes affect only the genes, the inheritance-carrying factors. We can't give you built-in waterwings, any more than we can give you a new set of brains. I think we'll be able to populate this world with men, but we won't live to see it."

The pilot thought about it, a lump of cold blubber

collecting gradually in his stomach. "How long do you give us?" he said at last.

"Who knows? A month, perhaps."

The bulkhead leading to the wrecked section of the ship was pushed back, admitting salt, muggy air, heavy with carbon dioxide. Philip Strasvogel, the communications officer, came in, tracking mud. Like la Ventura, he was now a man without a function, and it appeared to bother him. He was not well equipped for introspection, and with his ultraphone totally smashed, unresponsive to his perpetually darting hands, he had been thrown back into his own mind, whose resources were few. Only the tasks Chatvieux had set him to had prevented him from setting like a gelling colloid into a permanent state of the sulks.

He unbuckled from around his waist a canvas belt, into the loops of which plastic vials were stuffed like cartridges. "More samples, Doc," he said. "All alike—water, very wet. I have some quicksand in one boot, too. Find anything?"

"A good deal, Phil. Thanks. Are the others around?"

Strasvogel poked his head out and hallooed. Other voices rang out over the mudflats. Minutes later, the rest of the survivors of the crash were crowding into the pantrope deck: Saltonstall, Chatvieux' senior assistant, a perpetually sanguine, perpetually youthful technician willing to try anything once, including dying; Eunice Wagner, behind whose placid face rested the brains of the expedition's only remaining ecologist; Eleftherios Venezuelos, the always-silent delegate from the Colonization Council; and Joan Heath, a midshipman whose duties, like la Ventura's and Phil's, were now without meaning, but whose bright head and tall, deceptively indolent body shone to the pilot's eyes brighter than Tau Ceti—brighter, since the crash, even than the home sun.

Five men and two women—to colonize a planet on which "standing room" meant treading water.

They came in quietly and found seats or resting places on the deck, on the edges of tables, in corners. Joan Heath went to stand beside la Ventura. They did not look at each other, but the warmth of her shoulder

beside his was all that he needed. Nothing was as bad as it seemed.

Venezuelos said: "What's the verdict, Dr. Chatvieux?"

"This place isn't dead," Chatvieux said. "There's life in the sea and in the fresh water, both. On the animal side of the ledger, evolution seems to have stopped with the crustacea; the most advanced form I've found is a tiny crayfish, from one of the local rivulets, and it doesn't seem to be well distributed. The ponds and puddles are well-stocked with small metazoans of lower orders, right up to the rotifers—including a castle-building genus like Earth's *Floscularidae*. In addition, there's a wonderfully variegated protozoan population, with a dominant ciliate type much like *Paramoecium*, plus various Sarcodines, the usual spread of phytoflagellates and even a phosphorescent species I wouldn't have expected to see anywhere but in salt water. As for the plants, they run from simple blue-green algae to quite advanced thallus-producing types—though none of them, of course, can live out of the water."

"The sea is about the same," Eunice said. "I've found some of the larger simple metazoans—jellyfish and so on—and some crayfish almost as big as lobsters. But it's normal to find salt-water species running larger than fresh-water. And there's the usual plankton and nannoplankton population."

"In short," Chatvieux said, "we'll survive here—if we fight."

"Wait a minute," la Ventura said. "You've just finished telling me that we wouldn't survive. And you were talking about us, the seven of us here, not about the genus man, because we don't have our germ-cells banks any more. What's—"

"We don't have the banks. But we ourselves can contribute germ-cells, Paul. I'll get to that in a moment." Chatvieux turned to Saltonstall. "Martin, what would you think of our taking to the sea? We came out of it once, long ago; maybe we could come out of it again on Hydrot."

"No good," Saltonstall said immediately. "I like the idea, but I don't think this planet ever heard of Swinburne, or Homer, either. Looking at it as a colonization

problem alone, as if we weren't involved in it ourselves, I wouldn't give you an Oc dollar for *epeirone ponton*. The evolutionary pressure there is too high, the competition from other species is prohibitive; seeding the sea should be the last thing we attempt, not the first. The colonists wouldn't have a chance to learn a thing before they'd be gobbled up."

"Why?" la Ventura said. Once more, the death in his stomach was becoming hard to placate.

"Eunice, do your sea-going Coelenterates include anything like the Portuguese man-of-war?"

The ecologist nodded.

"There's your answer, Paul," Saltonstall said. "The sea is out. It's got to be fresh water, where the competing creatures are less formidable and there are more places to hide."

"We can't compete with a jellyfish?" la Ventura asked, swallowing.

"No, Paul," Chatvieux said. "Not with one that dangerous. The pantropes make adaptations, not gods. They take human germ-cells—in this case, our own, since our bank was wiped out in the crash—and modify them genetically toward those of creatures who can live in any reasonable environment. The result will be man-like, and intelligent. It usually shows the donors' personality patterns, too, since the modifications are usually made mostly in the morphology, not so much in the mind, of the resulting individual.

"*But we can't transmit memory.* The adapted man is worse than a child in the new environment. He has no history, no techniques, no precedents, not even a language. In the usual colonization project, like the Tellura affair, the seeding teams more or less take him through elementary school before they leave the planet to him, but we won't survive long enough to give such instructions. We'll have to design our colonists with plenty of built-in protections and locate them in the most favorable environment possible, so that at least some of them will survive learning by experience alone."

The pilot thought about it, but nothing occurred to him which did not make the disaster seem realer and more intimate with each passing second. Joan Heath

moved slightly closer to him. "One of the new creatures can have my personality pattern, but it won't be able to remember being me. Is that right?"

"That's right. In the present situation we'll probably make our colonists haploid, so that some of them, perhaps many, will have a heredity traceable to you alone. There may be just the faintest of residuums of identity—pantropy's given us some data to support the old Jungian notion of ancestral memory. But we're all going to die on the Hydrot, Paul, as self-conscious persons. There's no avoiding that. Somewhere we'll leave behind people who behave as we would, think and feel as we would, but who won't remember la Ventura, or Dr. Chatvieux, or Joan Heath—or the Earth."

The pilot said nothing more. There was a gray taste in his mouth.

"Saltonstall, what would you recommend as a form?"

The pantropist pulled reflectively at his nose. "Webbed extremities, of course, with thumbs and big toes heavy and thorn-like for defense until the creature has had a chance to learn. Smaller external ears, and the eardrum larger and closer to the outer end of the ear-canal. We're going to have to reorganize the water-conservation system, I think; the glomerular kidney is perfectly suitable for living in fresh water, but the business of living immersed, inside and out, for a creature with a salty inside means that the osmotic pressure inside is going to be higher than outside, so that the kidneys are going to have to be pumping virtually all the time. Under the circumstances we'd best step up production of urine, and that means the antidiuretic function of the pituitary gland is going to have to be abrogated, for all practical purposes."

"What about respiration?"

"Hm," Saltonstall said. "I suppose book-lungs, like some of the arachnids have. They can be supplied by intercostal spiracles. They're gradually adaptable to atmosphere-breathing, if our colonist ever decides to come out of the water. Just to provide for that possibility, I'd suggest that the nose be retained, maintaining the nasal cavity as a part of the otological system, but cutting off the cavity from the larynx with a membrane

of cells that are supplied with oxygen by direct irrigation, rather than by the circulatory system. Such a membrane wouldn't survive for many generations, once the creature took to living out of the water even for part of its lifetime; it'd go through two or three generations as an amphibian, and then one day it'd suddenly find itself breathing through its larynx again."

"Ingenious," Chatvieux said.

"Also, Dr. Chatvieux, I'd suggest that we have it adopt sporulation. As an aquatic animal, our colonist is going to have an indefinite life-span, but we'll have to give it a breeding cycle of about six weeks to keep up its numbers during the learning period; so there'll have to be a definite break of some duration in its active year. Otherwise it'll hit the population problem before it's learned enough to cope with it."

"And it'd be better if our colonists could winter over inside a good, hard shell," Eunice Wagner added in agreement. "So sporulation's the obvious answer. Many other microscopic creatures have it."

"Microscopic?" Phil said incredulously.

"Certainly," Chatvieux said, amused. "We can't very well crowd a six-foot man into a two-foot puddle. But that raises a question. We'll have tough competition from the rotifers, and some of them aren't strictly microscopic; for that matter even some of the protozoa can be seen with the naked eye, just barely, with dark-field illumination. I don't think your average colonist should run much under 250 microns, Saltonstall. Give them a chance to slug it out."

"I was thinking of making them twice that big."

"Then they'd be the biggest animals in their environment," Eunice Wagner pointed out, "and won't ever develop any skills. Besides, if you make them about rotifer size, it will give them an incentive for pushing out the castle-building rotifers, and occupying the castles themselves, as dwellings."

Chatvieux nodded. "All right, let's get started. While the pantropes are being calibrated, the rest of us can put our heads together on leaving a record for these people. We'll micro-engrave the record on a set of corrosion-proof metal leaves, of a size our colonists can handle

conveniently. We can tell them, very simply, what happened, and plant a few suggestions that there's more to the universe than what they find in their puddles. Some day they may puzzle it out."

"Question," Eunice Wagner said. "Are we going to tell them they're microscopic? I'm opposed to it. It may saddle their entire early history with a gods-and-demons mythology that they'd be better off without."

"Yes, we are," Chatvieux said; and la Ventura could tell by the change in the tone of his voice that he was speaking now as their senior on the expedition. "These people will be of the race of men, Eunice. We want them to win their way back into the community of men. They are not toys, to be protected from the truth forever in a fresh-water womb."

"Besides," Saltonstall observed, "they won't get the record translated at any time in their early history. They'll have to develop a written language of their own, and it will be impossible for us to leave them any sort of Rosetta Stone or other key. By the time they can decipher the truth, they should be ready for it."

"I'll make that official," Venezuelos said unexpectedly. And that was that.

And then, essentially, it was all over. They contributed the cells that the pantropes would need. Privately, la Ventura and Joan Heath went to Chatvieux and asked to contribute jointly; but the scientist said that the microscopic men were to be haploid, in order to give them a minute cellular structure, with nuclei as small as Earthly rickettsiae, and therefore each person had to give germ-cells individually—there would be no use for zygotes. So even that consolation was denied them; in death they would have no children, but be instead as alone as ever.

They helped, as far as they could, with the text of the message which was to go on the metal leaves. They had their personality patterns recorded. They went through the motions. Already they were beginning to be hungry; the sea-crayfish, the only things on Hydrot big enough to eat, lived in water too deep and cold for subsistence fishing.

After la Ventura had set his control board to rights—

a useless gesture, but a habit he had been taught to respect, and which in an obscure way made things a little easier to bear—he was out of it. He sat by himself at the far end of the rock ledge, watching Tau Ceti go redly down, chucking pebbles into the nearest pond.

After a while Joan Heath came silently up behind him, and sat down too. He took her hand. The glare of the red sun was almost extinguished now, and together they watched it go, with la Ventura, at least, wondering somberly which nameless puddle was to be his Lethe.

He never found out, of course. None of them did.

CYCLE ONE

In a forgotten corner of the galaxy, the watery world of Hydrot hurtles endlessly around the red star, Tau Ceti. For many months its single small continent has been snowbound, and the many pools and lakes which dot the continent have been locked in the grip of the ice. Now, however, the red sun swings closer and closer to the zenith in Hydrot's sky; the snow rushes in torrents toward the eternal ocean, and the ice recedes toward the shores of the lakes and ponds . . .

I

THE FIRST THING to reach the consciousness of the sleeping Lavon was a small, intermittent scratching sound. This was followed by a disquieting sensation in his body, as if the world—and Lavon with it—were being rocked back and forth. He stirred uneasily, without opening his eyes. His vastly slowed metabolism made him feel inert and queasy, and the rocking did not help. At his slight motion, however, both the sound and the motion became more insistent.

It seemed to take days for the fog over his brain to clear, but whatever was causing the disturbance would not let him rest. With a groan he forced his eyelids open and made an abrupt gesture with one webbed hand. By the waves of phosphorescence which echoed away from his fingers at the motion, he could see that the smooth amber walls of his spherical shell were unbroken. He

tried to peer through them, but he could see nothing but darkness outside. Well, that was natural: the amniotic fluid inside the spore would generate light, but ordinary water did not, no matter how vigorously it was stirred.

Whatever was outside the sphere was rocking it again, with the same whispering friction against its shell. Probably some nosey diatom, Lavon thought sleepily, trying to butt its way through an object it was too stupid to go around. Or some early hunter, yearning for a taste of the morsel inside the spore. Well, let it worry itself; Lavon had no intention of breaking the shell just yet. The fluid in which he had slept for so many months had held his body processes static, and had slowed his mind. Once out into the water, he would have to start breathing and looking for food again, and he could tell by the unrelieved darkness outside that it was too early in the spring to begin thinking about that.

He flexed his fingers reflectively, in the disharmonic motion from little finger to thumb that no animal but man can copy, and watched the widening wavefronts of greenish light rebound in the larger arcs from the curved spore walls. Here he was, curled up quite comfortable in a little amber ball, where he could stay until even the depths were warm and light. At this moment there was probably still some ice on the sky, and certainly there would not be much to eat as yet. Not that there was ever much, what with the voracious rotifers coming awake too with the first gust of warm water—

The rotifers! That was it. There was a plan afoot to drive them out. Memory returned in an unwelcome rush. As if to help it, the spore rocked again. That was probably one of the Protos, trying to awaken him; nothing man-eating ever came to the Bottom this early. He had left an early call with the Paras, and now the time had come, as cold and early and dark as he had thought he wanted it.

Reluctantly, Lavon uncurled, planting his webbed toes and arching his backbone as hard as he could, pressing with his whole body against his amber prison. With small, sharp, crepitating sounds, a network of cracks raced through the translucent shell.

Then the spore wall dissolved into a thousand brittle shards, and he was shivering violently with the onslaught of the icy water. The warmer fluid of his winter cell dissipated silently, a faint glowing fog. In the brief light he saw, nor far from him, a familiar shape: a transparent, bubble-filled cylinder, a colorless slipper of jelly, spirally grooved, almost as long as he was tall. Its surface was furred with gently vibrating fine hairs, thickened at the base.

The light went out. The Proto said nothing; it waited while Lavon choked and coughed, expelling the last remnants of the spore fluid from his book-lungs and sucking in the pure, ice-cold water.

"Para?" Lavon said at last. "Already?"

"Already," the invisible cilia vibrated in even, emotionless tones. Each separate hair-like process buzzed at an independent, changing rate; the resulting sound waves spread through the water, intermodulating, reinforcing or cancelling each other. The aggregate wavefront, by the time it reached human ears, was rather eerie, but nevertheless recognizable human speech. "This is the time, Lavon."

"Time and more than time," another voice said from the returned darkness. "If we are to drive Flosc from his castles."

"Who's that?" Lavon said, turning futilely toward the new voice.

"I am Para also, Lavon. We are sixteen since the awakening. If you could reproduce as rapidly as we—"

"Brains are better than numbers," Lavon said. "As the Eaters will find out soon enough."

"What shall we do, Lavon?"

The man drew up his knees and sank to the cold mud of the Bottom to think. Something wriggled under his buttocks and a tiny spirillum corkscrewed away, identifiable only by feel. He let it go; he was not hungry yet, and he had the Eaters—the rotifers—to think about. Before long they would be swarming in the upper reaches of the sky, devouring everything, even men when they could catch them, even their natural enemies the Protos now and then. And whether or not the Pro-

tos could be organized to battle them was a question still to be tested.

Brains are better than numbers; even that, as a proposition, was still to be tested. The Protos, after all, were intelligent after their fashion; and they knew their world, as the men did not. Lavon could still remember how hard it had been for him to get straight in his head the various clans of beings in this world, and to make sense of their confused names; his tutor Shar had drilled him unmercifully until it had begun to penetrate.

When you said "Man," you meant creatures that, generally speaking, looked alike. The bacteria were of three kinds, the rods and the globes and the spirals, but they were all tiny and edible, so he had learned to differentiate them quickly. When it came to the Protos, identification became a real problem. Para here was a Proto, but he certainly looked very different from Stent and his family, and the family of Didin was unlike both. Anything, as it turned out, that was not green and had a visible nucleus was a Proto, no matter how strange its shape might be. The Eaters were all different, too, and some of them were as beautiful as the fruiting crowns of water-plants; but all of them were deadly, and all had the whirling crown of cilia which could suck you into the incessantly grinding mastax in a moment. Everything which was green and had an engraved shell of glass, Shar had called a diatom, dredging the strange word as he dredged them all from some Bottom in his skull which none of the rest of them could reach, and even Shar could not explain.

Lavon arose quickly. "We need Shar," he said. "Where is his spore?"

"On a plant frond, far up near the sky."

Idiot! The old man would never think of safety. To sleep near the sky, where he might be snatched up and borne off by any Eater to chance by when he emerged, sluggish with winter's long sleep! How could a wise man be so foolish?

"We'll have to hurry. Show me the way."

"Soon; wait," one of the Paras said. "You cannot see. Noc is foraging nearby." There was a small stir in the texture of the darkness as the swift cylinder shot away.

"Why do we need Shar?" the other Para said.

"For his brains, Para. He is a thinker."

"But his thoughts are water. Since he taught the Protos man's language, he has forgotten to think of the Eaters. He thinks forever of the mastery of how man came here. It is a mystery—even the Eaters are not like man. But understanding it will not help us to live."

Lavon turned blindly toward the creature. "Para, tell me something. Why do the Protos side with us? With man, I mean? Why do you need us? The Eaters fear you."

There was a short silence. When the Para spoke again, the vibrations of its voice were more blurred than before, more even, more devoid of any understandable feeling.

"We live in this world," the Para said. "We are of it. We rule it. We came to that state long before the coming of men, in long warfare with the Eaters. But we think as the Eaters do, we do not plan, we share our knowledge and we exist. Men plan; men lead; men are different from each other; men want to remake the world. And they hate the Eaters, as we do. We will help."

"And give up your rule?"

"And give it up, if the rule of men is better. That is reason. Now we can go; Noc is coming back with light."

Lavon looked up. Sure enough, there was a brief flash of cold light far overhead, and then another. In a moment the spherical Proto had dropped into view, its body flaring regularly with blue-green pulses. Beside it darted the second Para.

"Noc brings news," the second Para said. "Para is twenty-four. The Syn are awake by thousands along the sky. Noc spoke to a Syn colony, but they will not help us; they all expect to be dead before the Eaters awake."

"Of course," said the first Para. "That always happens. And the Syn are plants; why should they help the Protos?"

"Ask Noc if he'll guide us to Shar," Lavon said impatiently.

The Noc gestured with its single short, thick tentacle. One of the Paras said, "That is what he is here for."

"Then let's go. We've waited long enough."

The mixed quartet soared away from the Bottom through the liquid darkness.

"No," Lavon snapped. "Not a second longer. The Syn are awake, and Notholca of the Eaters is due right after that. You know that as well as I do, Shar. Wake up!"

"Yes, yes," the old man said fretfully. He stretched and yawned. "You're always in such a hurry, Lavon. Where's Phil? He made his spore near mine." He pointed to a still-unbroken amber sphere sealed to a leaf of the water-plant one tier below. "Better push him off; he'll be safer on the Bottom."

"He would never reach the Bottom," Para said. "The thermocline has formed."

Shar looked surprised. "It has? Is it as late as all that? Wait while I get my records together." He began to search along the leaf in the debris and the piled shards of his spore. Lavon looked impatiently about, found a splinter of stonewort, and threw it heavy end first at the bubble of Phil's cell just below. The spore shattered promptly, and the husky young man tumbled out, blue with shock as the cold water hit him.

"Wough!" he said. "Take it easy, Lavon." He looked up. "The old man's awake? Good. He insisted on staying up here for the winter, so of course I had to stay too."

"Aha," Shar said, and lifted a thick metal plate about the length of his forearm and half as wide. "Here is one of them. Now if only I haven't misplaced the other—"

Phil kicked away a mass of bacteria. "Here it is. Better give them both to a Para, so they won't burden you. Where do we go from here, Lavon? It's dangerous up this high. I'm just glad a Dicran hasn't already shown up."

"I here," something droned just above them.

Instantly, without looking up, Lavon flung himself out and down into the open water, turning his head to look back over his shoulder only when he was already diving as fast as he could go. Shar and Phil had evidently sprung at the same instant. On the next frond above where Shar had spent his winter was the ar-

mored, trumpet-shaped body of the rotifer Dicran, contracted to leap after them.

The two Protos came curving back out of nowhere. At the same moment, the bent, shortened body of Dicran flexed in its armor plate, straightened, came plunging toward them. There was a soft *plop* and Lavon found himself struggling in a fine net, as tangled and impassable as the mat of a lichen. A second such sound was followed by a muttered imprecation from Phil. Lavon struck out fiercely, but he was barely able to wriggle in the web of wiry, transparent stuff.

"Be still," a voice which he recognized as Para's throbbed behind him. He managed to screw his head around, and then kicked himself mentally for not having realized at once what had happened. The Paras had exploded the trichocysts which lay like tiny cartridges beneath their pellicles; each one cast forth a liquid which solidified upon contact with the water in a long slender thread. It was their standard method of defense.

Farther down, Shar and Phil drifted with the second Para in the heart of a white haze, like creatures far gone in mold. Dicran swerved to avoid it, but she was evidently unable to give up; she twisted and darted around them, her corona buzzing harshly, her few scraps of the human language forgotten. Seen from this distance, the rotation of the corona was revealed as an illusion, created by the rhythm of pulsation of the individual cilia, but as far as Lavon was concerned the point was solely technical and the distance was far too short. Through the transparent armor Lavon could see the great jaws of Dicran's mastax, grinding away mechanically at the fragments which poured into her unheeding mouth.

High above them all, Noc circled indecisively, illuminating the whole group with quick, nervous flashes of his blue light. He was a flagellate, and had no natural weapons against the rotifer; why he was hanging around drawing attention to himself Lavon could not imagine.

Then, suddenly, he saw the reason: a barrel-like creature about Noc's size, ringed with two rows of cilia and bearing a ram-like prow. "Didin!" he shouted, unnecessarily. "This way!"

The Proto swung gracefully toward them and seemed

to survey them, though it was hard to tell how he could see them without eyes. The Dicran saw him at the same time and began to back slowly away, her buzzing rising to a raw snarl. She regained the plant and crouched down.

For an instant Lavon thought she was going to give up, but experience should have told him that she lacked the sense. Suddenly the lithe, crouched body was in full spring again, this time straight at Didin. Lavon yelled an incoherent warning.

The Proto didn't need it. The slowly cruising barrel darted to one side and then forward, with astonishing speed. If he could sink that poisoned seizing-organ into a weak point in the rotifer's armor—

Noc mounted higher to keep out of the way of the two fighters, and in the resulting weakened light Lavon could not see what was happening, though the furious churning of the water and the buzzing of the Dicran continued.

After a while the sounds seemed to be retreating; Lavon crouched in the gloom inside the Para's net, listening intently. Finally there was silence.

"What's happened?" he whispered tensely.

"Didin does not say."

More eternities went by. Then the darkness began to wane as Noc dropped cautiously toward them.

"Noc, where did they go?"

Noc signaled with his tentacle and turned on his axis toward Para. "He says he lost sight of them. Wait—I hear Didin."

Lavon could hear nothing; what the Para "heard" was some one of the semi-telepathic impulses which made up the Proto's own language.

"He says Dicran is dead."

"Good! Ask him to bring the body back here."

There was a short silence. "He says he will bring it. What good is a dead rotifer, Lavon?"

"You'll see," Lavon said. He watched anxiously until Didin glided backwards into the lighted area, his poisonous ram sunk deep into the flaccid body of the rotifer, which, after the delicately-organized fashion of its kind, was already beginning to disintegrate.

"Let me out of this net, Para."

The Proto jerked sharply for a fraction of a turn on its long axis, snapping the threads off at the base; the movement had to be made with great precision, or its pellicle would tear as well. The tangled mass rose gently with the current and drifted off over the abyss.

Lavon swam forward and, seizing one buckled edge of Dicran's armor, tore away a huge strip of it. His hands plunged into the now almost shapeless body and came out again holding two dark spheroids: eggs.

"Destroy these, Didin," he ordered. The Proto obligingly slashed them open.

"Hereafter," Lavon said, "that's to be standard procedure with every Eater you kill."

"Not the males," one of the Para pointed out.

"Para, you have no sense of humor. All right, not the males—but nobody kills the males anyhow, they're harmless." He looked down grimly at the inert mass. "Remember—destroy the eggs. Killing the beasts isn't enough. We want to wipe out the whole race."

"We never forget," Para said emotionlessly.

II

The band of over two hundred humans, with Lavon and Shar and a Para at its head, fled swiftly through the warm, light waters of the upper level. Each man gripped a wood splinter, or a fragment of lime chipped from stonewort, as a club; and two hundred pairs of eyes darted watchfully from side to side. Cruising over them was a squadron of twenty Didins, and the rotifers they encountered only glared at them from single red eyespots, making no move to attack. Overhead, near the sky, the sunlight was filtered through a thick layer of living creatures, fighting and feeding and spawning, so that all the depths below were colored a rich green. Most of this heavily populated layer was made up of algae and diatoms, and there the Eaters fed unhindered. Sometimes a dying diatom dropped slowly past the army.

The spring was well advanced; the two hundred, Lavon thought, probably represented all of the humans

who had survived the winter. At least no more could be found. The others—nobody would ever know how many—had awakened too late in the season, or had made their spores in exposed places, and the rotifers had snatched them up. Of the group, more than a third were women. That meant that in another forty days, if they were unmolested, they could double the size of their army.

If they were unmolested. Lavon grinned and pushed an agitated colony of *Eudorina* out of his way. The phrase reminded him of a speculation Shar had brought forth last year: if Para were left unmolested, the oldster had said, he could reproduce fast enough to fill this whole universe with a solid mass of Paras before the season was out. Nobody, of course, ever went unmolested in this world; nevertheless, Lavon meant to cut the odds for people considerably below anything that had heretofore been thought of as natural.

His hand flashed up, and down again. The darting squadrons plunged after him. The light on the sky faded rapidly, and after a while Lavon began to feel slightly chilly. He signaled again. Like dancers, the two hundred swung their bodies in mid-flight, plunging now feet first toward the Bottom. To strike the thermocline in this position would make their passage through it faster, getting them out of the upper level where every minute, despite the convoy of Protos, concentrated danger.

Lavon's feet struck a yielding surface, and with a splash he was over his head in icy water. He bobbed up again, feeling the icy division drawn across his shoulders. Other splashes began to sound all along the thermocline as the army struck it, although, since there was water above and below, Lavon could not see the actual impacts.

Now they would have to wait until their body temperatures fell. At this dividing line of the universe, the warm water ended and the temperature dropped rapidly, so that the water below was much denser and buoyed them up. The lower level of cold reached clear down to the Bottom—an area which the rotifers, who were not very clever, seldom managed to enter.

A moribund diatom drifted down beside Lavon, the greenish-yellow of its body fading to a sick orange, its beautifully-marked, oblong, pillbox-like shell swarming with greedy bacteria. It came to rest on the thermocline, and the transparent caterpillar tread of jelly which ran around it moved feebly, trying vainly to get traction on the sliding water interface. Lavon reached out a webbed hand and brushed away a clot of vibrating rods which had nearly forced its way into the shell through a costal opening.

"Thank . . ." the diatom said, in an indistinct, whispering voice. And again, "Thank . . . Die . . ." The gurgling whisper faded. The caterpillar tread shifted again, then was motionless.

"It is right," a Para said. "Why do you bother with those creatures? They are stupid. Nothing can be done for them."

Lavon did not try to explain. He felt himself sinking slowly, and the water about his trunk and legs no longer seemed cold, only gratefully cool after the stifling heat of that he was breathing. In a moment the cool still depths had closed over his head. He hovered until he was reasonably sure that all the rest of his army was safely through, and the long ordeal of search for survivors in the upper level really ended. Then he twisted and streaked for the Bottom, Phil and Para beside him, Shar puffing along with the vanguard.

A stone loomed; Lavon surveyed it in the half-light. Almost immediately he saw what he had hoped to see: the sand-built house of a caddis-worm, clinging to the mountainous slopes of the rock. He waved in his special cadre and pointed.

Cautiously the men spread out in a U around the stone, the mouth of the U facing the same way as the opening of the worm's masonry tube. A Noc came after them, drifting like a star-shell above the peak; one of the Paras approached the door of the worm's house, buzzing defiantly. Under cover of this challenge the men at the back of the U settled on the rock and began to creep forward. The house was three times as tall as they were; the slimy black sand grains of which it was composed were as big as their heads.

There was a stir inside, and after a moment the ugly head of the worm peered out, weaving uncertainly at the buzzing Para which had disturbed it. The Para drew back, and the worm, in a kind of blind hunger, followed it. A sudden lunge brought it nearly halfway out of its tube.

Lavon shouted. Instantly the worm was surrounded by a howling horde of two-legged demons, who beat and prodded it mercilessly with fists and clubs. Somehow it made a sound, a kind of bleat as unlikely as the bird-like whistle of a fish, and began to slide backwards into its home—but the rear guard had already broken in back there. It jerked forward again, lashing from side to side under the flogging.

There was only one way now for the great larva to go, and the demons around it kept it going that way. It fell toward the Bottom down the side of the rock, naked and ungainly, shaking its blind head and bleating.

Lavon sent five Didin after it. They could not kill it, for it was far too huge to die under their poison, but they could sting it hard enough to keep it travelling. Otherwise, it would be almost sure to return to the rock to start a new house.

Lavon settled on an abutment and surveyed his prize with satisfaction. It was more than big enough to hold his entire clan—a great tubular hall, easily defended once the breach in the rear wall was rebuilt, and well out of the usual haunts of the Eaters. The muck the caddis-worm had left behind would have to be cleaned up, guards posted, vents knocked out to keep the oxygen-poor water of the depths in motion inside. It was too bad that the amoebae could not be detailed to scavenge the place, but Lavon knew better than to issue such an order. The Fathers of the Protos could not be asked to do useful work; that had been made very clear.

He looked around at his army. They were standing around him in awed silence, looking at the spoils of their attack upon the largest creature in the world. He did not think they would ever again feel as timid toward the Eaters. He stood up quickly.

"What are you gaping at?" he shouted. "It's yours, all of it. Get to work!"

Old Shar sat comfortably upon a pebble which had been hollowed out and cushioned with spirogyra straw. Lavon stood nearby at the door, looking out at the maneuvers of his legions. They numbered more than three hundred now, thanks to the month of comparative quiet which they had enjoyed in the great hall, and they handled their numbers well in the aquatic drill which Lavon had invented for them. They swooped and turned above the rock, breaking and reassembling their formations, fighting a sham battle with invisible opponents whose shape they could remember only too well.

"Noc says there's all kinds of quarreling going on among the Eaters," Shar said. "They didn't believe we'd joined with the Protos at first, and then they didn't believe we'd all worked together to capture the hall. And the mass raid we had last week scared them. They'd never tried anything of the kind before, and they *knew* it wouldn't fail. Now they're fighting with each other over why it did. Cooperation is something new to this world, Lavon; it's making history."

"History?" Lavon said, following his drilling squadrons with a technical eye. "What's that?"

"These." The old man leaned over one arm of the pebble and touched the metal plates which were always with him. Lavon turned to follow the gesture, incuriously. He knew the plates well enough—the pure uncorroded shining, graven deeply on both sides with characters no-one, not even Shar, could read. The Protos called the plates *Not-stuff*—neither wood nor flesh nor stone.

"What good is that? I can't read it. Neither can you."

"I've got a start, Lavon. I know the plates are written in our language. Look at the first word: *ha ii ss tuh oh or ee*—exactly the right number of characters for 'history.' That can't be a coincidence. And the next two words have to be 'of the.' And going on from there, using just the characters I already know—" Shar bent and traced in the sand with a stick a new train of characters: *i/terste//ar e//e/ition*.

"What's that?"

"It's a start, Lavon. Just a start. Some day we'll have more."

Lavon shrugged. "Perhaps, when we're safer. We can't afford to worry about that kind of thing now. We've never had that kind of time, not since the First Awakening."

The old man frowned down at the characters in the sand. "The First Awakening. Why does everything seem to stop there? I can remember in the smallest detail nearly everything that happened to me since then. But what happened to our childhoods, Lavon? None of us who survived the First Awakening seems to have had one. Who were our parents? Why were we so ignorant of the world, and yet grown men and women, all of us?"

"And the answer is in the plates?"

"I hope so," Shar said. "I believe it is. But I don't know. The plates were beside me in the spore at the First Awakening. That's all I know about them, except that there's nothing else like them in the world. The rest is deduction, and I haven't gotten very far with it. Some day . . . some day."

"I hope so too," Lavon said soberly. "I don't mean to mock, Shar, or to be impatient. I've got questions, too; we all have. But we're going to have to put them off for a while. Suppose we never find the whole answer?"

"Then our children will."

"But there's the heart of the problem, Shar: we have to live to have children. And make the kind of a world in which they'll have time to study. Otherwise—"

Lavon broke off as a figure darted between the guards at the door of the hall and twisted to a halt.

"What news, Phil?"

"The same," Phil said, shrugging with his whole body. His feet touched the floor. "The Flosc's castles are going up all along the bar; they'll be finished with them soon, and then we won't dare to get near them. Do you still think you can drive them out?"

Lavon nodded.

"But why?"

"First, for effect. We've been on the defensive so far, even though we've made a good job of it. We'll have to follow that up with an attack of our own if we're going to keep the Eaters confused. Second, the castles Flosc builds are all tunnels and exits and entrances—much

better than worm-houses for us. I hate to think of what would have happened if the Eaters had thought of blockading us inside this hall. And we need an outpost in enemy country, Phil, where there are Eaters to kill."

"This is enemy country," Phil said. "Stephanost is a Bottom-dweller."

"But she's only a trapper, not a hunter. Any time we want to kill her, we can find her right where we left her last. It's the leapers like Dicran and Notholca, the swimmers like Rotar, the colony-builders like Flosc that we have to wipe out first."

"Then we'd better start now, Lavon. Once the castles are finished—"

"Yes. Get your squads together, Phil. Shar, come on; we're leaving the hall."

"To raid the castles?"

"Of course."

Shar picked up his plates.

"You'd better leave those here; they'll be in your way in the fighting."

"No," Shar said determinedly. "I don't want them out of my sight. They go along."

III

Vague forebodings, all the more disturbing because he had felt nothing quite like them ever before, passed like clouds of fine silt through Lavon's mind as the army swept away from the hall on the Bottom and climbed toward the thermocline. As far as he could see, everything seemed to be going as he had planned it. As the army moved, its numbers were swelled by Protos who darted into its ranks from all sides. Discipline was good; and every man was armed with a long, seasoned splinter, and from each belt swung a stonewort-flake hand-axe, held by a thong run through a hole Shar had taught them all how to drill. There would probably be much death before the light of today faded, but death was common enough on any day, and this time it should heavily disfavor the Eaters.

But there was a chill upon the depths that Lavon did not like, and a suggestion of a current in the water

which was unnatural below the thermocline. A great many days had been consumed in collecting the army, recruiting from stragglers, and in securing the hall. The intensive breeding which had followed, and the training of the new-born and the newly recruited, had taken still more time, all of it essential, but all irrevocable. If the chill and the current marked the beginning of the fall turnover . . .

If it did, nothing could be done about it. The turnover could no more be postponed than the coming of day or night. He signaled to the nearest Para.

The glistening torpedo veered toward him. Lavon pointed up.

"Here comes the thermocline, Para. Are we pointed right?"

"Yes, Lavon. That way is the place where the Bottom rises toward the sky. Flosc's castles are on the other side, where she will not see us."

"The sand bar that runs out from the north. Right. It's getting warmer. Here we go."

Lavon felt his flight suddenly quicken, as if he had been shot like a seed from some invisible thumb and forefinger. He looked over his shoulder to watch the passage of the rest through the temperature barrier, and what he saw thrilled him as sharply as any awakening. Up to now he had had no clear picture of the size of his forces, or the three-dimensional beauty of their dynamic, mobile organization. Even the Protos had fitted themselves into the squads; pattern after pattern of power came soaring after Lavon from the Bottom: first a single Noc bowling along like a beacon to guide all the rest, then an advance cone of Didin to watch for individual Eaters who might flee to give the alarm, and then the men, and the Protos, who made up the main force, in tight formations as beautiful as the elementary geometry from which Shar had helped derive them.

The sand-bar loomed ahead, as vast as any mountain range. Lavon soared sharply upward, and the tumbled, raw-boned boulders of the sand grains swept by rapidly beneath him in a broad, stony flood. Far beyond the ridge, towering up to the sky through glowing green obscurity, were the befronded stems of the plant jungle

which was their objective. It was too dim with distance to allow him to see the clinging castles of the Flosc yet, but he knew that the longest part of the march was over. He narrowed his eyes and cleft the sunlit waters with driving, rapid strokes of his webbed hands and feet. The invaders poured after him over the crest of the bar in an orderly torrent.

Lavon swung his arm in a circle. Silently, the following squadrons glided into a great paraboloid, its axis pointed at the jungle. The castles were visible now; until the formation of the army, they had been the only products of close cooperation that this world had ever seen. They were built of single brown tubes, narrow at the base, attached to each other in a random pattern in an ensemble as delicate as a branching coral. In the mouth of each tube was a rotifer, a Flosc, distinguished from other Eaters by the four-leaf-clover of its corona, and by the single, prehensile finger springing from the small of its back, with which it ceaselessly molded its brown spittle into hard pellets and cemented them carefully to the rim of its tube.

As usual, the castles chilled Lavon's muscles with doubt. They were perfect, and they had always been one of the major, stony flowers of summer, long before there had been any First Awakening, or any men. And there was surely something wrong with the water in the upper level; it was warm and sleepy. The heads of the Flosc hummed contentedly at the mouths of their tubes; everything was as it should be, as it had always been; the army was a fantasm, the attack a failure before it had begun—

Then they were spied.

The Flosc vanished instantly, contracting violently into their tubes. The placid humming of their continuous feeding upon everything that passed was snuffed out; spared motes drifted about the castle in the light.

Lavon found himself smiling. Not long ago, the Flosc would only have waited until the humans were close enough, and then would have sucked them down, without more than a few struggles here and there, a few pauses in the humming while the out-size morsels were

enfolded and fed into the grinders. Now, instead, they hid; they were afraid.

"Go!" he shouted at the top of his voice. "Kill them! Kill them while they're down!"

The army behind him swept after him with a stunning composite shout.

Tactics vanished. A petalled corona unfolded in Lavon's face, and a buzzing whirlpool spun him toward its black heart. He slashed wildly with his edged wooden splinter.

The sharp edge sliced deeply into the ciliated lobes. The rotifer screamed like a siren and contracted into her tube, closing her wounded face. Grimly, Lavon followed.

It was pitch dark inside the castle, and the raging currents of pain which flowed past him threw him from one pebbly wall to another. He gritted his teeth and probed with the splinter. It bit into a yielding surface at once, and another scream made his ears ring, mixed with mangled bits of words in Lavon's own language, senseless and horrible with agony. He slashed at them until they stopped, and continued to slash until he could control his terror.

As soon as he was able, he groped in the torn corpse for the eggs. The point found their life and pricked it. Trembling, he pulled himself back to the mouth of the tube, and without stopping to think pushed himself off at the first Eater to pass it.

The thing was a Dicran; she doubled viciously upon him at once. Even the Eaters had learned something about cooperation. And the Dicrans fought well in open water. They were the best possible reinforcements the Flosc could have called.

The Dicran's armor turned the point of Lavon's splinter easily. He jabbed frantically, hoping to hit a joint, but the agile creature gave him no time to aim. She charged him irresistibly, and her humming corona folded down around his head, pinned his forearms to his sides—

The Eater heaved convulsively and went limp. Lavon half slashed, half tore his way free. A Didin was draw-

ing back, pulling out its seizing-organ. The body floated downward.

"Thanks," Lavon gasped. The Proto darted off without replying; it lacked sufficient cilia to imitate human speech. Possibly it lacked the desire as well; the Didins were not sociable.

A tearing whirlpool sprang into being again around him, and he flexed his sword arm. In the next five dreamlike minutes he developed a technique for dealing with the sessile, sucking Flosc. Instead of fighting the current and swinging the splinter back and forth against it, he gave in to the vortex, rode with it, and braced the splinter between his feet, point down. The results were even better than he had hoped. The point, driven by the full force of the Flosc's own trap, pierced the soft, wormlike body half through while it gaped for the human quarry. After each encounter, Lavon doggedly went through the messy ritual of destroying the eggs.

At last he emerged from a tube to find that the battle had drifted away from him. He paused on the edge to get his breath back, clinging to the rounded, translucent bricks and watching the fighting. It was difficult to make any military sense out of the melee, but as far as he could tell the rotifers were getting the worst of it. They did not know how to meet so carefully organized an attack, and they were not in any real sense intelligent.

The Didin were ranging from one side of the fray to the other, in two tight, vicious efficient groups, englobing and destroying free-swimming rotifers in whole flocks at a time. Lavon saw no fewer than half a dozen Eaters trapped by teams of Paras, each pair dragging a struggling victim in a trichocyst net remorselessly toward the Bottom, where she would inevitably suffocate. He was astonished to see one of the few Nocs that had accompanied his army scouring a cringing Rotar with its virtually harmless tentacle; the Eater seemed too astonished to fight back, and Lavon for once knew just how she felt.

A figure swam slowly and tiredly up to him from below. It was old Shar, puffing hard. Lavon reached a hand down to him and hauled him onto the lip of the

tube. The man's face wore a frightening expression, half shock, half pure grief.

"Gone, Lavon," he said. "Gone. Lost."

"What? What's gone? What's the matter?"

"The plate. You were right. I should have known." He sobbed convulsively.

"What plate? Calm down. What happened? Did you lose one of the history plates—or both of them?"

Slowly his tutor seemed to be recovering control of his breathing. "One of them," he said wretchedly. "I dropped it in the fight. I hid the other one in an empty Flosc tube. But I dropped the first one—the one I'd just begun to decipher. It went all the way down to the Bottom, and I couldn't get free to go after it—all I could do was watch it go, spinning down into the darkness. We could sift the mud forever and never find it."

He dropped his face into his hands. Perched on the edge of the brown tube in the green glow of the waters, he looked both pathetic and absurd. Lavon did not know what to say; even he realized that the loss was major and perhaps final, that the awesome blank in their memories prior to the First Awakening might now never be filled. How Shar felt about it he could comprehend only dimly.

Another human figure darted and twisted toward him. "Lavon!" Phil's voice cried. "It's working, it's working! The swimmers are running away, what's left of them. There are still some Flosc in the castles, hiding in the darkness. If we could only lure them out in the open—"

Jarred back to the present, Lavon's mind raced over the possibilities. The whole attack could still fail if the Flosc entrenched themselves successfully. After all, a big kill had not been the only object; they had started out to capture the castles.

"Shar—do these tubes connect with each other?"

"Yes," the old man said without interest. "It's a continuous system."

Lavon sprang out upon the open water. "Come on, Phil. We'll attack them from the rear." Turning, he plunged into the mouth of the tube, Phil on his heels.

It was very dark, and the water was fetid with the

odor of the tube's late owner, but after a moment's groping Lavon found the opening which lead into the next tube. It was easy to tell which way was out because of the pitch of the walls; everything the Flosc built had a conical bore, differing from the next tube in size. Determinedly Lavon worked his way toward the main stem, going always down and in.

Once they passed beneath an opening beyond which the water was in furious motion, and out of which poured muffled sounds of shouting and a defiant buzz. Lavon stopped to probe through the hole with his sword. The rotifer gave a shrill, startled shriek and jerked her wounded tail upward, involuntarily releasing her toe-hold upon the walls of the tube. Lavon moved on, grinning. The men above would do the rest.

Reaching the central stem at last, Lavon and Phil went methodically from one branch to another, spearing the surprised Eaters from behind or cutting them loose so that the men outside could get at them as they drifted upward, propelled by the drag of their own coronas. The trumpet shape of the tubes prevented the Eaters from turning to fight, and from following them through the castle to surprise them from behind; each Flosc had only the one room, which she never left.

The gutting of the castles took hardly fifteen minutes. The day was just beginning to end when Lavon emerged with Phil at the mouth of a turret to look down upon the first City of Man.

He lay in darkness, his forehead pressed against his knees, as motionless as a dead man. The water was stuffy, cold, the blackness complete. Around him were the walls of a tube of Flosc's castle; above him a Para laid another sand grain upon a new domed roof. The rest of the army rested in other tubes, covered with other new stony caps, but there was no sound of movement or of voices. It was as quiet as a necropolis.

Lavon's thoughts were slow and bitter as drugged syrup. He had been right about the passage of the seasons. He had had barely enough time to bring all his people from the hall to the castles before the annual debacle of the fall overturn. Then the waters of the universe had revolved once, bringing the skies to the Bot-

tom, and the Bottom to the skies, and then mixing both. The thermocline was destroyed until next year's spring overturn would reform it.

And inevitably, the abrupt change in temperature and oxygen concentration had started the spore-building glands again. The spherical amber shell was going up around Lavon now, and there was nothing he could do about it. It was an involuntary process, as dissociated from his control as the beating of his heart. Soon the light-generating oil which filled the spore would come pouring out, expelling and replacing the cold, foul water, and then sleep would come . . .

And all this had happened just as they had made a real gain, had established themselves in enemy country, had come within reach of the chance to destroy the Eaters wholesale and forever. Now the eggs of the Eaters had been laid, and next year it would have to be done all over again. And there was the loss of the plate; he had hardly begun to reflect upon what that would mean for the future.

There was a soft *chunk* as the last sand grain fell into place on the roof. The sound did not quite bring the final wave of despair against which he had been fighting in advance. Instead, it seemed to carry with it a wave of obscure contentment, with which his consciousness began to sink more and more rapidly toward sleep. They were safe, after all. They could not be ousted from the castle. And there would be fewer Eaters next year, because of all the eggs that had been destroyed, and the layers of those eggs . . . There was one plate still left . . .

Quiet and cold; darkness and silence.

In a forgotten corner of the galaxy, the watery world of Hydrot hurtles endlessly around the red star, Tau Ceti. For many months life has swarmed in its lakes and pools, but now the sun retreats from the zenith, and the snow falls, and the ice advances from the eternal ocean. Life sinks once more toward slumber, simulating death, and the battles and lusts and ambitions and defeats of a thousand million microscopic creatures retreat into the limbo where such things matter not at all.

No, such things matter not at all when winter reigns on Hydrot; but winter is an inconstant king.

CYCLE TWO

I

Old Shar set down the thick, ragged-edged metal plate at last, and gazed instead out the window of the castle, apparently resting his eyes on the glowing green-gold obscurity of the summer waters. In the soft fluorescence which played down upon him, from the Noc dozing impassively in the groined vault of the chamber, Lavon could see that he was in fact a young man. His face was so delicately formed as to suggest that it had not been many seasons since he had first emerged from his spore.

But of course there had been no real reason to have expected an old man. All the Shars had been referred to traditionally as "old" Shar. The reason, like the reasons for everything else, had been forgotten, but the custom had persisted. The adjective at least gave weight and dignity to the office—that of the center of wisdom of all the people, as each Lavon had been the center of authority.

The present Shar belonged to the generation XVI, and hence would have to be at least two seasons younger than Lavon himself. If he was old, it was only in knowledge.

"Lavon, I'm going to have to be honest with you," Shar said at last, still looking out of the tall, irregular window. "You've come to me at your maturity for the secrets on the metal plate, just as your predecessors did to mine. I can give some of them to you—but for the most part, I don't know what they mean."

"After so many generations?" Lavon asked, surprised. "Wasn't it Shar III who made the first complete translation? That was a long time ago."

The young man turned and looked at Lavon with eyes made dark and wide by the depths into which they had been staring. "I can read what's on the plate, but most of it seems to make no sense. Worst of all, the record's incomplete. You didn't know that? It is. One of

the plates was lost in a battle during the first war with the Eaters, while these castles were still in their hands."

"What am I here for, then?" Lavon said. "Isn't there anything of value on the remaining plate? Did they really contain 'the wisdom of the Creators,' or is that another myth?"

"No. No, it's true," Shar said slowly, "as far as it goes."

He paused, and both men turned and gazed at the ghostly creature which had appeared suddenly outside the window. Then Shar said gravely, "Come in, Para."

The slipper-shaped organism, nearly transparent except for the thousands of black-and-silver granules and frothy bubbles which packed its interior, glided into the chamber and hovered, with a muted whirring of cilia. For a moment it remained silent, speaking telepathically to the Noc floating in the vault, after the ceremonious fashion of all the Protos. No human had ever intercepted one of these colloquies, but there was no doubt about their reality; humans had used them for long-range communication for generations.

Then the Para's cilia vibrated once more. "We are arrived, Shar and Lavon, according to the custom."

"And welcome," said Shar. "Lavon, let's leave this matter of the plates for a while, until you hear what Para has to say; that's a part of the knowledge Lavons must have as they come into their office, and it comes before the plates. I can give you some hints of what we are. First Para has to tell you something about what we aren't."

Lavon nodded, willingly enough, and watched the Proto as it settled gently to the surface of the hewn table at which Shar had been sitting. There was in the entity such a perfection and economy of organization, such a grace and surety of movement, that he could hardly believe in his own new-won maturity. Para, like all the Protos, made him feel, not perhaps poorly thought-out, but at least unfinished.

"We know that in this universe there is logically no place for man," the gleaming, now immobile cylinder upon the table droned abruptly. "Our memory is the common property of all our races. It reaches back to a

time when there were no such creatures as man here, nor any even remotely like men. It remembers also that once upon a day there were men here, suddenly, and in some numbers. Their spores littered the Bottom; we found the spores only a short time after our season's Awakening, and inside them we saw the forms of men, slumbering.

"Then men shattered their spores and emerged. At first they seemed helpless, and the Eaters devoured them by scores, as in those days they devoured everything that moved. But that soon ended. Men were intelligent, active. And they were gifted with a trait, a character, possessed by no other creature in this world. Not even the savage Eaters had it. Men organized us to exterminate the Eaters, and therein lay the difference. Men had initiative. We have the word now, which you gave us, and we apply it, but we still do not know what the thing is that it labels."

"You fought beside us," Lavon said.

"Gladly. We would never have thought of that war by ourselves, but it was good and brought good. Yet we wondered. We saw that men were poor swimmers, poor walkers, poor crawlers, poor climbers. We saw that men were formed to make and use tools, a concept we still do not understand, for so wonderful a gift is largely wasted in this universe, and there is no other. What good are tool-useful members such as the hands of men? We do not know. It seems plain that so radical a thing should lead to a much greater rulership over the world than has, in fact, proven to be possible for men."

Lavon's head was spinning. "Para, I had no notion that you people were philosophers."

"The Protos are old," Shar said. He had again turned to look out the window, his hands locked behind his back. "They aren't philosophers, Lavon, but they are remorseless logicians. Listen to Para."

"To this reasoning there could be but one outcome," the Para said. "Our strange ally, Man, was like nothing else in this universe. He was and is unfitted for it. He does not belong here; he has been—adapted. This drives us to think that there are other universes besides this one, but where these universes might lie, and what

their properties might be, it is impossible to imagine. We have no imagination, as men know."

Was the creature being ironic? Lavon could not tell. He said slowly. "Other universes? How could that be true?"

"We do not know," the Para's uninflected voice hummed. Lavon waited, but obviously the Proto had nothing more to say.

Shar had resumed sitting on the window sill, clasping his knees, watching the come and go of dim shapes in the lighted gulf. "It is quite true," he said. "What is written on the plate makes it plain. Let me tell you now what it says.

"*We were made*, Lavon. We were made by men who were not as we are, but men who were our ancestors all the same. They were caught in some disaster, and they made us, and put us here in our universe—so that, even though they had to die, the race of men would live."

Lavon surged up from the woven spirogyra mat upon which he had been sitting. "You must think I'm a fool," he said sharply.

"No. You're our Lavon; you have a right to know the facts. Make what you like of them." Shar swung his webbed toes back into the chamber. "What I've told you may be hard to believe, but it seems to be so; what Para says backs it up. Our unfitness to live here is self-evident. I'll give you some examples:

"The past four Shars discovered that we won't get any farther in our studies until we learn how to control heat. We've produced enough heat chemically to show that even the water around us changes when the temperature gets high enough—or low enough, that we knew from the beginning. But there we're stopped."

"Why?"

"Because heat produced in open water is carried off as rapidly as it's produced. Once we tried to enclose that heat, and we blew up a whole tube of the castle and killed everything in range; the shock was terrible. We measured the pressures that were involved in that explosion, and we discovered that no substance we know could have resisted them. Theory suggests some stronger substances—but *we need heat to form them!*

"Take our chemistry. We live in water. Everything seems to dissolve in water, to some extent. How do we confine a chemical test to the crucible we put it in? How do we maintain a solution at one dilution? I don't know. Every avenue leads me to the same stone door. We're thinking creatures, Lavon, but there's something drastically wrong in the way we think about this universe we live in. It just doesn't seem to lead to results."

Lavon pushed back his floating hair futilely. "Maybe you're thinking about the wrong results. We've had no trouble with warfare, or crops, or practical things like that. If we can't create much heat, well, most of us won't miss it; we don't need more than we have. What's the other universe supposed to be like, the one our ancestors lived in? Is it any better than this one?"

"I don't know," Shar admitted. "It was so different that it's hard to compare the two. The metal plate tells a story about men who were travelling from one place to another in a container that moved by itself. The only analogue I can think of is the shallops of diatom shells that our youngsters used to sled along the thermocline; but evidently what's meant is something much bigger.

"I picture a huge shallop, closed on all sides, big enough to hold many people—maybe twenty or thirty. It had to travel for generations through some kind of medium where there wasn't any water to breathe, so the people had to carry their own water and renew it constantly. There were no seasons; no ice formed on the sky, because there couldn't be any sky in a closed shallop; and so there was no spore formation.

"Then the shallop was wrecked somehow. The people in it knew they were going to die. They made us, and put us here, as if we were their children. Because they had to die, they wrote their story on the plates, to tell us what had happened. I suppose we'd understand it better if we had the plate Shar I lost during the war—but we don't."

"The whole thing sounds like a parable," Lavon said, shrugging. "Or a song. I can see why you don't understand it. What I can't see is why you bother to try."

"Because of the plate," Shar said. "You've handled it yourself now, so you know that we've nothing like it.

We have crude, impure metals we've hammered out, metals that last for a while and then decay. But the plate shines on, generation after generation. It doesn't change; our hammers and our graving tools break against it; the little heat we can generate leaves it unharmed. That plate wasn't formed in our universe—and that one fact makes every word on it important to me. Someone went to a great deal of trouble to make those plates indestructible, and to give them to us. Someone to whom the word 'stars' was important enough to be worth fourteen repetitions, despite the fact that the word doesn't seem to mean anything. I'm ready to think that if our makers repeated a word even twice on a record that seems likely to last forever, then it's important for us to know what it means."

Lavon stood up once more.

"All these extra universes and huge shallops and meaningless words—I can't say that they don't exist, but I don't see what difference it makes," he said. "The Shars of a few generations ago spent their whole lives breeding better algae crops for us, and showing us how to cultivate them, instead of living haphazardly on bacteria. Farther back, the Shars devised war engines, and war plans. All that was work worth doing. The Lavons of those days evidently got along without the metal plate and its puzzles, and saw to it that the Shars did, too. Well, as far as I'm concerned, you're welcome to the plate, if you like it better than crop improvement—but I think it ought to be thrown away."

"All right," Shar said, shrugging. "If you don't want it, that ends the traditional interview. We'll go our—"

There was a rising drone from the tabletop. The Para was lifting itself, waves of motion passing over its cilia, like the waves which went silently across the fruiting stalks of the fields of delicate fungi with which the Bottom was planted. It had been so silent that Lavon had forgotten it; he could tell from Shar's startlement that Shar had, too.

"This is a great decision," the waves of sound washing from the creature throbbed. "Every Proto has heard it, and agrees with it. We have been afraid of this metal plate for a long time, afraid that men would learn to

understand it and follow what it says to some secret place, leaving the Protos behind. Now we are not afraid."

"There wasn't anything to be afraid of," Lavon said indulgently.

"No Lavon before you, Lavon, had ever said so," the Para said. "We are glad. We will throw the plate away, as Lavon orders."

With that, the shining creature swooped toward the embrasure. With it, it bore away the remaining plate, which had been resting under it on the tabletop, suspended delicately in the curved tips of its supple ventral cilia. Inside its pellucid body, vacuoles swelled to increase its buoyancy and enable it to carry the heavy weight.

With a cry, Shar plunged through the water toward the window.

"Stop, Para!"

But Para was already gone, so swiftly that it had not even heard the call. Shar twisted his body and brought up one shoulder against the tower wall. He said nothing. His face was enough. Lavon could not look into it for more than an instant.

The shadows of the two men began to move slowly along the uneven cobbled floor. The Noc descended toward them from the vault, its tentacle stirring the water, its internal light flaring and fading irregularly. It, too, drifted through the window after its cousin, and sank slowly away toward the Bottom. Gently its living glow dimmed, flickered in the depths, and winked out.

II

For many days, Lavon was able to avoid thinking much about the loss. There was always a great deal of work to be done. Maintenance of the castles was a never-ending task. The thousand dichotomously-branching wings tended to crumble with time, especially at their bases where they sprouted from one another, and no Shar had yet come forward with a mortar as good as the rotifer-spittle which had once held them together. In addition, the breaking through of windows and the

construction of chambers in the early days had been haphazard and often unsound. The instinctive architecture of the Eaters, after all, had not been meant to meet the needs of human occupants.

And then there were the crops. Men no longer fed precariously upon passing bacteria snatched to the mouth; now there were the drifting mats of specific water-fungi and algae, and the mycelia on the Bottom, rich and nourishing, which had been bred by five generations of Shars. These had to be tended constantly to keep the strains pure, and to keep the older and less intelligent species of the Protos from grazing on them. In this latter task, to be sure, the more intricate and far-seeing Proto types cooperated, but men were needed to supervise.

There had been a time, after the war with the Eaters, when it had been customary to prey upon the slow-moving and stupid diatoms, whose exquisite and fragile glass shells were so easily burst, and who were unable to learn that a friendly voice did not necessarily mean a friend. There were still people who would crack open a diatom when no one else was looking, but they were regarded as barbarians, to the puzzlement of the Protos. The blurred and simple-minded speech of the gorgeously engraved plants had brought them into the category of community pets—a concept which the Protos were utterly unable to grasp, especially since men admitted that diatoms on the half-frustrule were delicious.

Lavon had had to agree, very early, that the distinction was tiny. After all, humans did eat the desmids, which differed from the diatoms only in three particulars: their shells were flexible, they could not move (and for that matter neither could all but a few groups of diatoms), and they did not speak. Yet to Lavon, as to most men, there did seem to be some kind of distinction, whether the Protos could see it or not, and that was that. Under the circumstances he felt that it was a part of his duty, as the hereditary leader of men, to protect the diatoms from the occasional poachers who browsed upon them, in defiance of custom, in the high levels of the sunlit sky.

Yet Lavon found it impossible to keep himself busy

enough to forget that moment when the last clues to Man's origin and destination had been seized, on authority of his own careless exaggeration, and borne away into dim space.

It might be possible to ask Para for the return of the plate, explain that a mistake had been made. The Protos were creatures of implacable logic, but they respected men, were used to illogic in men, and might reverse their decision if pressed—

We are sorry. The plate was carried over the bar and released in the gulf. We will have the Bottom there searched, but . . .

With a sick feeling he could not repress, Lavon knew that that would be the answer, or something very like it. When the Protos decided something was worthless, they did not hide it in some chamber like old women. They threw it away—efficiently.

Yet despite the tormenting of his conscience, Lavon was nearly convinced that the plate was well lost. What had it ever done for Man, except to provide Shars with useless things to think about in the late seasons of their lives? What the Shars themselves had done to benefit Man, here, in the water, in the world, in the universe, had been done by direct experimentation. No bit of useful knowledge had ever come from the plates. There had never been anything in the second plate, at least, but things best left unthought. The Protos were right.

Lavon shifted his position on the plant frond, where he had been sitting in order to overlook the harvesting of an experimental crop of blue-green, oil-rich algae drifting in a clotted mass close to the top of the sky, and scratched his back gently against the coarse bole. The Protos were seldom wrong, after all. Their lack of creativity, their inability to think an original thought, was a gift as well as a limitation. It allowed them to see and feel things at all times as they were—not as they hoped they might be, for they had no ability to hope, either.

“La-von! Laa-vah-on!”

The long halloo came floating up from the sleepy depths. Propping one hand against the top of the frond, Lavon bent and looked down. One of the harvesters was looking up at him, holding loosely the adze with

which he had been splitting free from the raft the glutinous tetrads of the algae.

"I'm up here. What's the matter?"

"We have the ripened quadrant cut free. Shall we tow it away?"

"Tow it away," Lavon said, with a lazy gesture. He leaned back again. At the same instant, a brilliant reddish glory burst into being above him, and cast itself down toward the depths like mesh after mesh of the finest-drawn gold. The great light which lived above the sky during the day, brightening or dimming according to some pattern no Shar ever had fathomed, was blooming again.

Few men, caught in the warm glow of that light, could resist looking up at it—especially when the top of the sky itself wrinkled and smiled just a moment's climb or swim away. Yet, as always, Lavon's bemused upward look gave him back nothing but his own distorted, bobbling reflection, and a reflection of the plant on which he rested.

Here was the upper limit, the third of the three surfaces of the universe. The first surface was the Bottom, where the water ended.

The second surface was the thermocline, definite enough in summer to provide good sledding but easily penetrable if you knew how.

The third surface was the sky. One could no more pass through that surface than one could penetrate the Bottom, nor was there any better reason to try. There the universe ended. The light which played over it daily, waxing and waning as it chose, seemed to be one of its properties.

Toward the end of the season, the water gradually became colder and more difficult to breathe, while at the same time the light grew duller and stayed for shorter periods between darknesses. Slow currents started to move. The high waters turned chill and started to fall. The Bottom mud stirred and smoked away, carrying with it the spores of the fields of fungi. The thermocline tossed, became choppy, and melted away. The sky began to fog with particles of soft silt carried up

from the Bottom, the walls, the corners of the universe. Before very long, the whole world was cold, inhospitable, flocculent with yellowing, dying creatures. The world died until the first tentative current of warm water broke the winter silence.

That was how it was when the second surface vanished. If the sky were to melt away . . .

"Lavon!"

Just after the long call, a shining bubble rose past Lavon. He reached out and poked it, but it bounded away from his sharp thumb. The gas bubbles which rose from the Bottom in late summer were almost invulnerable—and when some especially hard blow or edge did penetrate them, they broke into smaller bubbles which nothing could touch, leaving behind a remarkably bad smell.

Gas. There was no water inside a bubble. A man who got inside a bubble would have nothing to breathe.

But, of course, it was impossible to enter a bubble. The surface tension was too strong. As strong as Shar's metal plate. As strong as the top of the sky.

As strong as the top of the sky. And above that—once the bubble was broken—a world of gas instead of water? Were all worlds bubbles of water drifting in gas?

If it were so, travel between them would be out of the question, since it would be impossible to pierce the sky to begin with. Nor did the infant cosmography include any provisions for Bottoms for the worlds.

And yet some of the local creatures did burrow *into* the Bottom, quite deeply, seeking something in those depths which was beyond the reach of Man. Even the surface of the ooze, in high summer, crawled with tiny creatures for which mud was a natural medium. And though many of the entities with which man lived could not pass freely between the two countries of water which were divided by the thermocline, men could and did.

And if the new universe of which Shar had spoken existed at all, it had to exist beyond the sky, where the light was. Why could not the sky be passed, after all? The fact that bubbles could sometimes be broken showed

that the surface skin formed between water and gas wasn't completely invulnerable. Had it ever been tried?

Lavon did not suppose that one man could butt his way through the top of the sky, any more than he could burrow into the Bottom, but there might be ways around the difficulty. Here at his back, for instance, was a plant which gave every appearance of continuing beyond the sky; its upper fronds broke off and were bent back only by a trick of reflection.

It had always been assumed that the plants died where they touched the sky. For the most part, they did, for frequently the dead extension could be seen, leached and yellow, the boxes of its component cells empty, floating imbedded in the perfect mirror. But some were simply chopped off, like the one which sheltered him now. Perhaps that was only an illusion, and instead it soared indefinitely into some other place—some place where men might once have been born, and might still live . . .

Both plates were gone. There was only one other way to find out.

Determinedly, Lavon began to climb toward the wavering mirror of the sky. His thorn-thumbed feet trampled obliviously upon the clustered sheathes of fragile stippled diatoms. The tulip-heads of Vortae, placid and murmurous cousins of Para, retracted startledly out of his way upon coiling stalks, to make silly gossip behind him.

Lavon did not hear them. He continued to climb doggedly toward the light, his fingers and toes gripping the plant-bole.

"Lavon! Where are you going? Lavon!"

He leaned out and looked down. The man with the adze, a doll-like figure, was beckoning to him from a patch of blue-green retreating over a violet abyss. Dizzily he looked away, clinging to the bole; he had never been so high before. He had, of course, nothing to fear from falling, but the fear was in his heritage. Then he began to climb again.

After a while, he touched the sky with one hand. He stopped to breathe. Curious bacteria gathered about the base of his thumb where blood from a small cut was

fogging away, scattered at his gesture, and wriggled mindlessly back toward the dull red lure.

He waited until he no longer felt winded, and resumed climbing. The sky pressed down against the top of his head, against the back of his neck, against his shoulders. It seemed to give slightly, with a tough, frictionless elasticity. The water here was intensely bright, and quite colorless. He climbed another step, driving his shoulders against that enormous weight.

It was fruitless. He might as well have tried to penetrate a cliff.

Again he had to rest. While he panted, he made a curious discovery. All around the bole of the water plant, the steel surface of the sky curved upward, making a kind of sheathe. He found that he could insert his hand into it—there was almost enough space to admit his head as well. Clinging closely to the bole, he looked up into the inside of the sheathe, probing it with his injured hand. The glare was blinding.

There was a kind of soundless explosion. His whole wrist was suddenly encircled in an intense, impersonal grip, as if it were being cut in two. In blind astonishment, he lunged upward.

The ring of pain travelled smoothly down his upflung arm as he rose, was suddenly around his shoulders and chest. Another lunge and his knees were being squeezed in the circular vise. Another—

Something was horribly wrong. He clung to the bole and tried to gasp, but there was—nothing to breathe.

The water came streaming out of his body, from his mouth, his nostrils, the spiracles in his sides, spurting in tangible jets. An intense and fiery itching crawled over the surface of his body. At each spasm, long knives ran into him, and from a great distance he heard more water being expelled from his book-lungs in an obscene, frothy sputtering. Inside his head, a patch of fire began to eat away at the floor of his nasal cavity.

Lavon was drowning.

With a final convulsion, he kicked himself away from the splintery bole, and fell. A hard impact shook him; and then the water, who had clung to him so tightly

when he had first attempted to leave her, took him back with cold violence.

Sprawling and tumbling grotesquely, he drifted, down and down and down, toward the Bottom.

III

For many days, Lavon lay curled insensibly in his spore, as if in the winter sleep. The shock of cold which he had felt on re-entering his native universe had been taken by his body as a sign of coming winter, as it had taken the oxygen-starvation of his brief sojourn above the sky. The spore-forming glands had at once begun to function.

Had it not been for this, Lavon would surely have died. The danger of drowning disappeared even as he fell, as the air bubbled out of his lungs and readmitted the life-giving water. But for acute desiccation and third degree sunburn, the sunken universe knew no remedy. The healing amnionic fluid generated by the spore-forming glands, after the transparent amber sphere had enclosed him, offered Lavon his only chance.

The brown sphere, quiescent in the eternal winter of the Bottom, was spotted after some days by a prowling amoeba. Down there the temperature was always an even 4°, no matter what the season, but it was unheard of that a spore should be found there while the high epilimnion was still warm and rich in oxygen.

Within an hour, the spore was surrounded by scores of astonished Protos, jostling each other to bump their blunt eyeless prows against the shell. Another hour later, a squad of worried men came plunging from the castles far above to press their own noses against the transparent wall. Then swift orders were given.

Four Para grouped themselves about the amber sphere, and there was a subdued explosion as their trichocysts burst. The four Paras thrummed and lifted, tugging.

Lavon's spore swayed gently in the mud and then rose slowly, entangled in the fine web. Nearby, a Noc cast a cold pulsating glow over the operation, for the benefit of the baffled knot of men. The sleeping figure of Lavon,

head bowed, knees drawn up into its chest, revolved with an absurd solemnity inside the shell as it was removed.

"Take him to Shar, Para."

The young Shar justified, by minding his own business, the traditional wisdom with which his hereditary office had invested him. He observed at once that there was nothing he could do for the encysted Lavon which would not be classifiable as simple meddling.

He had the sphere deposited in a high tower room of his castle, where there was plenty of light and the water was warm, which should suggest to the estivating form that spring was again on the way. Beyond that, he simply sat and watched, and kept his speculations to himself.

Inside the spore, Lavon's body seemed to be rapidly shedding its skin, in long strips and patches. Gradually, his curious shrunkenness disappeared. His withered arms and legs and sunken abdomen filled out again.

The days went by while Shar watched. Finally he could discern no more changes, and, on a hunch, had the spore taken up to the topmost battlements of the tower, into the direct daylight.

An hour later, Lavon moved in his amber prison.

He uncurled and stretched, turned blank eyes up toward the light. His expression was that of a man who had not yet awakened from a ferocious nightmare. His whole body shone with a strange pink newness.

Shar knocked gently on the walls of the spore. Lavon turned his blind face toward the sound, life coming into his eyes. He smiled tentatively and braced his hands and feet against the inner wall of the shell.

The whole sphere fell abruptly to pieces with a sharp crackling. The amniotic fluid dissipated around him and Shar, carrying away with it the suggestive odor of a bitter struggle against death.

Lavon stood among the shards and looked at Shar silently. At last he said:

"Shar—I've been above the sky."

"I know," Shar said gently.

Again Lavon was silent. Shar said, "Don't be humble, Lavon. You've done an epoch-making thing. It

nearly cost you your life. You must tell me the rest—all of it."

"The rest?"

"You taught me a lot while you slept. Or are you still opposed to 'useless' knowledge?"

Lavon could say nothing. He no longer could tell what he knew from what he wanted to know. He had only one question left, but he could not utter it. He could only look dumbly into Shar's delicate face.

"You have answered me," Shar said, even more gently than before. "Come, my friend; join me at my table. We will plan our journey to the stars."

There were five of them around Shar's big table: Shar himself, Lavon, and the three assistants assigned by custom to the Shars from the families Than, Tanol, and Stravol. The duties of these three men—or, sometimes, women—under many previous Shars had been simple and onerous to put into effect in the field the genetic changes in the food crops which the Shar himself had worked out in little, in laboratory tanks and flats. Under other Shars more interested in metal-working or in chemistry, they had been smudged men—diggers, rock-splitters, fashioners and cleaners of apparatus.

Under Shar XVI, however, the three assistants had been more envied than usual among the rest of Lavon's people, for they seemed to do very little work of any kind. They spent long hours of every day talking with Shar in his chambers, poring over records, making minuscule scratch-marks on slate, or just looking intently at simple things about which there was no obvious mystery. Sometimes they actually worked with Shar in his laboratory, but mostly they just sat.

Shar XVI had, as a matter of fact, discovered certain rudimentary rules of inquiry which, as he explained it to Lavon, he had recognized as tools of enormous power. He had become more interested in passing these on to future workers than in the seductions of any specific experiment, the journey to the stars perhaps excepted. The Than, Tanol, and Stravol of his generation were having scientific method pounded into their heads,

a procedure they maintained was sometimes more painful than heaving a thousand rocks.

That they were the first of Lavon's people to be taxed with the problem of constructing a spaceship was, therefore, inevitable. The results lay on the table: three models, made of diatom-glass, strands of algae, flexible bits of cellulose, flakes of stonewort, slivers of wood, and organic glues collected from the secretions of a score of different plants and animals.

Lavon picked up the nearest one, a fragile spherical construction inside which little beads of dark-brown lava—actually bricks of rotifer-spittle painfully chipped free from the wall of an unused castle—moved freely back and forth in a kind of ball-bearing race. "Now whose is this one?" he said, turning the sphere curiously to and fro.

"That's mine," Tanol said. "Frankly, I don't think it comes anywhere near meeting all the requirements. It's just the only design I could arrive at that I think we could build with the materials and knowledge we have to hand now."

"But how does it work?"

"Hand it here a moment, Lavon. This bladder you see inside at the center, with the hollow spirogyra straws leading out from it to the skin of the ship, is a buoyancy tank. The idea is that we trap ourselves a big gas-bubble as it rises from the Bottom and install it in the tank. Probably we'll have to do that piecemeal. Then the ship rises to the sky on the buoyancy of the bubble. The little paddles, here along these two bands on the outside, rotate when the crew—that's these bricks you hear shaking around inside—walks a treadmill that runs around the inside of the hull; they paddle us over to the edge of the sky. I stole that trick from the way Didin gets about. Then we pull the paddles in—they fold over into slots, like this—and, still by weight-transfer from the inside, we roll ourselves up the slope until we're out in space. When we hit another world and enter the water again, we let the gas out of the tank gradually through the exhaust tubes represented by these straws, and sink down to a landing at a controlled rate."

"Very ingenious," Shar said thoughtfully. "But I can

foresee some difficulties. For one thing, the design lacks stability."

"Yes, it does," Tanol agreed. "And keeping it in motion is going to require a lot of footwork. But if we were to sling a freely-moving weight from the center of gravity of the machine, we could stabilize it at least partly. And the biggest expenditure of energy involved in the whole trip is going to be getting the machine up to the sky in the first place, and with this design that's taken care of—as a matter of fact, once the bubble's installed, we'll have to keep the ship tied down until we're ready to take off."

"How about letting the gas out?" Lavon said. "Will it go out through those little tubes when we want it to? Won't it just cling to the walls of the tubes instead? The skin between water and gas is pretty difficult to deform—to that I can testify."

Tanol frowned. "That I don't know. Don't forget that the tubes will be large in the real ship, not just straws as they are in the model."

"Bigger than a man's body?" Than said.

"No, hardly. Maybe as big though as a man's head, at the most."

"Won't work," Than said tersely. "I tried it. You can't lead a bubble through a pipe that small. As Lavon says, it clings to the inside of the tube and won't be budged unless you put pressure behind it—lots of pressure. If we build this ship, we'll just have to abandon it once we hit our new world; we won't be able to set it down anywhere."

"That's out of the question," Lavon said at once. "Putting aside for the moment the waste involved, we may have to use the ship again in a hurry. Who knows what the new world will be like? We're going to have to be able to leave it again if it turns out to be impossible to live in."

"Which is your model, Than?" Shar said.

"This one. With this design, we do the trip the hard way—crawl along the Bottom until it meets the sky, crawl until we hit the next world, and crawl wherever we're going when we get there. No aquabatics. She's treadmill-powered, like Tanol's, but not necessarily

man-powered; I've been thinking a bit about using motile diatoms. She steers by varying the power on one side or the other. For fine steering we can also hitch a pair of thongs to opposite ends of the rear axle and swivel her that way."

Shar looked closely at the tube-shaped model and pushed it experimentally along the table a little way. "I like that," he said presently. "It sits still when you want it to. With Than's spherical ship, we'd be at the mercy of any stray current at home or in the new world—and for all I know there may be currents of some sort in space, too, gas currents perhaps. Lavon, what do you think?"

"How would we build it?" Lavon said. "It's round in cross-section. That's all very well for a model, but how do you make a really big tube of that shape that won't fall in on itself?"

"Look inside, through the front window," Than said. "You'll see beams that cross at the center, at right angles to the long axis. They hold the walls braced."

"That consumes a lot of space," Stravol objected. By far the quietest and most introspective of the three assistants, he had not spoken until now since the beginning of the conference. "You've got to have free passage back and forth inside the ship. How are we going to keep everything operating if we have to be crawling around beams all the time?"

"All right, come up with something better," Than said, shrugging.

"That's easy. We bend hoops."

"Hoops!" Tanol said. "On *that* scale? You'd have to soak your wood in mud for a year before it would be flexible enough, and then it wouldn't have the strength you'd need."

"No, you wouldn't," Stravol said. "I didn't build a ship model, I just made drawings, and my ship isn't as good as Than's by a long distance. But my design for the ship is also tubular, so I did build a model of a hoop-bending machine—that's it on the table. You lock one end of your beam down in a heavy vise, like so, leaving the butt striking out on the other side. Then you tie up the other end with a heavy line, around this notch. Then you run your line around a windlass, and

five or six men wind up the windlass, like so. That pulls the free end of the beam down until the notch engages with this key-slot, which you've pre-cut at the other end. Then you unlock the vise, and there's your hoop; for safety you might drive a peg through the joint to keep the thing from springing open unexpectedly."

"Wouldn't the beam you were using break after it had bent a certain distance?" Lavon asked.

"Stock timber certainly would," Stravol said. "But for this trick you use *green* wood, not seasoned. Otherwise you'd have to soften your beam to uselessness, as Tanol says. But live wood will flex enough to make a good, strong, single-unit hoop—or if it doesn't, Shar, the little rituals with numbers that you've been teaching us don't mean anything after all!"

Shar smiled. "You can easily make a mistake in using numbers," he said.

"I checked everything."

"I'm sure of it. And I think it's well worth a trial. Anything else to offer?"

"Well," Stravol said, "I've got a kind of live ventilating system I think should be useful. Otherwise, as I said, Than's ship strikes me as the type we should build; my own's hopelessly cumbersome."

"I have to agree," Tanol said regretfully. "But I'd like to try putting together a lighter-than-water ship sometime, maybe just for local travel. If the new world is bigger than ours, it might not be possible to swim everywhere you might want to go."

"That never occurred to me," Lavon exclaimed. "Suppose the new world is twice, three times, eight times as big as ours? Shar, is there any reason why that couldn't be?"

"None that I know of. The history plate certainly seems to take all kinds of enormous distances practically for granted. All right, let's make up a composite design from what we have here. Tanol, you're the best draftsman among us, suppose you draw it up. Lavon, what about labor?"

"I've a plan ready," Lavon said. "As I see it, the people who work on the ship are going to have to be on the job full time. Building the vessel isn't going to be an

overnight task, or even one that we can finish in a single season, so we can't count on using a rotating force. Besides, this is technical work; once a man learns how to do a particular task, it would be wasteful to send him back to tending fungi just because somebody else has some time on his hands.

"So I've set up a basic force involving the two or three most intelligent hand-workers from each of the various trades. Those people I can withdraw from their regular work without upsetting the way we run our usual concerns, or noticeably increasing the burden on the others in a given trade. They will do the skilled labor, and stick with the ship until it's done. Some of them will make up the crew, too. For heavy, unskilled jobs, we can call on the various seasonal pools of unskilled people without disrupting our ordinary life."

"Good," Shar said. He leaned forward and rested linked hands on the edge of the table—although, because of the webbing between his fingers, he could link no more than the fingertips. "We've really made remarkable progress. I didn't expect that we'd have matters advanced a tenth as far as this by the end of this meeting. But maybe I've overlooked something important. Has anybody any more suggestions, or any questions?"

"I've got a question," Stravol said quietly.

"All right, let's hear it."

"Where are we going?"

There was quite a long silence. Finally Shar said: "Stravol, I can't answer that yet. I could say that we're going to the stars, but since we still have no idea what a star is, that answer wouldn't do you much good. We're going to make this trip because we've found that some of the fantastic things that the history plate says are really so. We know now that the sky can be passed, and that beyond the sky there's a region where there's no water to breathe, the region our ancients called 'space.' Both of these ideas always seemed to be against common sense, but nevertheless we've found that they're true.

"The history plate also says that there are other worlds than ours, and actually that's an easier idea to

accept, once you've found out that the other two are so. As for the stars—well, we just don't know yet, we haven't any information at all that would allow us to read the history plate on that subject with new eyes, and there's no point in making wild guesses unless we can test the guesses. The stars are in space, and presumably, once we're out in space, we'll see them and the meaning of the word will become clear. At least we can confidently expect to see some clues—look at all the information we got from Lavon's trip a few seconds above the sky!

"But in the meantime, there's no point in our speculating in a bubble. We think there are other worlds somewhere, and we're devising means to make the trip. The other questions, the pendant ones, just have to be put aside for now. We'll answer them eventually—there's no doubt in my mind about that. But it may take a long time."

Stravol grinned ruefully. "I expected no more. In a way, I think the whole project is crazy. But I'm in it right out to the end, all the same."

Shar and Lavon grinned back. All of them had the fever, and Lavon suspected that their whole enclosed universe would share it with them before long. He said:

"Then let's not waste a minute. There's still a huge mass of detail to be worked out, and after that, all the hard work will just have begun. Let's get moving!"

The five men arose and looked at each other. Their expressions varied, but in all their eyes there was in addition the same mixture of awe and ambition: the composite face of the shipwright and of the astronaut.

Then they went out, severally, to begin their voyages.

It was two winter sleeps after Lavon's disastrous climb beyond the sky that all work on the spaceship stopped. By then, Lavon knew that he had hardened and weathered into that temporarily ageless state a man enters after he has just reached his prime; and he knew also that there were wrinkles engraved on his brow, to stay and to deepen.

"Old" Shar, too, had changed, his features losing some of their delicacy as he came into his maturity. Though the wedge-shaped bony structure of his face

would give him a withdrawn and poetic look for as long as he lived, participation in the plan had given his expression a kind of executive overlay, which at best made it assume a mask-like rigidity, and at worst coarsened it somehow.

Yet despite the bleeding away of the years, the spaceship was still only a hulk. It lay upon a platform built above the tumbled boulders of the sandbar which stretched out from one wall of the world. It was an immense hull of pegged wood, broken by regularly spaced gaps through which the raw beams of its skeleton could be seen.

Work upon it had progressed fairly rapidly at first, for it was not hard to visualize what kind of vehicle would be needed to crawl through empty space without losing its water; Than and his colleagues had done that job well. It had been recognized, too, that the sheer size of the machine would enforce a long period of construction, perhaps as long as two full seasons; but neither Shar and his assistants or Lavon had anticipated any serious snag.

For that matter, part of the vehicle's apparent incompleteness was an illusion. About a third of its fittings were to consist of living creatures, which could not be expected to install themselves in the vessel much before the actual takeoff.

Yet time and time again, work on the ship had to be halted for long periods. Several times whole sections needed to be ripped out, as it became more and more evident that hardly a single normal, understandable concept could be applied to the problem of space travel.

The lack of the history plate, which the Para steadfastly refused to deliver up, was a double handicap. Immediately upon its loss, Shar had set himself to reproduce it from memory; but unlike the more religious of his ancestors, he had never regarded it as holy writ, and hence had never set himself to memorizing it word by word. Even before the theft, he had accumulated a set of variant translations of passages presenting specific experimental problems, which were stored in his library, carved in wood. Most of these translations, however, tended to contradict each other, and none of them re-

lated to spaceship construction, upon which the original had been vague in any case.

No duplicates of the cryptic characters of the original had ever been made, for the simple reason that there was nothing in the sunken universe capable of destroying the originals, nor of duplicating their apparently changeless permanence. Shar remarked too late that through simple caution they should have made a number of verbatim temporary records—but after generations of green-gold peace, simple caution no longer covers preparation against catastrophe. (Nor, for that matter, does a culture which has to dig each letter of its simple alphabet into pulpy water-logged wood with a flake of stonewort encourage the keeping of records in triplicate.)

As a result, Shar's imperfect memory of the contents of the history plate, plus the constant and millennial doubt as to the accuracy of the various translations, proved finally to be the worst obstacle to progress on the spaceship itself.

"Men must paddle before they can swim," Lavon observed belatedly, and Shar was forced to agree with him.

Obviously, whatever the ancients had known about the spaceship construction, very little of that knowledge was usable to a people still trying to build its first spaceship from scratch. In retrospect, it was not surprising that the great hulk rested incomplete upon its platform above the sand boulders, exuding a musty odor of wood steadily losing its strength, two generations after its flat bottom had been laid down.

The fat-faced young man who headed the strike delegation to Shar's chambers was Phil XX, a man two generations younger than Shar, four younger than Lavon. There were crow's-feet at the corners of his eyes, which made him look both like a querulous old man and like an infant spoiled in the spore.

"We're calling a halt to this crazy project," he said bluntly. "We've slaved away our youth on it, but now that we're our own masters, it's over, that's all. It's over."

"Nobody's compelled you," Lavon said angrily.

"Society does; our parents do," a gaunt member of

the delegation said. "But now we're going to start living in the real world. Everybody these days knows that there's no other world but this one. You oldsters can hang on to your superstitions if you like. We don't intend to."

Baffled, Lavon looked over at Shar. The scientist smiled and said, "Let them go, Lavon. We have no use for the fainthearted."

The fat-faced young man flushed. "You can't insult us into going back to work. We're through. Build your own ship to no place!"

"All right," Lavon said evenly. "Go on, beat it. Don't stand around here orating about it. You've made your decisions and we're not interested in your self-justifications. Goodbye."

The fat-faced young man evidently still had quite a bit of heroism to dramatize which Lavon's dismissal had short-circuited. An examination of Lavon's stony face, however, seemed to convince him that he had to take his victory as he found it. He and the delegation trailed ingloriously out the archway.

"Now what?" Lavon asked when they had gone. "I must admit, Shar, that I would have tried to persuade them. We do need the workers, after all."

"Not as much as they need us," Shar said tranquilly. "I know all those young men. I think they'll be astonished at the runty crops their fields will produce next season, after they have to breed them without my advice. Now, how many volunteers have you got for the crew of the ship?"

"Hundreds. Every youngster of the generation after Phil's wants to go along. Phil's wrong about the segment of the populace, at least. The project catches the imagination of the very young."

"Did you give them any encouragement?"

"Sure," Lavon said. "I told them we'd call on them if they were chosen. But you can't take that seriously! We'd do badly to displace our picked group of specialists with youths who have enthusiasm and nothing else."

"That's not what I had in mind, Lavon. Didn't I see a Noc in these chambers somewhere? Oh, there he is, asleep in the dome. Noc!"

The creature stirred its tentacle lazily.

"Noc, I've a message," Shar called. "The Protos are to tell all men that those who wish to go to the next world with the spaceship must come to the staging area right away. Say that we can't promise to take everyone, but that only those who help us to build the ship will be considered at all."

The Noc curled its tentacle again, and appeared to go back to sleep.

IV

Lavon turned from the arrangement of speaking-tube megaphones which was his control board and looked at Para. "One last try," he said. "Will you give us back the history plate?"

"No, Lavon. We have never denied you anything before. But this we must."

"You're going with us, though, Para. Unless you give us back the knowledge we need, you'll lose your life if we lose ours."

"What is one Para?" the creature said. "We are all alike. This cell will die; but the Protos need to know how you fare on this journey. We believe you should make it without the plate, for in no other way can we assess the real importance of the plate."

"Then you admit you still have it. What if you can't communicate with your fellows once we're out in space? How do you know that water isn't essential to your telepathy?"

The Proto was silent. Lavon stared at it a moment, then turned deliberately back to the speaking tubes. "Everyone hang on," he said. He felt shaky. "We're about to start. Stravol, is the ship sealed?"

"As far as I can tell, Lavon."

Lavon shifted to another megaphone. He took a deep breath. Already the water seemed stifling, although the ship hadn't moved.

"Ready with one-quarter power. . . . One, two, three, go."

The whole ship jerked and settled back into place again. The raphe diatoms along the under hull settled

into their niches, their jelly treads turning against broad endless belts of crude caddis-worm leather. Wooden gears creaked, stepping up the slow power of the creatures, transmitting it to the sixteen axles of the ship's wheels.

The ship rocked and began to roll slowly along the sand bar. Lavon looked tensely through the mica port. The world flowed painfully past him. The ship canted and began to climb the slope. Behind him, he could feel the electric silence of Shar, Para, and the two alternate pilots, Than and Stravol, as if their gaze were stabbing directly through his body and on out the port. The world looked different, now that he was leaving it. How had he missed all this beauty before

The slapping of the endless belts and the squeaking and groaning of the gears and axles grew louder as the slope steepened. The ship continued to climb, lurching. Around it, squadrons of men and Protos dipped and wheeled, escorting it toward the sky.

Gradually the sky lowered and pressed down toward the top of the ship.

"A little more work from your diatoms, Tanol," Lavon said. "Boulder ahead." The ship swung ponderously. "All right, slow them up again. Give us a shove from your side, Tol—no, that's too much—there, that's it. Back to normal; you're still turning us! Tanol, give us one burst to line up again. Good. All right, steady drive on all sides. It shouldn't be long now."

"How can you think in webs like that?" the Para wondered behind him.

"I just do, that's all. It's the way men think. Overseers, a little more thrust now; the grade's getting steeper."

The gears groaned. The ship nosed up. The sky brightened in Lavon's face. Despite himself, he began to be frightened. His lungs seemed to burn, and in his mind he felt his long fall through nothingness toward the chill slap of the water as if he were experiencing it for the first time. His skin itched and burned. Could he go up there again? Up there into the burning void, the great gasping agony where no life should go?

The sand bar began to level out and the going be-

came a little easier. Up here, the sky was so close that the lumbering motion of the huge ship disturbed it. Shadows of wavelets ran across the sand. Silently, the thick-barreled bands of blue-green algae drank in the light and converted it to oxygen, writhing in their slow mindless dance just under the long mica skylight which ran along the spine of the ship. In the hold, beneath the latticed corridor and cabin floors, whirring Vortae kept the ship's water in motion, fueling themselves upon drifting organic particles.

One by one, the figures wheeling outside about the ship waved arms of cilia and fell back, coasting down the slope of the sand bar toward the familiar world, dwindling and disappearing. There was at last only one single Euglena, half-plant cousin of the Protos, forging along beside the spaceship into the marshes of the shallows. It loved the light, but finally it, too, was driven away into deeper, cooler waters, its single whiplike tentacle undulating placidly as it went. It was not very bright, but Lavon felt deserted when it left.

Where they were going, though, none could follow.

Now the sky was nothing but a thin, resistant skin of water coating the top of the ship. The vessel slowed, and when Lavon called for more power, it began to dig itself in among the sandgrains and boulders.

"That's not going to work," Shar said tensely. "I think we'd better step down the gear-ratio, Lavon, so you can apply stress more slowly."

"All right," Lavon agreed. "Full stop, everybody. Shar, will you supervise gear-changing, please?"

Insane brilliance of empty space looked Lavon full in the face just beyond his big mica bull's-eye. It was maddening to be forced to stop here upon the threshold of infinity; and it was dangerous, too. Lavon could feel building in him the old fear of the outside. A few moments more of inaction, he knew with a gathering coldness in his belly, and he would be unable to go through with it.

Surely, he thought, there must be a better way to change gear-ratios than the traditional one, which involved dismantling almost the entire gear-box. Why couldn't a number of gears of different sizes be carried

on the same shaft, not necessarily all in action at once, but awaiting use simply by shoving the axle back and forth longitudinally in its sockets? It would still be clumsy, but it could be worked on orders from the bridge and would not involve shutting down the entire machine—and throwing the new pilot into a blue-green funk.

Shar came lunging up through the trap and swam himself to a stop.

"All set," he said. "The bid reduction gears aren't taking the strain too well, though."

"Splintering?"

"Yes. I'd go it slow at first."

Lavon nodded mutely. Without allowing himself to stop, even for a moment, to consider the consequences of his words, he called: "Half power."

The ship hunched itself down again and began to move, very slowly indeed, but more smoothly than before. Overhead, the sky thinned to complete transparency. The great light came blasting in. Behind Lavon there was an uneasy stir. The whiteness grew at the front ports.

Again the ship slowed, straining against the blinding barrier. Lavon swallowed and called for more power. The ship groaned like something about to die. It was now almost at a standstill.

"More power," Lavon ground out.

Once more, with infinite slowness, the ship began to move. Gently, it tilted upward.

Then it lunged forward and every board and beam in it began to squall.

"Lavon! Lavon!"

Lavon started sharply at the shout. The voice was coming at him from one of the megaphones, the one marked for the port at the rear of the ship.

"Lavon!"

"What is it? Stop your damn yelling."

"I can see the top of the sky! From the *other* side, from the top side! It's like a big flat sheet of metal. We're going away from it. We're above the sky, Lavon, we're above the sky!"

Another violent start swung Lavon around toward

the forward port. On the outside of the mica, the water was evaporating with shocking swiftness, taking with it strange distortions and patterns made of rainbows.

Lavon saw space.

It was at first like a deserted and cruelly dry version of the Bottom. There were enormous boulders, great cliffs, tumbled, split, riven, jagged rocks going up and away in all directions, as if scattered at random by some giant.

But it had a sky of its own—a deep blue dome so far away that he could not believe in, let alone estimate, what its distance might be. And in this dome was a ball of reddish-white fire that seared his eyeballs.

The wilderness of rock was still a long way away from the ship, which now seemed to be resting upon a level, glistening plain. Beneath the surface-shine, the plain seemed to be made of sand, nothing but familiar sand, the same substance which had heaped up to form a bar in Lavon's universe, the bar along which the ship had climbed. But the glassy, colorful skin over it—

Suddenly Lavon became conscious of another shout from the megaphone banks. He shook his head savagely and said, "What is it now?"

"Lavon, this is Tol. What have you gotten us into? The belts are locked. The diatoms can't move them. They aren't faking, either; we've rapped them hard enough to make them think we were trying to break their shells, but they still can't give us more power."

"Leave them alone," Lavon snapped. "They can't fake; they haven't enough intelligence. If they say they can't give you more power, they can't."

"Well, then, you get us out of it."

Shar came forward to Lavon's elbow. "We're on a spacewater interface, where the surface tension is very high," he said softly. "If you order the wheels pulled up now, I think we'll make better progress for a while on the belly tread."

"Good enough," Lavon said with relief. "Hello below—haul up the wheels."

"For a long while," Shar said, "I couldn't understand the reference of the history plate to 'retractable landing gear,' but it finally occurred to me that the tension along

a space-mud interface would hold any large object pretty tightly. That's why I insisted on our building the ship so that we could lift the wheels."

"Evidently the ancients knew their business after all, Shar."

Quite a few minutes later—for shifting power to the belly treads involved another setting of the gear box—the ship was crawling along the shore toward the tumbled rock. Anxiously, Lavon scanned the jagged, threatening wall for a break. There was a sort of rivulet off toward the left which might offer a route, though a dubious one, to the next world. After some thought, Lavon ordered his ship turned toward it.

"Do you suppose that thing in the sky is a 'star'?" he asked. "But there were supposed to be lots of them. Only one is up there—and one's plenty for my taste."

"I don't know," Shar admitted. "But I'm beginning to get a picture of the way the universe is made, I think. Evidently our world is a sort of cup in the Bottom of this huge one. This one has a sky of its own; perhaps it, too, is only a cup in the Bottom of a still huger world, and so on and on without end. It's a hard concept to grasp, I'll admit. Maybe it would be more sensible to assume that all the worlds are cups in this one common surface, and that the great light shines on them all impartially."

"Then what makes it go out every night, and dim even in the day during winter?" Lavon demanded.

"Perhaps it travels in circles, over first one world, then another. How could I know yet?"

"Well, if you're right, it means that all we have to do is crawl along here for a while, until we hit the top of the sky of another world," Lavon said. "Then we dive in. Somehow it seems too simple, after all our preparations."

Shar chuckled, but the sound did not suggest that he had discovered anything funny. "Simple? Have you noticed the temperature yet?"

Lavon had noticed it, just beneath the surface of awareness, but at Shar's remark he realized that he was gradually being stifled. The oxygen content of the water, luckily, had not dropped, but the temperature sug-

gested the shallows in the last and worst part of autumn. It was like trying to breathe soup.

"Than, give us more action from the Vortae," Lavon said. "This is going to be unbearable unless we get more circulation."

There was a reply from Than, but it came to Lavon's ears only as a mumble. It was all he could do now to keep his attention on the business of steering the ship.

The cut or defile in the scattered razor-edged rocks was a little closer, but there still seemed to be many miles of rough desert to cross. After a while, the ship settled into a steady, painfully slow crawling, with less pitching and jerking than before, but also with less progress. Under it, there was now a sliding, grinding sound, rasping against the hull of the ship itself, as if it were treadmilling over some coarse lubricant the particles of which were each as big as a man's head.

Finally Shar said, "Lavon, we'll have to stop again. The sand this far up is dry, and we're wasting energy using the tread."

"Are you sure we can take it?" Lavon asked, gasping for breath. "At least we are moving. If we stop to lower the wheels and change gears again, we'll boil."

"We'll boil if we don't," Shar said calmly. "Some of our algae are dead already and the rest are withering. That's a pretty good sign that we can't take much more. I don't think we'll make it into the shadows, unless we do change over and put on some speed."

There was a gulping sound from one of the mechanics. "We ought to turn back," he said raggedly. "We were never meant to be out here in the first place. We were made for the water, not for this hell."

"We'll stop," Lavon said, "but we're not turning back. That's final."

The words made a brave sound, but the man had upset Lavon more than he dared to admit, even to himself. "Shar," he said, "make it fast, will you?"

The scientist nodded and dived below.

The minutes stretched out. The great red-gold globe in the sky blazed and blazed. It had moved down the sky, far down, so that the light was pouring into the ship directly in Lavon's face, illuminating every floating

particle, its rays like long milky streamers. The currents of water passing Lavon's cheek were almost hot.

How could they dare go directly forward into that inferno? The land directly under the "star" must be even hotter than it was here.

"Lavon! Look at Para!"

Lavon forced himself to turn and look at his Proto ally. The great slipper had settled to the deck where it was lying with only a feeble pulsation of its cilia. Inside, its vacuoles were beginning to swell, to become bloated, pear-shaped bubbles, crowding the granulated cytoplasm, pressing upon the dark nuclei.

"Is . . . is he dying?"

"This cell is dying," Para said, as coldly as always. "But go on—go on. There is much to learn, and you may live, even though we do not. Go on."

"You're—for us now?" Lavon whispered.

"We have always been for you. Push your folly to the uttermost. We will benefit in the end, and so will Man."

The whisper died away. Lavon called the creature again, but it did not respond.

There was a wooden clashing from below, and then Shar's voice came tinnily from one of the megaphones. "Lavon, go ahead! The diatoms are dying, too, and then we'll be without power. Make it as quickly and directly as you can."

Grimly, Lavon leaned forward. "The 'star' is directly over the land we're approaching."

"It is? It may go lower still and the shadows will get longer. That may be our only hope."

Lavon had not thought of that. He rasped into the banked megaphones. Once more, the ship began to move, a little faster now, but seemingly still at a crawl. The thirty-two wheels rumbled.

It got hotter.

Steadily, with a perceptible motion, the "star" sank in Lavon's face. Suddenly a new terror struck him. Suppose it should continue to go down until it was gone entirely? Blasting though it was now, it was the only source of heat. Would not space become bitter cold on the instant—and the ship an expanding, bursting block of ice?

The shadows lengthened menacingly, stretching across the desert toward the forward-rolling vessel. There was no talking in the cabin, just the sound of ragged breathing and the creaking of the machinery.

Then the jagged horizon seemed to rush upon them. Stony teeth cut into the lower rim of the ball of fire, devoured it swiftly. It was gone.

They were in the lee of the cliffs. Lavon ordered the ship turned to parallel the rock-line; it responded heavily, sluggishly. Far above, the sky deepened steadily, from blue to indigo.

Shar came silently up through the trap and stood beside Lavon, studying that deepening color and the lengthening of the shadows down the beach toward their own world. He said nothing, but Lavon was sure that the same chilling thought was in his mind.

"Lavon."

Lavon jumped. Shar's voice had iron in it. "Yes?"

"We'll have to keep moving. We must make the next world, wherever it is, very shortly."

"How can we dare move when we can't see where we're going? Why not sleep it over—if the cold will let us?"

"It will let us," Shar said. "It can't get dangerously cold up here. If it did, the sky—or what we used to think of as the sky—would have frozen over every night, even in summer. But what I'm thinking about is the water. The plants will go to sleep now. In our world that wouldn't matter; the supply of oxygen there is enough to last through the night. But in this confined space, with so many creatures in it and no supply of fresh water, we will probably smother."

Shar seemed hardly to be involved at all, but spoke rather with the voice of implacable physical laws.

"Furthermore," he said, staring unseeingly out at the raw landscape, "the diatoms are plants, too. In other words, we must stay on the move for as long as we have oxygen and power—and pray that we make it."

"Shar, we had quite a few Protos on board this ship once. And Para there isn't quite dead yet. If he were, the cabin would be intolerable. The ship is nearly sterile of bacteria, because all the Protos have been eating

them as a matter of course and there's no outside supply of them, either. But still and all there would have been some decay."

Shar bent and tested the pellicle of the motionless Para with a probing finger. "You're right, he's still alive. What does that prove?"

"The Vortae are also alive; I can feel the water circulating. Which proves that it wasn't the heat that hurt Para. It *was the light*. Remember how badly my skin was affected after I climbed beyond the sky? Undiluted starlight is deadly. We should add that to the information from the plate."

"I still don't get the point."

"It's this: We've got three or four Noc down below. They were shielded from the light, and so must be still alive. If we concentrate them in the diatom galleys, the dumb diatoms will think it's still daylight and will go on working. Or we can concentrate them up along the spine of the ship, and keep the algae putting out oxygen. So the question is: Which do we need more, oxygen or power? Or can we split the difference?"

Shar actually grinned. "A brilliant piece of thinking. We may make a Shar out of you some day, Lavon. No, I'd say that we can't split the difference. Noc's light isn't intense enough to keep the plants making oxygen; I tried it once, and the oxygen production was too tiny to matter. Evidently the plants use the light for energy. So we'll have to settle for the diatoms for motive power."

"All right. Set it up that way, Shar."

Lavon brought the vessel away from the rocky lee of the cliff, out onto the smoother sand. All trace of direct light was now gone, although there was still a soft, general glow on the sky.

"Now then," Shar said thoughtfully, "I would guess that there's water over there in the canyon, if we can reach it. I'll go below again and arrange—"

Lavon gasped.

"What's the matter?"

Silently, Lavon pointed, his heart pounding.

The entire dome of indigo above them was spangled with tiny, incredible brilliant lights. There were hundreds of them, and more and more were becoming visible as

the darkness deepened. And far away, over the ultimate edge of the rocks, was a dim red globe, crescented with ghostly silver. Near the zenith was another such body, much smaller, and silvered all over . . .

Under the two moons of Hydrot, and under the eternal stars, the two-inch wooden spaceship and its microscopic cargo toiled down the slope toward the drying little rivulet.

V

The ship rested on the Bottom of the canyon for the rest of the night. The great square doors were unsealed and thrown open to admit the raw, irradiated, life-giving water from outside—and the wriggling bacteria which were fresh food.

No other creatures approached them, either out of curiosity or for hunting, while they slept, although Lavon had posted guards at the doors just in case. Evidently, even up here on the very floor of space, highly organized creatures were quiescent at night.

But when the first flush of light filtered through the water, trouble threatened.

First of all, there was the bug-eyed monster. The thing was green and had two snapping claws, either one of which could have broken the ship in two like a spirogyra strand. Its eyes were black and globular, on the ends of short columns, and its long feelers were thicker through than a plant bole. It passed in a kicking fury of motion, however, never noticing the ship at all.

"Is that—a sample of the kind of life they have here?" Lavon whispered. "Does it all run as big as that?" Nobody answered, for the very good reason that nobody knew.

After a while, Lavon risked moving the ship forward against the current, which was slow but heavy. Enormous writhing worms whipped past them. One struck the hull a heavy blow, then thrashed on obliviously.

"They don't notice us," Shar said. "We're too small. Lavon, the ancients warned us of the immensity of space, but even when you see it, it's impossible to grasp.

And all those stars—can they mean what I think they mean? It's beyond thought, beyond belief!"

"The Bottom's sloping," Lavon said, looking ahead intently. "The walls of the canyon are retreating, and the water's becoming rather silty. Let the stars wait, Shar; we're coming toward the entrance of our new world."

Shar subsided moodily. His vision of space apparently had disturbed him, perhaps seriously. He took little notice of the great thing that was happening, but instead huddled worriedly over his own expanding speculations. Lavon felt the old gap between their minds widening once more.

Now the Bottom was tilting upward again. Lavon had no experience with delta-formation, for no rivulets left his own world, and the phenomenon worried him. But his worries were swept away in wonder as the ship topped the rise and nosed over.

Ahead, the Bottom sloped away again, indefinitely, into glimmering depths. A proper sky was over them once more, and Lavon could see small rafts of plankton floating placidly beneath it. Almost at once, too, he saw several of the smaller kinds of Protos, a few of which were already approaching the ship—

Then the girl came darting out of the depths, her features blurred and distorted with distance and terror. At first she did not seem to see the ship at all. She came twisting and turning lithely through the water, obviously hoping only to throw herself over the mound of the delta and into the savage streamlet beyond.

Lavon was stunned. Not that there were men here—he had hoped for that, had even known somehow that men were everywhere in the universe—but at the girl's single-minded flight toward suicide.

"What—"

Then a dim buzzing began to grow in his ears, and he understood.

"Shar! Than! Stravol!" he bawled. "Break out crossbows and spears! Knock out all the windows!" He lifted a foot and kicked through the port in front of him. Someone thrust a crossbow into his hand.

"What?" Shar blurted. "What's the matter? What's happening?"

"Eaters!"

The cry went through the ship like a galvanic shock. The rotifers back in Lavon's own world were virtually extinct, but everyone knew thoroughly the grim history of the long battle man and Proto had waged against them.

The girl spotted the ship suddenly and paused, obviously stricken with despair at the sight of this new monster. She drifted with her own momentum, her eyes alternately fixed upon the ship and jerking back over her shoulder, toward where the buzzing snarled louder and louder in the dimness.

"Don't stop!" Lavon shouted. "This way, this way! We're friends! We'll help!"

Three great semi-transparent trumpets of smooth flesh bored over the rise, the many thick cilia of their coronas whirring greedily. Dicrans, arrogant in their flexible armor, quarreling thickly among themselves as they moved, with the few blurred, pre-symbolic noises which made up their own language.

Carefully, Lavon wound the crossbow, brought it to his shoulder, and fired. The bolt sang away through the water. It lost momentum rapidly, and was caught by a stray current which brought it closer to the girl than to the Eater at which Lavon had aimed.

He bit his lip, lowered the weapon, wound it up again. It did not pay to underestimate the range; he would have to wait. Another bolt, cutting through the water from a side port, made him issue orders to cease firing "until," he added, "you can see their eyespots."

The irruption of the rotifers decided the girl. The motionless wooden monster was of course strange to her, but it had not yet menaced her—and she must have known what it would be like to have three Dicrans over her, each trying to grab from the others the largest share. She threw herself toward the bull's-eye port. The three Eaters screamed with fury and greed and bored in after her.

She probably would have not made it, had not the dull vision of the lead Dicran made out the wooden

shape of the ship at the last instant. The Dicran backed off, buzzing, and the other two sheered away to avoid colliding with her. After that they had another argument, though they could hardly have formulated what it was that they were fighting about; they were incapable of exchanging any thought much more complicated than the equivalent of "Yaah," "Drop dead," and "You're another."

While they were still snarling at each other, Lavon pierced the nearest one all the way through with an arblast bolt. The surviving two were at once involved in a lethal battle over the remains.

"Than, take a party out and spear me those two Eaters while they're still fighting," Lavon ordered. "Don't forget to destroy their eggs, too. I can see that this world needs a little taming."

The girl shot through the port and brought up against the far wall of the cabin, flailing in terror. Lavon tried to approach her, but from somewhere she produced a flake of stonewort chipped to a nasty point. Since she was naked, it was hard to tell where she had been hiding it, but she obviously knew how to use it, and meant to. Lavon retreated and sat down on the stool before his control board, waiting while she took in the cabin, Lavon, Shar, the other pilots, the senescent Para.

At last she said: "Are—you—the gods—from beyond the sky?"

"We're from beyond the sky, all right," Lavon said. "But we're not gods. We're human beings, just like you. Are there many humans here?"

The girl seemed to assess the situation very rapidly, savage though she was. Lavon had the odd and impossible impression that he should recognize her: a tall, deceptively relaxed, tawny woman, not after all quite like this one . . . a woman from another world, to be sure, but still . . .

She tucked the knife back into her bright, matted hair—aha, Lavon thought confusedly, there's a trick I may need to remember—and shook her head.

"We are few. The Eaters are everywhere. Soon they will have the last of us."

Her fatalism was so complete that she actually did not seem to care.

"And you've never cooperated against them? Or asked the Protos to help?"

"The Protos?" She shrugged. "They are as helpless as we are against the Eaters, most of them. We have no weapons that kill at a distance, like yours. And it's too late now for such weapons to do any good. We are too few, the Eaters too many."

Lavon shook his head emphatically. "You've had one weapon that counts, all along. Against it, numbers mean nothing. We'll show you how we've used it. You may be able to use it even better than we did, once you've given it a try."

The girl shrugged again. "We dreamed of such a weapon, but never found it. Are you telling the truth? What is the weapon?"

"Brains, of course," Lavon said. "Not just one brain, but a lot of them. Working together. Cooperation."

"Lavon speaks the truth," a weak voice said from the deck.

The Para stirred feebly. The girl watched it with wide eyes. The sound of the Para using human speech seemed to impress her more than the ship itself, or anything else that it contained.

"The Eaters can be conquered," the thin, burring voice said. "The Protos will help, as they helped in the world from which we came. The Protos fought this flight through space, and deprived Man of his records; but Man made the trip without the records. The Protos will never oppose Man again. We have already spoken to the Protos of this world, and have told them that what Man can dream, Man can do. Whether the Protos will it or not.

"Shar—your metal record is with you. It was hidden in the ship. My brothers will lead you to it.

"This organism dies now. It dies in confidence of knowledge, as an intelligent creature dies. Man has taught us this. There is nothing. That knowledge. Cannot do. With it . . . men . . . have crossed . . . have crossed space . . ."

The voice whispered away. The shining slipper did

not change, but something about it was gone. Lavon looked at the girl; their eyes met. He felt an unaccountable warmth.

"We have crossed space," Lavon repeated softly.

Shar's voice came to him across a great distance. The young-old man was whispering: "But—have we?"

Lavon was looking at the girl. He had no answer for Shar's question. It did not seem to be important.

Testament of Andros

Beside the hearth lie the ashes. There are voices in them. Listen:

MY NAME IS Theodor Andresson. I will write my story if you wish. I was at one time resident in astrophysics at Krajputnii, which I may safely describe as the greatest center of learning in the Middle East, perhaps of the entire Eastern Hemisphere. Later—until the chain of incidents which brought me to this *Zucht-Haus*—I was professor emeritus in radioastronomy at Calimyrna University, where I did the work leading to the discovery of the solar pulsation cycle.

I am sure that this work is not credited to me; that is of no importance. I would like it clearly understood that I am not making this record for your benefit, but for mine. Your request means nothing to me, and your pretense of interest in what I may write cannot deceive me. My erstwhile colleagues in the so-called sciences were masters of this kind of pretense. But they, too, were unable to prevent me from penetrating the masquerade at the end. How then does a simple doctor hope to succeed where the finest charlatanry has failed?

And what is allocation of credit—of what importance

is priority of discovery before the inexorability of the pulsation cycle? It will work to its new conclusion without regard for your beliefs, my colleagues', or mine. Neither the pretended solicitude nor the real metal bars with which you have surrounded me will matter after that.

I proceed, therefore, to the matter at hand. My position at Calimyrna in that remote time before the cycle was discovered befitted my age (eighty-four years) and the reputation I had achieved in my specialty. I was in excellent health, though subject occasionally to depressions of spirit, readily ascribable to my being in a still-strange land and to those scars inflicted upon me in earlier times.

Despite these fits of moodiness, I had every reason to be happy. My eminence in my field afforded me the utmost satisfaction. Despite poverty and persecution in youth, I had won through to security. I had married Marguerita L—, in her youth and mine the toast of twelve continents, not only for her beauty but for her voice. I can still hear now the sound of her singing as I heard it for the first time—singing, on the stage of La Scala in Moscow, the rapturous quartet from the second act of Wagner's *Tristan et Messalina*.

It is quite true—I admit it immediately and calmly—that there were certain flaws in my world, even at Calimyrna. I do not mean the distractions which in old age replace, in the ordinary man, the furies of youth, but rather certain faults and fissures which I found in the world outside myself.

Even a man of my attainments expects at some time to grow old, and to find that process changing the way in which he looks at the world around him. There comes a time, however, when even the most rational of men must notice when these changes exceed the bounds of reason, when they begin to become extraordinary, even sinister. Shall I be specific? Consider, then—quite calmly—the fact that Marguerita did not herself grow old.

I passed into my eighth decade without taking more than perfunctory notice. I was deeply involved in the solar work we were then carrying on at Calimyrna. I

had with me a young graduate student, a brilliant fellow of about thirty, who assisted me and who made certain original contributions of his own to the study. His name, and you will recognize it, was Mario di Ferruci. Calimyrna had completed its thousand-inch radiotelescope, the largest such antenna anywhere in the world, except for the 250-foot Manchester instrument. This was at once put to work in the search for so-called radio stars—those invisible bodies, many of them doubtless nearer to Earth than the nearest visible star, which can be detected only by their emission in the radio spectrum.

Completion of the thousand-inch freed the 600-inch paraboloid antenna for my use in solar work. The smaller instrument had insufficient beam width between half-power points for the critical stellar studies, but it was more suitable for my purpose.

I had in mind at that time a study of the disturbed sun. Hagen of the Naval Research Laboratory had already done the definitive study on the sun in its quiet state. I found myself more drawn to what goes on in the inferno of the sunspots—in the enormous, puzzling catastrophes of the solar flares—the ejection of immense radioactive clouds from the sun's interior high into its atmosphere.

It had already become clear that the radio-frequency emission from the disturbed sun was not, and could not be, thermal in origin, as is the RF emission of the quiet sun. The equivalent temperature of the disturbed sun in selected regions at times rises to billions of degrees, rendering the whole concept of thermal equivalency meaningless.

That the problem was not merely academic impressed me from the first. I have, if you will allow me the term, always had a sense of destiny, of *Schicksal*, an almost Spenglerian awareness of the pressure of fate against the retaining walls of human survival. It is not unique in me; I lay it to my Teutonic ancestry. And when I first encountered the problem of the disturbed sun, something within me felt that I had found destiny itself.

For here, just *here*, was the problem in which destiny was interested, in which some fateful answer awaited

the asking of the omnipotent question. I felt this from the moment I first opened Hagen's famous paper—NRL Report 3504—and the more deeply I became interested in the sun as an RF radiator, the more the sensation grew.

Yet how to describe it? I was eighty-four, and this was early in 1956. In all those preceding years I had not known that the mortal frame could sustain such an emotion. Shall I call it a sensation of enormous, unresolvable dread? But I felt at the same time an ecstasy beyond joy, beyond love, beyond belief. And these transports of rapture and terror did not alternate as do the moods of an insane man, but occurred simultaneously—they were one and the same emotion.

Nor did the solar flares prove themselves unworthy of such deep responses. Flares have been observed in many stars. Some of them have been major outbursts, as indeed they would have to be to be visible to us at all. That such a flare could never occur on our own sun, furthermore, could not be said with certainty, for flares are local phenomena—they expend their energy only on one side of a star, not in all directions like a nova—and we had already seen the great detonation of July 29, 1948, on our own sun, which reached an energy level one hundred times the output of the quiet sun, which showed that we did not dare to set limits to what our own sun might yet do.

It was here, however, that I ran into trouble with young di Ferruci. He persistently and stubbornly refused to accept the analogy.

"It's penny-dreadful," he would say, as he had said dozens of times before. "You remind me of Dr. Richardson's stories—you know, the ones he writes for those magazines, about the sun going nova and all that. Whenever it's cloudy at Palomar he dreams up a new catastrophe."

"Richardson is no fool," I would point out. "Other suns have exploded. If he wants to postulate that it could happen to ours, he has every right to do so."

"Sure, Dr. Andresson, in a story," di Ferruci would object. "But as a serious proposition it doesn't hold water. Our sun just isn't the spectral type that goes nova; it

hasn't ever even approached the critical instability percentage. It can't even produce a good flare of the Beta Centauri type."

"I don't expect it to go nova. But it's quite capable of producing a major flare, in my opinion. I expect to prove it."

Di Ferruci would shrug, as he always did. "I wouldn't ride any money on you, Dr. Andresson. But I'll be more than interested in what the telescope shows. Let's see what we have here right now. The thermocouple's been calibrated; shall I cut in the hot load?"

At this point—I am now reporting a particular incident, although it, too, was typical of many of these conversations—I became aware that Marguerita was in the observatory. I swung sharply around, considerably annoyed. My wife is innocent of astronomical knowledge, and her usually ill-timed obtrusions upon our routine—although I suppose they were born of the desire to "take an interest" in her husband's profession—were distracting.

Today, however, I was not only annoyed, but stunned. How had I failed to notice this before—I, who pride myself on the acuity of my observation? What stood before me was a young woman!

How shall I say how young? These things are relative. We had married when she was thirty-six and I was forty-four. A difference of eight years is virtually no difference during the middle decades, though it is enormous when both parties are young. Marguerita had been in no sense a child at the time of our marriage.

Yet now, as I was finding, a spread as small as eight years can become enormous when the dividing line of old age insensibly approaches. And the difference was even greater than this, for now Marguerita, as she stood looking down at our day's three-dimensional graph of solar activity, seemed no older to me than on the day I had first met her; a woman tall, graceful, lithe, platinum-haired, and with the somber, smoldering, unreadable face of Eve—and yet, compared to me now, a child in truth.

"Good afternoon, Mrs. Andresson," di Ferruci said, smiling.

She looked up and smiled back. "Good afternoon," she said. "I see you're about to take another series of readings. Don't let me interrupt you."

"That's quite all right; thus far it's routine," di Ferruci said. I glanced sidewise at him and then back to my wife. "We'd just begun to take readings to break up the monotony of the old argument."

"That's true," I said. "But it would be just as well if you didn't drop in on us unexpectedly, Marguerita. If this had been a critical stage—"

"I'm sorry," she said contritely. "I should have phoned, but I'm always afraid that the telephone will interrupt you, too. When I'm here I can hope to see whether or not you're busy—and you can see who's calling. The telephone has no eyes."

She touched the graph delicately. This graph, I should explain, is made of fourteen curves cut out in cardboard, and assembled so that one set of seven curved pieces is at right angles to the other set. It expresses the variation in intensity of RF emanation across the surface of the sun at the ten-centimeter wave length, where our readings commonly are taken; we make a new such model each day. It shows at a glance, by valley or peak, any deviation from the sun's normal output, thus helping us greatly in interpreting our results.

"How strange it looks today," she said. "It's always in motion, like a comber racing toward the shore. I keep expecting it to begin to break at the top."

Di Ferruci stopped tinkering with the drive clock and sat down before the control desk, his blue-black helmet of hair—only a little peppered by his memories of the Inchon landing—swiveling sharply toward her. I could not see his face. "What an eerie notion," he said. "Mrs. Andresson, you and the doctor'll have me sharing your presentiments of doom any minute now."

"It isn't a question of presentiments," I said sharply. "You should be aware by now, Mario, that in the RF range the sun is a variable star. Does that mean nothing to you? Let me ask you another question. How do you explain Eta Carina?"

"What's Eta Carina?" Marguerita said.

I did not know quite how to begin answering her, but di Ferruci, who lacked my intimate knowledge of her limitations, had no such qualms.

"It's a freak—one of the worst freaks of the past ten years," he said eagerly. "It's a star that's gone nova three times. The last time was in 1952, about a hundred years before the previous explosion. Before that it had an outburst in the 1600s, and it may have blown up about 142 A.D., too. Each time it gains in brightness nearly one hundred thousand times—as violent a stellar catastrophe as you can find anywhere in the records." He offered the data to her like a bouquet, and before I could begin to take offense, swung back upon me again. "Surely, Doc, you don't maintain that Eta Carina is a flare star?"

"All stars are flare stars," I said, looking steadily at him. His eyes were in shadow. "More than that: all stars are novae, in the long run. Young stars like our sun are variable only in the radio spectrum, but gradually they become more and more unstable, and begin to produce small flares. Then come the big flares, like the Beta Centauri outburst; then they go nova; and then the cycle begins again."

"Evidence?"

"Everywhere. The process goes on in little in the short-term variables, the Cepheids. Eta Carina shows how it works in a smaller, noncluster star. The other novae we've observed simply have longer periods—they haven't had time to go nova again within recorded history. *But they will.*"

"Well," di Ferruci said, "if that's so, Richardson's visions of our sun exploding seem almost pleasant. You see us being roasted gradually instead, in a series of hotter and hotter flares. When does the first one hit us, by your figures?"

Mario was watching me steadily. Perhaps I looked strange, for I was once again in the grip of that anomalous emotion, so impossible to describe, in which terror and ecstasy blended and fused into some whole beyond any possibility of communication. As I stated for the first time what I saw, and saw so clearly, was ahead for

us all, this deep radical emotion began to shake me as if I had stepped all unawares from the comfortable island of relative, weighable facts into some blastically cold ocean of Absolute Truth.

"I don't know," I said. "It needs checking. But I give us six months."

Marguerita's and di Ferruci's eyes met. Then he said, "Let's check it then. We should be able to find the instability threshold for each stage, from RR Lyrae stars right through classical Cepheids, long-periods, and irregulars to radio-variables. We already know the figure for novas. Let's dot the i's and cross the t's—and then find out where our sun stands."

"Theodor," Marguerita said, "what—what will happen if you're right?"

"Then the next flare will be immensely greater than the 1948 one. The Earth will survive it; life on Earth probably will not, certainly not human life."

Marguerita remained standing beside the model a moment longer, nursing the hand which had been touching it. Then she looked at me out of eyes too young for me to read, and left the observatory.

With a hasty word to di Ferruci, I followed her, berating myself as I went. Suspecting as I did the shortness of the span left to us, I had planned not to utter a word about what was in store in her presence; that was one of the reasons why I had objected to her visits to the observatory. There had simply been no reason to cloud our last months together with the shadow of a fate she could not understand.

But when I reached the top of the granite steps leading down to the road, she was gone—nor could I see either her figure or any sign of a car on the road which led down the mountain. She had vanished as completely as if she had never existed.

Needless to say, I was disturbed. There are cabins in the woods, only a short distance from the observatory proper, which are used by staff members as temporary residences. We had never made use of them—radioastronomy being an art which can be carried on by day better than by night—but nevertheless I checked

them systematically. It was inconceivable to me that she could be in the main observatory, but I searched that too, as well as the solar tower and the Schmidt shed.

She was nowhere. By the time I had finished searching, it was sunset and there was no longer any use in returning to my own instrument. I could only conclude that I had miscalculated the time lag between her exit and my pursuit, and that I would find her at home.

Yet somehow I did not go home. All during my search of the grounds another thought had been in my head! What if I was wrong? Suppose there was no solar pulsation cycle? Suppose my figures were meaningless? If this seems to be a strange thing for a man to be thinking, while searching for an inexplicably vanished wife, I can only say that the two subjects seemed to me to be somehow not unconnected.

And as it turned out, I was right. I have said that I have a sense of fate.

In the end, I went back to the observatory, now dark and, I supposed, deserted. But there was a light glowing softly inside, the evenly lit surface of the transparency viewer. Bent over it, his features floating eerily in nothingness, was Mario di Ferruci.

I groped for the switch, found it, and the fluorescents flashed on overhead. Mario straightened, blinking.

"Mario, what are you doing here? I thought you had left before sundown."

"I meant to," di Ferruci said slowly. "But I couldn't stop thinking about your theory. It isn't every day that one hears the end of the world announced by a man of your eminence. I decided I just had to run my own check, or else go nuts wondering."

"Why couldn't you have waited for me?" I said. "We could have done the work together much quicker and more easily."

"That's true," he said slowly. "But, Dr. Andresson, I'm just a graduate student, and you're a famous man, young as you are. I'm a little afraid of being overwhelmed—of missing an error because you've checked it already, or failing to check some point at all—that kind of thing. After all, we're all going to die if you're

right, and that's hardly a minor matter. So I thought I'd try paddling my own canoe. Maybe I'll find the world just as far up the creek as you do. But I had to try."

It took me a while to digest this, distracted as I already was. After a while I said, as calmly as I could: "And what have you found?"

"Dr. Andresson—you're wrong."

For an instant I could not see. All the red raw exploding universe of unstable stars went wheeling through my old head like maddened atoms. But I am a scientist. I conquered it.

"Wherein am I wrong?"

Di Ferruci took a deep breath. His face was white and set under the fluorescents. "Dr. Andresson, forgive me; this is a hard thing for me to say. But the error in your calcs is way the hell back in the beginning, in your thermodynamic assumptions. It lies in the step between the Chapman-Cowling expression, and your derivation for the coefficient of mutual diffusion. Your derivation is perfectly sound in classical thermodynamics, but that isn't what we have to deal with here. We're dealing instead with a completely ionized binary gas, where your quantity D_{12} becomes nothing more than a first approximation."

"I never called it anything else."

"Maybe not," di Ferruci said doggedly. "But your math handles it as an absolute. By the time your expanded equation fifty-eight is reached, you've lost a complete set of subscripts and your expressions for the electron of charge wind up all as odd powers! I'm not impugning your logic—it's fantastically brilliant—but insofar as it derives from the bracketed expression D_{12} it doesn't represent a real situation."

He stared at me, half-defiantly, half in a kind of anxiety the source of which I could not fathom. It had been many years since I was young; now I was gravid with death—his, mine, yours, Marguerita's, everyone's. I said only: "Let's check it again."

But we never had the chance; at that moment the door opened soundlessly, and Marguerita came back.

"Theodor, Mario!" she said breathlessly. "Are you trying to work yourselves to death? Let's all live to our

appointed times, whenever they come! Theodor, I was so frightened when you didn't come home—why didn't you call—”

“I'm not sure anyone would have answered,” I said grimly. “Or if someone had, I would have suspected her of being an impostor—or a teleport.”

She turned her strange look upon me. “I—don't understand you.”

“I hope you don't, Marguerita. We'll take that matter up in private. Right now we're making a check. Dr. di Ferruci was about to knock the solar pulsation theory to flinders when you entered.”

“Doc!” di Ferruci protested. “That wasn't the point at all. I just wanted to find—”

“Don't call me 'Doc'!”

“Very well,” di Ferruci said. His face became whiter still. “But I insist on finishing my sentence. I'm not out to kick apart your theory; I think it's a brilliant theory and that it may still very well be right. There are holes in your math, that's all. They're big holes and they need filling; maybe, between us we could fill them. But if you don't care enough to want to do the job, why should I?”

“Why, indeed?”

He stared at me with fury for a moment. Then he put his hand distractedly to his forehead, stood up slowly, and began to pace. “Look, Doc—Dr. Andresson. Believe me, I'm not hostile to the idea. It scares me, but that's only because I'm human. There's still a good chance that it's basically sound. If we could go to work on it now, really intensively, we might be able to have it in shape for the triple-A-S meeting in Chicago two months from now. It'd set every physicist, every astronomer, every scientist of any stripe on his ear!”

And there was the clue for which, all unconsciously, I had been waiting. “Indeed it would,” I said. “And for four months, old Dr. Andresson and young Dr. Ferruci would be famous, as perhaps no scientists had ever been famous before. Old Dr. Andresson has had his measure of fame and has lost his faith in it. But for young Dr. Ferruci, even four months would be a deep draft. For that he is willing to impugn his senior's work, to force endless conferences, to call everything into question—

all to get his own name added to the credits on the final paper."

"Theodor," Marguerita said. "Theodor, this isn't like you. If—"

"And there is even a touch of humor in this little playlet," I said. "The old man would have credited young Dr. Ferruci in the final paper in any case. The whole maneuver was for nothing."

"There was no maneuver," di Ferruci ground out, his fists clenched. The nervous movements of his hand across his forehead had turned his blue-black hair into a mare's nest. "I'm not an idiot. I know that if you're right, the whole world will be in ashes before the year is out—including any research papers which might carry my name, and any human eyes which might see them."

"What I want to do is to pin down this concept to the point where it's unassailable. The world will demand nothing less of it than that. *Then* it can be presented to the AAAS—and the world will have four months during which the best scientific brains on Earth can look for an out, a way to save at least a part of the race, even if only two people. What's fame to me, or anyone else, if this theory is right? Gas, just gas. But if we can make the world believe it, utterly and completely, then the world will find a loophole. Nothing less than the combined brains of the whole of science could do the job—and we won't get those brains to work unless we convince them!"

"Nonsense," I said calmly. "There is no 'out,' as you put it. But I'll agree that I looked deeper into you than I needed for a motive. Do you think that I have overlooked all these odd coincidences? Here is my wife, and here are you, both at improbable hours, neither of you expecting me; here is young Dr. di Ferruci interrupted at his task of stealing something more than just my work; here is Marguerita Andresson, emerged from wherever she has been hiding all evening, unable to believe that Earth's last picture is all but painted, but ready to help a young man with blue-black hair to steal the pretty notion and capitalize on it."

There was a faint sound from Marguerita. I did not look at her.

After a long while, di Ferruci said: "You are a great astronomer, Dr. Andresson. I owe you twenty years of inspiration from a distance, and five years of the finest training a master ever gave a tyro.

"You are also foul-minded, cruel-tongued, and very much mistaken. I resign from this University as of now; my obligation to you is wiped out by what you saw fit to say of me." He searched for his jacket, failed to find it, and gave up at once in trembling fury. "Good-bye, Mrs. Andresson, with my deepest sympathy. And Doc, good-bye—and God have mercy on you."

"Wait," I said. I moved then, after what seemed a century of standing frozen. The young man stopped, his hand halfway to the doorknob, and his back to me. Watching him, I found my way to a chart-viewer, and picked up the pair of six-inch dividers he had been using to check my charts.

"Well?" he said.

"It's not so easy as that, Mario. You don't walk out of a house with the stolen goods under your arm when the owner is present. A strong man armed keepeth his house. You may not leave. You may not take my hard-won theory to another university. You may not leave Hamelin with pipes in your hand. You may not carry both my heart and my brains out of this observatory as easily as you would carry a sack of potatoes. In short—you *may not leave!*"

I threw the points of the dividers high and launched my self soul and body at that hunched, broad back. Marguerita's sudden scream rang deafeningly as a siren in the observatory dome.

The rest you know.

I have been honest with you. Tell me, where have you hidden her now?

1. I, Andrew, a servant of the Sun, who also am your brother, he who was called and was sanctified, say unto you, blessed be he that readeth, and keepeth the word; for behold, the time is at hand; be thou content.

2. For behold, it was given to me, in the City of Angels, upon a high hill, to look upon His face; whereupon I fell down and wept.

3. And He said, I am the Be-All and End-All; I am the Being and the Becoming; except that they be pure, none shall look upon Me else they die, for the time is at hand. And when He had spoken thus, I was sore afraid.

4. And He said, Rise up, and go forth unto the peoples, and say thou, Unless thou repent, I will come to thee quickly, and shine My countenance upon thee. I shall loosen the seals, and sound the trumpets, and open the vials, and the deaths which shall come upon thee will be numbered as seven times seven.

5. The Sun shall become black as sackcloth of hair, and the moon become as blood; and the stars of heaven shall fall onto the earth, and the heaven depart as a scroll when it is rolled together, and every mountain and island be moved out of its place. And all men shall hide themselves and say to the mountains and rocks, Fall on us, and hide us from the face of Him that sitteth on the throne.

6. There will be hail and fire mingled with blood, and these cast upon the earth; a great mountain burning with fire shall be cast into the sea; and there will fall a great star from heaven, burning as it were a lamp, upon the fountains of waters; and the third part of the Sun shall be smitten, and the third part of the moon; and there shall arise a smoke out of the pit, so that the air and the day be darkened.

7. And if there be any who worship not Me, and who heed not, I say unto you all, woe, woe, for ye shall all die; ye shall feast without sacraments, ye shall batten upon each other; ye shall be clouds without water, driven by dry winds; ye shall be dry sterile trees, twice dead, and withered; wandering stars, to whom is given the dark of the emptiness of eternity; verily, I say unto you:

8. Ye shall be tormented with fire and brimstone, the third part of trees shall be burnt up, and all green grass be burnt up, and the third part of creatures which were in the sea, and had life, shall die; and the waters shall become blood, and many men die of the waters, because they be bitter; and ever, and thou shalt have no rest, neither day nor night; for the hour of judgment is come.

9. And saying thus, He that spake to me departed, and His dread spirit, and I went down among the people, and spoke, and bade men beware; and none heeded.

10. Neither those who worshiped the stars, and consulted, one among the others; nor those who worshiped man and his image; nor those who made prayers to the invisible spirits of the air; nor those who worshiped any other thing; and the spirit of Him who had spoken was heavy upon me, so I went unto my chambers and lay me down in a swoond.

11. And the angel of the Sun spoke to me as I lay, and spake with a voice like trombones, and said, Behold, all men are evil, but thou shalt redeem them, albeit thou remain a pure child of the Sun, and thou alone. Thou shalt have power; a two-edged sword shall go out of thy mouth, and thou shalt hold seven times seven stars in thy palm, and be puissant; this I shall give thee as thine own, if only thou remainest, and thou alone. And I said: Lord, I am Thine; do with me as Thou wilt.

12. And I went forth again, and spoke, and the nations of men harkened, and the kings of the world bent the knee, and the princes of the world brought tribute, seven times seven; and those who worshiped the stars, and the spirits of the air, and all other things, bowed down before Him; and it was well with them.

13. Now at this time there appeared a great wonder in heaven: a star clothed in a glory of hair, like a woman; and the people gathered and murmured of wonder, saying, Beware, for there is a god in the sky, clothed in hair like a woman, and with streaming of robes and bright garments; and, behold, it draws near in the night, and fears not the Sun; and the hem of this robe gathers about us.

14. And there arose a woman of the world, and came forward, preaching the gospel of the wild star, saying: Our god the Sun is a false god; his mate is this great star; they will devour us. There is no god but man.

15. And this woman, which was called Margo, summoned the people and made laughter with them, and derision, and scorned the Sun, and gave herself to the

priests of the voices in the air, and to those who worshiped numbers, and to the kings and princes of the world; and there was whirling of tambourines in the high towers of the Sun.

16. And the angel of the Sun spoke to me with the sound of trombones, saying, Go with thy power which had been given to thee, and crush this woman, else thou shalt be given to the wild star, and to the flames of the wild star's hair, and with thee the world; I command thee, slay this woman, for thou hast been given the power, nor shall it be given thee again; I have spoken.

17. And I went, and the woman called Margo spoke unto me, saying: Thou art fair, and hath power. Give me of thy power, and I will give you of mine. Neither the wild star nor the Sun shall have such power as we have.

18. And I looked upon her, and she was fair, beyond all the daughters of the earth; and when she spoke, her voice was as the sounding of bells; and there was a spirit in her greater than the souls of men; and a star, clothed in a glory of hair, with streaming of robes and bright garments; and I kissed the hem of her robe.

19. And the voice of the angel of the Sun was heard like a sounding of trombones, saying: Thou hast yielded thy power to an harlot, and given the earth to the fire; thy power is riven from thee, and all shall die;

20. So be it.

My name is George Anders. I have no hope that anyone will read this record, which will probably be destroyed with me—I have no safer place to put it than on my person—but I write it anyhow, if only to show that man was a talkative animal to his last gasp. If the day of glory which has been foretold comes about, there may well be a new and better world which will cherish what I put down here—but I am desperately afraid that the terrible here-and-now is the day the voices promised, and that there will be nothing else for ever and ever.

This is not to say that the voices lied. But since that first night when they spoke to me, I have come to know that they speak for forces of tremendous power, forces

to which human life is as nothing. A day of glory we have already had, truly—but such a day as no man could long for.

It was on the morning of March 18 that that day dawned, with a sun so huge as to dominate the entire eastern sky, a flaring monster which made the memory of our accustomed sun seem like a match flame. All the previous night had been as hot as high summer, although not four days before we had a blizzard. Now, with the rising of this colossal globe, we learned the real meaning of heat.

A day of glory, of glory incredible—and deadly. The heat grew and grew. By a little after noon the temperature in the shade was more than one hundred fifty degrees, and in the open—it is impossible to describe what an inferno it was under the direct rays of that sun. A bucket of water thrown into the street from a window boiled in midair before it could strike the pavement.

In some parts of the city, where there were wooden buildings and asphalt or tarred-black streets, everything was burning. In the country, the radio said, it was worse; the forests were ablaze, grasslands, wheatfields, everything. Curiously, it was this that saved many of us, for before the afternoon could reach its full fury the sky was gray with smoke, cutting off at least a little of the rays of that solar horror. Flakes of ash fell everywhere.

Millions died that day. Only a few in refrigerated rooms—meat-coolers, cold-storage warehouses, the blast-tunnels for frozen-food firms, underground fur-storage vaults—survived, where the refrigeration apparatus itself survived. By a little after midnight, the outside temperature had dropped only to slightly above one hundred degrees, and the trembling and half-mad wraiths who still lived emerged to look silently at the ruined world.

I was one of these. I had planned that I would be. Months before, I had known that this day of doom was to come upon us, for the voices had said so. I can still remember—for as long as I live I will remember, whether it be a day or forty years—the onset of that strange feeling, that withdrawal from the world around

me, as if everything familiar had suddenly become as unreal as a stage-setting. What had seemed commonplace became strange, sinister. What was that man doing with the bottles which contained the white fluid? Why was the uniform he wore also white? Why not blood in the bottles? And the man with the huge assemblage of paper; why was he watching it so intently as he sat in the subway? Did he expect it to make some sudden move if he looked away? Were the black marks with which the paper was covered the footprints of some minuscule horde?

And as the world underwent its slow transformation, the voices came. I cannot write here what they said, because paper would not bear such words. But the meaning was clear. The destruction of the world was at hand. And beyond it—

Beyond it, the day of glory. A turn toward something new, something before which all men's previous knowledge of grandeur would pale. A new Apocalypse and Resurrection? So it seemed, then. But the voices spoke in symbol and parable, and perhaps the rising of the hellish sun was the only "day of glory" we would ever see.

And so I hid in my shelter, and survived that day. When I first emerged into the boiling, choking midnight smoke I could see no one else, but after a while something white came out of the darkness toward me. It was a young girl, wearing what I took to be a nightgown—the lightest garment, at any event, she could have worn in this intolerable heat.

"What will happen to us?" she said, as soon as she saw me. "What will happen to us? Will it be the same tomorrow?"

"I don't know," I said. "What's your name?"

"Margaret." She coughed. "This must be the end of the world. If the sun is like this tomorrow—"

"It is the end of the world," I said. "But maybe it's the beginning of another. You and I will live to see it."

"How do you know?"

"By your name. The voices call you the mother of the new gods. Have you heard the voices?"

She moved away from me a little bit. There was a

sudden, furious gust of wind, and a long line of sparks flew through the lurid sky overhead. "The voices?" she said.

"Yes. The voices of the powers which have done all this. They have promised to save us, you and I. Together we can recreate—"

Suddenly, she was running. She vanished almost instantly into darkness and the smoke. I ran after her, calling, but it was hopeless. Besides, my throat was already raw, and in the heat and the aftermath of the day I had no strength. I went back to my crypt. Tomorrow would tell the tale.

Sleep was impossible. I waited for dawn, and watched for it through my periscope from the buried vault of the bank where, a day before, I had been a kind of teller. This had been no ordinary bank, and I had never taken or issued any money; but otherwise the terms are just. Perhaps you have already guessed, for no ordinary vault is equipped with periscopes to watch the surrounding countryside. This was Fort Knox, a bed of gold to be seeded with promise of the Age of Gold under this golden fire.

And at last the sun came up. It was immense. But I waited a while, and watched the image of it which was cast from the periscope eyepiece onto the opposite wall of the vault. It was not as big as it had been yesterday. And where yesterday the direct rays from the periscope had instantly charred a thousand-dollar bill, today they made only a slowly growing brown spot which never found its kindling point.

The lesson was plain. Today most of what remained of mankind would be slain. But there would be survivors.

Then I slept.

I awoke toward the end of the day and set about the quest which I knew I must make. I took nothing with me but water, which I knew I could not expect to find. Then I left the vault forever.

The world which greeted me as I came to the surface was a world transformed, blasted. Nearly everything had been leveled, and the rest lay in jumbled, smoking ruins. The sky was completely black. Near the western

horizon the swollen sun sank, still monstrous, but now no hotter than the normal sun at the height of a tropic day. The great explosion, whatever it had been, was nearly over.

And now I had to find Margaret, and fulfill the millennium which the voices had promised. The tree of man had been blasted, but still it bore one flower. It was my great destiny to bring that flower to fruit.

Thus I bring this record to a close. I leave it here in the vault. Then I shall go forth into the desert of the world. If any find it, remember: I am your father and the father of your race. If not, you will all be smoke.

Now I go. My knife is in my hand.

My name is Andy Virchow, but probably you know me better as Admiral Universe. Nowhere in the pages of galactic history has there ever been a greater champion of justice. Who do you know that doesn't know Universe, ruler of the spaceways, hero of science, bringer of law and order in the age of the conquest of space? Not a planetary soul, that's who.

Of course not everybody knows that Andy Virchow is Admiral Universe. Sometimes I have to go in disguise and fool criminals. Then I am Andy Virchow, and they think I am only eight years old, until I have them where I want them and I whip out my Cosmic Smoke Gun and reveal my identification.

Sometimes I don't say who I am but just clean the crooks up and ride off in my rocket, the *Margy II*. Then afterwards the people I have saved say, "He didn't even stay to be thanked. I wonder who he was?" and somebody else says, "There's only one man on the frontiers of space like him. That's Admiral Universe."

My rocket is called the *Margy II* partly because my secret interstellar base is on Mars and the Mars people we call Martians call themselves Margies and I like to think of myself as a Margy *too*, because the people of Earth don't understand me and I do good for them because I am champion of justice, not because I like them. Then they're sorry, but it's too late. Me and the Margies understand each other. They ask me for advice before they do anything important, and I tell them what to

do. Earth people are always trying to tell other people what to do. The Margies aren't like that, they ask what to do instead of always giving orders.

Also Admiral Universe calls his rocket *Margy II*, because my patron saint is St. Margaret who gets me out of trouble if I do anything wrong. Admiral Universe never does anything wrong because St. Margaret is on his side all the time. St. Margaret is the patron saint of clocks and is called the Mother of Galaxies, because she was a mother—not like my mother, who is always shouting and sending me to bed too early—and mothers have milk and *galaxy* is Greek for milk. If you didn't know I was Admiral Universe you'd ask how I know what's Greek for anything, but Admiral Universe is a great scientist and knows everything. Besides, my father was a teacher of Greek before he died and he was Admiral Universe's first teacher.

In all the other worlds in the universe everything is pretty perfect except for a few crooks that have to be shot. It's not like Earth at all. The planets are different from each other, but they are all happy and have lots of science and the people are kind and never raise their hands to each other or send each other to bed without their supper.

Sometimes there are terrible accidents in the space-lanes and Admiral Universe arrives on the scene in the nick of time and saves everybody, and all the men shake his hand and all the girls kiss him and say mushy things to him, but he refuses their thanks in a very polite way and disappears into the trackless wastes of outer space because he carries a medal of St. Margaret's in his pocket over his heart. She is his only girl, but she can't ever be anybody's girl because she is a saint, and this is Admiral Universe's great tragedy which he never tells anybody because it's his private business that he has to suffer all by himself, and besides if anybody else knew it they would think he was mushy too and wouldn't be so afraid of him, like crooks I mean.

Admiral Universe is always being called from all over outer space to help people and sometimes he can't be one place because he has to be in some other place. Then he has to set his jaw and do the best he can and

be tough about the people he can't help because he is helping somebody else. First he asks St. Margaret what he should do and she tells him. Then he goes and does it, and he is very sorry for the people who got left out, but he knows that he did what was right.

This is why I wasn't there when the sun blew up, because I was helping people somewhere else at the time. I didn't even know it was the sun, because I was so far away that it was just another star, and I didn't see it blow up, because stars blow up all the time and if you're Admiral Universe you get used to it and hardly notice. Margaret might have told me, but she's a saint, and doesn't care.

If I'd been there I would have helped. I would have saved my friends, and all the great scientists, and the girls who might be somebodys' mothers some day, and everybody that was anybody except Dr. Ferguson, I would have left him behind to show him how wrong he was about me.

But I wasn't there at the time, and besides Admiral Universe never did like the Earth much. Nobody will really miss it.

My name is T. V. Andros. My father was an Athenian immigrant and a drunkard. After he came here he worked in the mines, but not very often because he was mostly soused.

Sometimes he beat my mother. She had TB but she took good care of us until I was eight; early that year my father got killed in a brawl in a bar, and the doctor—his name I forget—sent her back to the little town in Pennsylvania where she was born. She died that March.

After that I worked in the mines. The law says a kid can't work in the mines but in company towns the law don't mean much. I got the cough too but the other miners took care of me and I grew up tough and could handle myself all right. When I was fourteen, I killed a man with a pick-handle, one blow. I don't remember what we were fighting about.

Mostly I kept out of fights, though. I had a crazy idea I wanted to educate myself and I read a lot—all

kinds of things. For a while I read those magazines that tell you about going to other planets and stuff like that. I didn't learn anything, except that to learn good you need a teacher, and the last one of those had been run out by the company cops. They said he was a Red.

It was tough in the mines. It's dark down there and hot, and you can't breathe sometimes for the dust. And you can't never wash the dirt off, it gets right down into your skin and makes you feel black even at noon on Sundays when you've scrubbed till your skin's raw.

I had a sixteen-year-old girl but I was too dirty for her. I tried to go to the priest about it but he wasn't looking for nothing but sin, and kept asking me had I done anything wrong with the girl. When I said I hadn't he wasn't interested no more. I hadn't, either, but he made me so mad he made me wish I had. After that I sort of drifted away from going to church because I couldn't stand his face. Maybe that was bad but it had its good side, too; I missed it and I took to cracking the Bible now and then. I never got much of the Bible when I was going to church.

After a while, I took to drinking something now and then. It wasn't right for a kid but I wasn't a kid no more, I was eighteen and besides in a company town there ain't nothing else to do. It helped some but not enough. All the guys in the bar ever talk about are wages and women. You got to drink yourself blind and stupid to keep from hearing them, otherwise you go nuts. After a while I was blind and stupid a lot of the time and didn't no longer know what I did or didn't.

Once when I was drunk I mauled a girl younger than I was; I don't know why I did it. She was just the age I had been when my mother left me to go home and die. Then it was all up with me at the mines. I didn't mean her any harm but the judge gave me the works. Two years.

I got clean for once in my life while I was in the jug and I did some more reading but it just mixed me up more. Two years is a long time. When I got out I felt funny in my head. I couldn't stop thinking about the girl who thought I was too dirty for her. I was at the age when I needed girls.

But I wasn't going to mess with girls my age who could see the prison whiteness on the outside and all that ground-in coal dust underneath it. I couldn't forget Maggy, the girl that got me into the jam. That had been a hot night in summer, with a moon as big as the sun, as red as blood. I hadn't meant her any harm. She reminded me of myself when my mother had gone away.

I found another Maggy and when the cops caught me they worked me over. I can't hear in one ear now and my nose is skewed funny on my face. I had it coming because I hurt the girl. When they let me out again I got a job as a super, but there was another girl in the apartment above, and I went to fix a pipe there while her mother was away. It was a hot day with a big sun and no air moving, just like the day my mother left. I didn't really know nothing had happened until I saw that one of my hands was dark red. Then I tried to get her to talk to me but she wouldn't move. After a while I felt some woman's hands beating at my neck. She said, "Stop, you!"

This time they took me to a hospital and a Dr. Ferdinand talked to me. Write it all down, he said. It may help you. So I wrote it all down, like you see it here. Then they put me in a cell and said I would have to stay for a while. I don't talk to them much any more.

It is a real hot day. Outside the cell the sun is bigger. I don't breathe good any more but there's something wrong with the air. I pulled my mattress to pieces but I didn't find nothing.

Maybe something is going to happen. Something is going to happen.

My name is Man. I will write my story if you wish.

I was . . .

Here the ashes blow away. The voices die.

Common Time

" . . . the days went slowly round and round, endless and uneventful as cycles in space. Time, and time-pieces! How many centuries did my hammock tell, us pendulum-like it swung to the ship's dull roll, and ticked the hours and ages."

—Herman Melville, in *Mardi*

Don't move.

It was the first thought that came in Garrard's mind when he awoke, and perhaps it saved his life. He lay where he was, strapped against the padding, listening to the round hum of the engines. That in itself was wrong; he should be unable to hear the overdrive at all.

He thought to himself: *Has it begun already?*

Otherwise everything seemed normal. The DFC-3 had crossed over into interstellar velocity, and he was still alive, and the ship was still functioning. The ship should at this moment be traveling at 22.4 times the speed of light—a neat 4,157,000 miles per second.

Somehow Garrard did not doubt that it was. On both previous tries, the ships had whiffed away toward Alpha Centauri at the proper moment when the overdrive should have cut in; and the split second of residual image after they had vanished, subjected to spectroscopy, showed a Doppler shift which tallied with the acceleration predicted for that moment by Haertel.

The trouble was not that Brown and Cellini hadn't gotten away in good order. It was simply that neither of them had ever been heard from again.

Very slowly, he opened his eyes. His eyelids felt ter-

rifically heavy. As far as he could judge from the pressure of the couch against his skin, the gravity was normal; nevertheless, moving his eyelids seemed almost an impossible job.

After long concentration, he got them fully open. The instrument chassis was directly before him, extended over his diaphragm on its elbow joint. Still without moving anything but his eyes—and those only with the utmost patience—he checked each of the meters. Velocity: 22.4 c. Operating temperature: normal. Ship temperature: 37° C. Air pressure: 778 mm. Fuel: No. 1 tank full, No. 2 tank full, No. 3 tank full, No. 4 tank nine tenths full. Gravity: 1 g. Calendar: stopped.

He looked at it closely, though his eyes seemed to focus very slowly, too. It was, of course, something more than a calendar—it was an all-purpose clock, designed to show him the passage of seconds, as well as of the ten months his trip was supposed to take to the double star. But there was no doubt about it: the second hand was motionless.

That was the second abnormality. Garrard felt an impulse to get up and see if he could start the clock again. Perhaps the trouble had been temporary and safely in the past. Immediately there sounded in his head the injunction he had drilled into himself for a full month before the trip had begun—

Don't move!

Don't move until you know the situation as far as it can be known without moving. Whatever it was that had snatched Brown and Cellini irretrievably beyond human ken was potent, and totally beyond anticipation. They had both been excellent men, intelligent, resourceful, trained to the point of diminishing returns and not a micron beyond that point—the best men in the Project. Preparations for every knowable kind of trouble had been built into their ships, as they had been built into the DFC-3. Therefore, if there was something wrong nevertheless, it would be something that might strike from some commonplace quarter—and strike only once.

He listened to the humming. It was even and placid, and not very loud, but it disturbed him deeply. The overdrive was supposed to be inaudible, and the tapes

from the first unmanned test vehicles had recorded no such hum. The noise did not appear to interfere with the overdrive's operation, or to indicate any failure in it. It was just an irrelevancy for which he could find no reason.

But the reason existed. Garrard did not intend to do so much as draw another breath until he found out what it was.

Incredibly, he realized for the first time that he had not in fact drawn one single breath since he had first come to. Though he felt not the slightest discomfort, the discovery called up so overwhelming a flash of panic that he very nearly sat bolt upright on the couch. Luckily—or so it seemed, after the panic had begun to ebb—the curious lethargy which had affected his eyelids appeared to involve his whole body, for the impulse was gone before he could summon the energy to answer it. And the panic, poignant though it had been for an instant, turned out to be wholly intellectual. In a moment, he was observing that his failure to breathe in no way discommoded him as far as he could tell—it was just there, waiting to be explained . . .

Or to kill him. But it hadn't, yet.

Engines humming; eyelids heavy; breathing absent; calendar stopped. The four facts added up to nothing. The temptation to move something—even if it were only a big toe—was strong, but Garrard fought it back. He had been awake only a short while—half an hour at most—and already had noticed four abnormalities. There were bound to be more, anomalies more subtle than these four; but available to close examination before he had to move. Nor was there anything in particular that he had to do, aside from caring for his own wants; the Project, on the chance that Brown's and Cellini's failure to return had resulted from some tampering with the overdrive, had made everything in the DFC-3 subject only to the computer. In a very real sense. Garrard was just along for the ride. Only when the overdrive was off could he adjust——

Pock.

It was a soft, low-pitched noise, rather like a cork

coming out of a wine bottle. It seemed to have come just from the right of the control chassis. He halted a sudden jerk of his head on the cushions toward it with a flat fiat of will. Slowly, he moved his eyes in that direction.

He could see nothing that might have caused the sound. The ship's temperature dial showed no change, which ruled out a heat noise from differential contraction or expansion—the only possible explanation he could bring to mind.

He closed his eyes—a process which turned out to be just as difficult as opening them had been—and tried to visualize what the calendar had looked like when he had first come out of anesthesia. After he got a clear and—he was almost sure—accurate picture, Garrard opened his eyes again.

The sound had been the calendar, advancing one second. It was now motionless again, apparently stopped.

He did not know how long it took the second hand to make that jump, normally; the question had never come up. Certainly the jump, when it came at the end of each second, had been too fast for the eye to follow.

Belatedly, he realized what all this cogitation was costing him in terms of essential information. The calendar had moved. Above all and before anything else, he *must* know exactly how long it took it to move again . . .

He began to count, allowing an arbitrary five seconds lost. *One-and-a-six, one-and-a-seven, one-and-an-eight*—

Garrard had gotten only that far when he found himself plunged into hell.

First, and utterly without reason, a sickening fear flooded swiftly through his veins, becoming more and more intense. His bowels began to knot, with infinite slowness. His whole body became a field of small, slow pulses—not so much shaking him as putting his limbs into contrary joggling motions, and making his skin ripple gently under his clothing. Against the hum another sound became audible, a nearly subsonic thunder which seemed to be inside his head. Still the fear mounted, and with it came the pain, and the tenesmus—a board-

like stiffening of his muscles, particularly across his abdomen and his shoulders, but affecting his forearms almost as grievously. He felt himself beginning, very gradually, to double at the middle, a motion about which he could do precisely nothing—a terrifying kind of dynamic paralysis. . . .

It lasted for hours. At the height of it, Garrard's mind, even his very personality, was washed out utterly; he was only a vessel of horror. When some few trickles of reason began to return over that burning desert of reasonless emotion, he found that he was sitting up on the cushions, and that with one arm he had thrust the control chassis back on its elbow so that it no longer jutted over his body. His clothing was wet with perspiration, which stubbornly refused to evaporate or to cool him. And his lungs ached a little, although he could still detect no breathing.

What under God had happened? Was it this that had killed Brown and Cellini? For it would kill Garrard, too—of that he was sure, if it happened often. It would kill him even if it happened only twice more, if the next two such things followed the first one closely. At the very best it would make a slobbering idiot of him; and though the computer might bring Garrard and the ship back to Earth, it would not be able to tell the Project about this tornado of senseless fear.

The calendar said that the eternity in hell had taken three seconds. As he looked at it in academic indignation, it said *pock* and condescended to make the total seizure four seconds long. With grim determination, Garrard began to count again.

He took care to establish the counting as an absolutely even, automatic process which would not stop at the back of his mind no matter what other problem he tackled along with it, or what emotional typhoons should interrupt him. Really compulsive counting cannot be stopped by anything—not the transports of love nor the agonies of empires. Garrard knew the dangers in deliberately setting up such a mechanism in his mind, but he also knew how desperately he needed to time that clock tick. He was beginning to understand what

had happened to him—but he needed exact measurement before he could put that understanding to use.

Of course there had been plenty of speculation on the possible effect of the overdrive on the subjective time of the pilot, but none of it had come to much. At any speed below the velocity of light, subjective and objective time were exactly the same as far as the pilot was concerned. For an observer on Earth, time aboard the ship would appear to be vastly slowed at near-light speeds; but for the pilot himself there would be no apparent change.

Since flight beyond the speed of light was impossible—although for slightly differing reasons—by both the current theories of relativity, neither theory had offered any clue as to what would happen on board a translight ship. They would not allow that any such ship could even exist. The Haertel transformation, on which, in effect, the DFC-3 flew was nonrelativistic: it showed that the apparent elapsed time of a translight journey should be identical in ship-time, and in the time of observers at both ends of the trip.

But since ship and pilot were part of the same system, both covered by the same expression in Haertel's equation, it had never occurred to anyone that the pilot and the ship might keep different times. The notion was ridiculous.

One - and - a - sevenhundredone, one - and - a - sevenhundredtwo, one - and - a - sevenhundredthree, one - and - a - sevenhundredfour . . .

The ship was keeping ship-time, which was identical with observer-time. It would arrive at the Alpha Centauri system in ten months. But the pilot was keeping Garrard-time, and it was beginning to look as though he wasn't going to arrive at all.

It was impossible, but there it was. Something—almost certainly an unsuspected physiological side effect of the overdrive field on human metabolism, an effect which naturally could not have been detected in the preliminary, robot-piloted tests of the overdrive—had speeded up Garrard's subjective apprehension of time, and had done a thorough job of it.

The second hand began a slow, preliminary quivering

as the calendar's innards began to apply power to it. *Seventy-hundred-forty-one, seventy-hundred-forty-two, seventy-hundred-forty-three . . .*

At the count of 7,058 the second hand began the jump to the next graduation. It took it several apparent minutes to get across the tiny distance, and several more to come completely to rest. Later still, the sound came to him:

Pock.

In a fever of thought, but without any real physical agitation, his mind began to manipulate the figures. Since it took him longer to count an individual number as the number became larger, the interval between the two calendar ticks probably was closer to 7,200 seconds than to 7,058. Figuring backward brought him quickly to the equivalence he wanted:

One second in ship-time was two hours in Garrard-time.

Had he really been counting for what was, for him, two whole hours? There seemed to be no doubt about it. It looked like a long trip ahead.

Just how long it was going to be struck him with stunning force. Time had been slowed for him by a factor of 7200. He would get to Alpha Centauri in just 72,000 months.

Which was—

Six thousand years!

II

Garrard sat motionless for a long time after that, the Nessus-shirt of warm sweat swathing him persistently, refusing even to cool. There was, after all, no hurry.

Six thousand years. There would be food and water and air for all that time, or for sixty or six hundred thousand years; the ship would synthesize his needs, as a matter of course, for as long as the fuel lasted, and the fuel bred itself. Even if Garrard ate a meal every three seconds of objective, or ship, time (which, he realized suddenly, he wouldn't be able to do, for it took the ship several seconds of objective time to prepare and serve up a meal once it was ordered; he'd be lucky

if he ate once a day, Garrard-time), there would be no reason to fear any shortage of supplies. That had been one of the earliest of the possibilities for disaster that the Project engineers had ruled out in the design of the DFC-3.

But nobody had thought to provide a mechanism which would indefinitely refurbish Garrard. After six thousand years, there would be nothing left of him but a faint film of dust on the DFC-3's dully gleaming horizontal surfaces. His corpse might outlast him a while, since the ship itself was sterile—but eventually he would be consumed by the bacteria which he carried in his own digestive tract. He needed those bacteria to synthesize part of his B-vitamin needs while he lived, but they would consume him without compunction once he had ceased to be as complicated and delicately balanced a thing as a pilot—or as any other kind of life.

Garrard was, in short, to die before the DFC-3 had gotten fairly away from Sol; and when, after 12,000 apparent years, the DFC-3 returned to Earth, not even his mummy would be still aboard.

The chill that went through him at that seemed almost unrelated to the way he thought he felt about the discovery; it lasted an enormously long time, and insofar as he could characterize it at all, it seemed to be a chill of urgency and excitement—not at all the kind of chill he should be feeling at a virtual death sentence. Luckily it was not as intolerably violent as the last such emotional convulsion; and when it was over, two clock ticks later, it left behind a residuum of doubt.

Suppose that this effect of time-stretching was only mental? The rest of his bodily processes might still be keeping ship-time; Garrard had no immediate reason to believe otherwise. If so, he would be able to move about only on ship-time, too; it would take many apparent months to complete the simplest task.

But he would live, if that were the case. His mind would arrive at Alpha Centauri six thousand years older, and perhaps madder, than his body, but he would live.

If, on the other hand, his bodily movements were going to be as fast as his mental processes, he would

have to be enormously careful. He would have to move slowly and exert as little force as possible. The normal human hand movement, in such a task as lifting a pencil, took the pencil from a state of rest to another state of rest by imparting to it an acceleration of about two feet per second per second—and, of course, decelerated it by the same amount. If Garrard were to attempt to impart to a two-pound weight, which was keeping ship-time, an acceleration of $14,440 \text{ ft/sec}^2$ in his time, he'd have to exert a force of 900 pounds on it.

The point was not that it couldn't be done—but that it would take as much effort as pushing a stalled jeep. He'd never be able to lift that pencil with his forearm muscles alone; he'd have to put his back into the task.

And the human body wasn't engineered to maintain stresses of that magnitude indefinitely. Not even the most powerful professional weight-lifter is forced to show his prowess throughout every minute of every day.

Pock.

That was the calendar again; another second had gone by. Or another two hours. It had certainly seemed longer than a second, but less than two hours, too. Evidently subjective time was an intensively recompllicated measure. Even in this world of micro-time—in which Garrard's mind, at least, seemed to be operating—he could make the lapses between calendar ticks seem a little shorter by becoming actively interested in some problem or other. That would help, during the waking hours, but it would help only if the rest of his body were *not* keeping the same time as his mind. If it were not, then he would lead an incredibly active, but perhaps not intolerable, mental life during the many centuries of his awake-time, and would be mercifully asleep for nearly as long.

Both problems—that of how much force he could exert with his body, and how long he could hope to be asleep in his mind—emerged simultaneously into the forefront of his consciousness while he still sat inertly on the hammock, their terms still much muddled together. After the single tick of the calendar, the ship—or the part of it that Garrard could see from here—settled

back into complete rigidity. The sound of the engines, too, did not seem to vary in frequency or amplitude, at least as far as his ears could tell. He was still not breathing. Nothing moved, nothing changed.

It was the fact that he could still detect no motion of his diaphragm or his rib cage that decided him at last. His body had to be keeping ship-time, otherwise he would have blacked out from oxygen starvation long before now. That assumption explained, too, those two incredibly prolonged, seemingly sourceless saturnalias of emotion through which he had suffered: they had been nothing more nor less than the response of his endocrine glands to the purely intellectual reactions he had experienced earlier. He had discovered that he was not breathing, had felt a flash of panic and had tried to sit up. Long after his mind had forgotten those two impulses, they had inched their way from his brain down his nerves to the glands and muscles involved, and actual, *physical* panic had supervened. When that was over, he actually *was* sitting up, though the flood of adrenalin had prevented his noticing the motion as he had made it. The later chill—less violent, and apparently associated with the discovery that he might die long before the trip was completed—actually had been his body's response to a much earlier mental command—the abstract fever of interest he had felt while computing the time differential had been responsible for it.

Obviously, he was going to have to be very careful with apparently cold and intellectual impulses of any kind—or he would pay for them later with a prolonged and agonizing glandular reaction. Nevertheless, the discovery gave him considerable satisfaction, and Garrard allowed it free play; it certainly could not hurt him to feel pleased for a few hours, and the glandular pleasure might even prove helpful if it caught him at a moment of mental depression. Six thousand years, after all, provided a considerable number of opportunities for feeling down in the mouth; so it would be best to encourage all pleasure moments, and let the after-reaction last as long as it might. It would be the instants of panic, of fear, of gloom, which he would have to regulate sternly the moment they came into his mind; it would be those which

would otherwise plunge him into four, five, six, perhaps even ten, Garrard-hours of emotional inferno.

Pock.

There now, that was very good: there had been two Garrard-hours which he had passed with virtually no difficulty of any kind, and without being especially conscious of their passage. If he could really settle down and become used to this kind of scheduling, the trip might not be as bad as he had at first feared. Sleep would take immense bites out of it; and during the waking periods he could put in one hell of a lot of creative thinking. During a single day of ship-time, Garrard could get in more thinking than any philosopher of Earth could have managed during an entire lifetime. Garrard could, if he disciplined himself sufficiently, devote his mind for a century to running down the consequences of a single thought, down to the last detail, and still have millennia left to go on to the next thought. What panoplies of pure reason could he not have assembled by the time 6,000 years had gone by? With sufficient concentration, he might come up with the solution to the Problem of Evil between breakfast and dinner of a single ship's day, and in a ship's month might put his finger on the First Cause!

Pock.

Not that Garrard was sanguine enough to expect that he would remain logical or even sane throughout the trip. The vista was still grim, in much of its detail. But the opportunities, too, were there. He felt a momentary regret that it hadn't been Haertel, rather than himself, who had been given such an opportunity—

Pock.

—for the old man could certainly have made better use of it than Garrard could. The situation demanded someone trained in the highest rigors of mathematics to be put to the best conceivable use. Still and all Garrard began to feel—

Pock.

—that he would give a good account of himself, and it tickled him to realize that (as long as he held onto his essential sanity) he would return—

Pock.

—to Earth after ten Earth months with knowledge centuries advanced beyond anything—

Pock.

—that Haertel knew, or that anyone could know—

Pock.

—who had to work within a normal lifetime. *Pck.* The whole prospect tickled him. *Pck.* Even the clock tick seemed more cheerful. *Pck.* He felt fairly safe now *Pck* in disregarding his drilled-in command *Pck* against moving *Pck*, since in any *Pck* event he *Pck* had already *Pck* moved *Pck* without *Pck* being *Pck* harmed *Pck Pck Pck Pck pckpckpckpckpckpckpckpckpck. . . .*

He yawned, stretched, and got up. It wouldn't do to be too pleased, after all. There were certainly many problems that still needed coping with, such as how to keep the impulse toward getting a ship-time task performed going, while his higher centers were following the ramifications of some purely philosophical point. And besides . . .

And besides, he had just moved.

More than that; he had just performed a complicated maneuver with his body *in normal time!*

Before Garrard looked at the calendar itself, the message it had been ticking away at him had penetrated. While he had been enjoying the protracted, glandular backwash of his earlier feeling of satisfaction, he had failed to notice, at least consciously, that the calendar was accelerating.

Good-bye, vast ethical systems which would dwarf the Greeks. Good-bye, calculus aeons advanced beyond the spinor calculus of Dirac. Good-bye, cosmologies by Garrard which would allot the Almighty a job as third-assistant-waterboy in an n -dimensional backfield.

Good-bye, also, to a project he had once tried to undertake in college—to describe and count the positions of love, of which, according to under-the-counter myth, there were supposed to be at least forty-eight. Garrard had never been able to carry his tally beyond twenty, and he had just lost what was probably his last opportunity to try again.

The micro-time in which he had been living had worn off, only a few objective minutes after the ship

had gone into overdrive and he had come out of the anesthetic. The long intellectual agony, with its glandular counterpoint, had come to nothing. Garrard was now keeping ship-time.

Garrard sat back down on the hammock, uncertain whether to be bitter or relieved. Neither emotion satisfied him in the end; he simply felt unsatisfied. Micro-time had been bad enough while it lasted; but now it was gone, and everything seemed normal. How could so transient a thing have killed Brown and Cellini? They were stable men, more stable, by his own private estimation, than Garrard himself. Yet he had come through it. Was there more to it than this?

And if there was—what, conceivably, could it be?

There was no answer. At his elbow, on the control chassis which he had thrust aside during that first moment of infinitely protracted panic, the calendar continued to tick. The engine noise was gone. His breath came and went in natural rhythm. He felt light and strong. The ship was quiet, calm, unchanging.

The calendar ticked, faster and faster. It reached and passed the first hour, ship-time, of flight in overdrive.

Pock.

Garrard looked up in surprise. The familiar noise, this time, had been the hour-hand jumping one unit. The minute-hand was already sweeping past the past half-hour. The second-hand was whirling like a propeller—and while he watched it, it speeded up to complete invisibility—

Pock.

Another hour. The half-hour already passed. *Pock.* Another hour. *Pock.* Another. *Pock. Pock. Pock, Pock, Pock, Pock, pck-pck-pck-pck-pckpckpckpck.*

The hands of the calendar swirled toward invisibility as time ran away with Garrard. Yet the ship did not change. It stayed there, rigid, inviolate, invulnerable. When the date tumblers reached a speed at which Garrard could no longer read them, he discovered that once more he could not move—and that, although his whole body seemed to be aflutter like that of a hummingbird, nothing coherent was coming to him through his senses.

The room was dimming, becoming redder; or no, it was . . .

But he never saw the end of the process, never was allowed to look from the pinnacle of macro-time toward which the Haertel overdrive was taking him.

Pseudo-death took him first.

III

That Garrard did not die completely, and within a comparatively short time after the DFC-3 had gone into overdrive, was due to the purest of accidents; but Garrard did not know that. In fact, he knew nothing at all for an indefinite period, sitting rigid and staring, his metabolism slowed down to next to nothing, his mind almost utterly inactive. From time to time, a single wave of low-level metabolic activity passed through him—what an electrician might have termed a “maintenance turnover”—in response to the urgings of some occult survival urge; but these were of so basic a nature as to reach his consciousness not at all. This was the pseudo-death.

When the observer actually arrived, however, Garrard woke. He could make very little sense out of what he saw or felt even now; but one fact was clear: the overdrive was off—and with it the crazy alterations in time rates—and there was strong light coming through one of the ports. The first leg of the trip was over. It had been these two changes in his environment which had restored him to life.

The thing (or things) which had restored him to consciousness, however, was—it was what? It made no sense. It was a construction, a rather fragile one, which completely surrounded his hammock. No, it wasn't a construction, but evidently something alive—a living being, organized horizontally, that had arranged itself in a circle about him. No, it was a number of beings. Or a combination of all these things.

How it had gotten into the ship was a mystery, but there it was. Or there they were.

“How do you hear?” the creature said abruptly. Its voice, or their voices, came at equal volume from every

point in the circle, but not from any particular point in it. Garrard could think of no reason why that should be unusual.

"I—" he said. "Or we—we hear with our ears. Here."

His answer, with its unintentionally long chain of open vowel sounds, rang ridiculously. He wondered why he was speaking such an odd language.

"We-they wooed to pitch you-yours thiswise," the creature said. With a thump, a book from the DFC-3's ample library fell to the deck beside the hammock. "We wooed there and there and there for a many. You are the being-Garrard. We-they are the clinesterton beademung, with all of love."

"With all of love," Garrard echoed. The beademung's use of the language they both were speaking was odd; but again Garrard could find no logical reason why the beademung's usage should be considered wrong.

"Are—are you-they from Alpha Centauri?" he said hesitantly.

"Yes, we hear the twin radiocoles, that show there beyond the gift-orifices. We-they pitched that the being-Garrard with most adoration these twins and had mind to them, soft and loud alike. How do you hear?"

This time the being-Garrard understood the question. "I hear Earth," he said. "But that is very soft, and does not show."

"Yes," said the beademung. "It is a harmony, not a first, as ours. The All-Devouring listens to lovers there, not on the radiocoles. Let me-mine pitch you-yours so to have mind of the rodalent beademung and other brothers and lovers, along the channel which is fragrant to the being-Garrard."

Garrard found that he understood the speech without difficulty. The thought occurred to him that to understand a language on its own terms—without having to put it back into English in one's own mind—is an ability that is won only with difficulty and long practice. Yet, instantly his mind said, "But it *is* English," which of course it was. The offer the clinesterton beademung had just made was enormously hearted, and he in turn was much minded and of love, to his own delighting as

well as to the beademungen; that almost went without saying.

There were many matings of ships after that, and the being-Garrard pitched the harmonies of the beademungen, leaving his ship with the many gift orifices in harmonic for the All-Devouring to love, while the beademungen made show of they-theirs.

He tried, also, to tell how he was out of love with the overdrive, which wooed only spaces and times, and made featurelings. The rodalent beademung wooed the overdrive, but it did not pitch he-them.

Then the being-Garrard knew that all the time was devoured, and he must hear Earth again.

"I pitch you-them to fullest love," he told the beademungen. "I shall adore the radioteles of Alpha and Proxima Centauri, 'on Earth as it is in Heaven.' Now the overdrive my-other must woo and win me, and make me adore a featureling much like silence."

"But you will be pitched again," the clinesterton beademung said. "After you have adored Earth. You are much loved by Time, the All-Devouring. We-they shall wait for this othering."

Privately Garrard did not faith as much, but he said, "Yes, we-they will make a new wooing of the beademungen at some other radiant. With all of love."

On this the beademungen made and pitched adorations, and in the midst the overdrive cut in. The ship with the many gift orifices and the being-Garrard him-other saw the twin radioteles sundered away.

Then, once more, came the pseudo-death.

IV

When the small candle lit in the endless cavern of Garrard's pseudo-dead mind, the DFC-3 was well inside the orbit of Uranus. Since the sun was still very small and distant, it made no spectacular display through the nearby port, and nothing called him from the post-death sleep for nearly two days.

The computers waited patiently for him. They were no longer immune to his control; he could now tool the

ship back to Earth himself if he so desired. But the computers were also designed to take into account the fact that he might be truly dead by the time the DFC-3 got back. After giving him a solid week, during which time he did nothing but sleep, they took over again. Radio signals began to go out, tuned to a special channel.

An hour later, a very weak signal came back. It was only a directional signal, and it made no sound inside the DFC-3—but it was sufficient to put the big ship in motion again.

It was that which woke Garrard. His conscious mind was still glazed over with the icy spume of the pseudo-death; and as far as he could see the interior of the cabin had not changed one whit, except for the book on the deck—

The book. The clinesterton beademung had dropped it there. But what under God was a clinesterton beademung? And what was he, Garrard, crying about? It didn't make sense. He remembered dimly some kind of experience out there by the Centauri twins—

—*the twin radiocetes*—

There was another one of those words. It seemed to have Greek roots, but he knew no Greek—and besides, why would Centaurians speak Greek?

He leaned forward and actuated the switch which would roll the shutter off the front port, actually a telescope with a translucent viewing screen. It showed a few stars, and a faint nimbus off on one edge which might be the Sun. At about one o'clock on the screen, was a planet about the size of a pea which had tiny projections, like teacup handles, on each side. The DFC-3 hadn't passed Saturn on its way out; at that time it had been on the other side of the Sun from the route the starship had had to follow. But the planet was certainly difficult to mistake.

Garrard was on his way home—and he was still alive and sane. Or was he still sane? These fantasies about Centaurians—which still seemed to have such a profound emotional effect upon him—did not argue very well for the stability of his mind.

But they were fading rapidly. When he discovered, clutching at the handiest fragments of the "memories,"

that the plural of *beademung* was *beademungen*, he stopped taking the problem seriously. Obviously a race of Centaurians who spoke Greek wouldn't also be forming weak German plurals. The whole business had obviously been thrown up by his unconscious.

But what *had* he found by the Centaurus stars?

There was no answer to that question but that incomprehensible garble about love, the All-Devouring, and beademungen. Possibly, he had never seen the Centaurus stars at all, but had been lying here, cold as a mackerel, for the entire twenty months.

Or had it been 12,000 years? After the tricks the overdrive had played with time, there was no way to tell what the objective date actually was. Frantically Garrard put the telescope into action. Where was the Earth? After 12,000 years—

The Earth was there. Which, he realized swiftly, proved nothing. The Earth had lasted for many millions of years; 12,000 years was nothing to a planet. The Moon was there, too; both were plainly visible, on the far side of the Sun—but not too far to pick them out clearly, with the telescope at highest power. Garrard could even see a clear sun-highlight on the Atlantic Ocean, not far east of Greenland; evidently the computers were bringing the DFC-3 in on the Earth from about 23° north of the plane of the ecliptic.

The Moon, too, had not changed. He could even see on its face the huge splash of white, mimicking the sun-highlight on Earth's ocean, which was the magnesium hydroxide landing beacon, which had been dusted over the Mare Vaporum in the earliest days of space flight, with a dark spot on its southern edge which could only be the crater Monilius.

But that again proved nothing. The Moon never changed. A film of dust laid down by modern man on its face would last for millennia—what, after all, existed on the Moon to blow it away? The Mare Vaporum beacon covered more than 4,000 square miles; age would not dim it, nor could man himself undo it—either accidentally, or on purpose—in anything under a century. When you dust an area that large on a world without atmosphere, it stays dusted.

He checked the stars against his charts. They hadn't moved; why should they have, in only 12,000 years? The pointer stars in the Dipper still pointed to Polaris. Draco, like a fantastic bit of tape, wound between the two Bears, and Cepheus and Cassiopeia, as it always had done. These constellations told him only that it was spring in the modern hemisphere of Earth.

But spring of what year?

Then, suddenly, it occurred to Garrard that he had a method of finding the answer. The Moon causes tides in the Earth, and action and reaction are always equal and opposite. The Moon cannot move things on Earth without itself being affected—and that effect shows up in the moon's angular momentum. The Moon's distance from the Earth increases steadily by 0.6 inches every year. At the end of 12,000 years, it should be 600 feet farther away from the Earth.

Was it possible to measure? Garrard doubted it, but he got out his ephemeris and his dividers anyhow, and took pictures. While he worked, the Earth grew nearer. By the time he had finished his first calculation—which was indecisive, because it allowed a margin for error greater than the distances he was trying to check—Earth and Moon were close enough in the telescope to permit much more accurate measurements.

Which were, he realized wryly, quite unnecessary. The computer had brought the DFC-3 back, not to an observed sun or planet, but simply to a calculated point. That Earth and Moon would not be near that point when the DFC-3 returned was not an assumption that the computer could make. That the Earth was visible from here was already good and sufficient proof that no more time had elapsed than had been calculated for from the beginning.

This was hardly new to Garrard; it had simply been retired to the back of his mind. Actually he had been doing all this figuring for one reason, and one reason only: because deep in his brain, set to work by himself, there was a mechanism that demanded counting. Long ago, while he was still trying to time the ship's calendar, he had initiated compulsive counting—and it appeared

that he had been counting ever since. That had been one of the known dangers of deliberately starting such a mental mechanism; and now it was bearing fruit in these perfectly useless astronomical exercises.

The insight was healing. He finished the figures roughly, and that unheard moron deep inside his brain stopped counting at last. It had been pawing its abacus for twenty months now, and Garrard imagined that it was as glad to be retired as he was to feel it go.

His radio squawked, and said anxiously, "DFC-3, DFC-3. Garrard, do you hear me? Are you still alive? Everybody's going wild down here. Garrard, if you hear me, call us!"

It was Haertel's voice. Garrard closed the dividers so convulsively that one of the points nipped into the heel of his hand. "Haertel, I'm here. DFC-3 to the Project. This is Garrard." And then, without knowing quite why, he added: "With all of love."

Haertel, after all the hoopla was over, was more than interested in the time effects. "It certainly enlarges the manifold in which I was working," he said. "But I think we can account for it in the transformation. Perhaps even factor it out, which would eliminate it as far as the pilot is concerned. We'll see, anyhow."

Garrard swirled his highball reflectively. In Haertel's cramped old office, in the Project's administration shack, he felt both strange and as old, as compressed, constricted. He said, "I don't think I'd do that, Adolph. I think it saved my life."

"How?"

"I told you that I seemed to die after a while. Since I got home, I've been reading; and I've discovered that the psychologists take far less stock in the individuality of the human psyche than you and I do. You and I are physical scientists, so we think about the world as being all outside our skins—something which is to be observed, but which doesn't alter the essential *I*. But evidently, that old solipsistic position isn't quite true. Our very personalities, really, depend in large part upon *all* the things in our environment, large and small, that exist outside our skins. If by some means you could cut a

human being off from every sense impression that comes to him from outside, he would cease to exist as a personality within two or three minutes. Probably he would die."

"Unquote: Harry Stack Sullivan," Haertel said, dryly. "So?"

"So," Garrard said, "think of what a monotonous environment the inside of a spaceship is. It's perfectly rigid, still, unchanging, lifeless. In ordinary interplanetary flight, in such an environment, even the most hardened spaceman may go off his rocker now and then. You know the typical spaceman's psychosis as well as I do, I suppose. The man's personality goes rigid, just like his surroundings. Usually he recovers as soon as he makes port, and makes contact with a more-or-less normal world again.

"But in the DFC-3, I was cut off from the world around me much more severely. I couldn't look outside the ports—I was in overdrive, and there was nothing to see. I couldn't communicate with home, because I was going faster than light. And then I found I couldn't move either, for an enormous long while; and that even the instruments that are in constant change for the usual spaceman wouldn't be in motion for me. Even those were fixed.

"After the time rate began to pick up, I found myself in an even more impossible box. The instruments moved, all right, but then they moved too *fast* for me to read them. The whole situation was now utterly rigid—and, in effect, I died. I froze as solid as the ship around me, and stayed that way as long as the overdrive was on."

"By that showing," Haertel said dryly, "the time effects were hardly your friends."

"But they were, Adolph. Look. Your engines act on subjective time; they keep it varying along continuous curves—from far-too-slow to far-too-fast—and, I suppose, back down again. Now, this is a *situation of continuous change*. It wasn't marked enough, in the long run, to keep me out of pseudo-death; but it was sufficient to protect me from being obliterated altogether, which I think is what happened to Brown and Cellini.

Those men knew that they could shut down the overdrive if they could just get to it, and they killed themselves trying. But I knew that I just had to sit and take it—and, by my great good luck, your sine-curve time variation made it possible for me to survive.”

“Ah, ah,” Haertel said. “A point worth considering—though I doubt that it will make interstellar travel very popular!”

He dropped back into silence, his thin mouth pursed. Garrard took a grateful pull at his drink.

At last Haertel said: “Why are you in trouble over these Centaurians? It seems to me that you have done a good job. It was nothing that you were a hero—any fool can be brave—but I see also that you *thought*, where Brown and Cellini evidently only reacted. Is there some secret about what you found when you reached those two stars?”

Garrard said, “Yes, there is. But I’ve already told you what it is. When I came out of the pseudo-death, I was just a sort of plastic palimpsest upon which anybody could have made a mark. My own environment, my ordinary Earth environment, was a hell of a long way off. My present surroundings were nearly as rigid as they had ever been. When I met the Centaurians—if I did, and I’m not at all sure of that—they became the most important thing in my world, and my personality changed to accommodate and understand them. That was a change about which I couldn’t do a thing.

“Possibly I did understand them. But the man who understood them wasn’t the same man you’re talking to now, Adolph. Now that I’m back on Earth, I don’t understand that man. He even spoke English in a way that’s gibberish to me. If I can’t understand myself during that period—and I can’t; I don’t even believe that that man was the Garrard I know—what hope have I of telling you or the Project about the Centaurians? They found me in a controlled environment, and they altered me by entering it. Now that they’re gone, nothing comes through; I don’t even understand why I think they spoke English!”

“Did they have a name for themselves?”

"Sure," Garrard said. "They were the beademungen."

"What did they look like?"

"I never saw them."

Haertel leaned forward. "Then . . ."

"I heard them. I think," Garrard shrugged, and tasted his Scotch again. He was home, and on the whole he was pleased.

But in his malleable mind he heard someone say, *On Earth, as it is in Heaven*; and then, in another voice, which might also have been his own (why had he thought "himother"?), *It is later than you think*.

"Adolph," he said, "is this all there is to it? Or are we going to go on with it from here? How long will it take to make a better starship, a DFC-4?"

"Many years," Haertel said, smiling kindly. "Don't be anxious, Garrard. You've come back, which is more than the others managed to do, and nobody will ask you to go out again. I really think that it's hardly likely that we'll get another ship built during your lifetime; and even if we do, we'll be slow to launch it. We really have very little information about what kind of playground you found out there."

"I'll go," Garrard said. "I'm not afraid to go back—I'd like to go. Now that I know how the DFC-3 behaves, I could take it out again, bring you back proper maps, tapes, photos."

"Do you really think," Haertel said, his face suddenly serious, "that we could let the DFC-3 go out again? Garrard, we're going to take that ship apart practically molecule by molecule; that's preliminary to the building of any DFC-4. And no more can we let you go. I don't mean to be cruel, but has it occurred to you that this desire to go back may be the result of some kind of post-hypnotic suggestion? If so, the more badly you want to go back, the more dangerous to us all you may be. We are going to have to examine you just as thoroughly as we do the ship. If these beademungen wanted you to come back, they must have had a reason—and we have to know that reason."

Garrard nodded, but he knew that Haertel could see

the slight movement of his eyebrows and the wrinkles forming in his forehead, the contractions of the small muscles which stop the flow of tears only to make grief patent on the rest of the face.

"In short," he said, "*don't move.*"

Haertel looked politely puzzled. Garrard, however, could say nothing more. He had returned to humanity's common time, and would never leave it again.

Not even, for all his dimly remembered promise, with all there was left in him of love,

Beep

JOSEF FABER LOWERED his newspaper slightly. Finding the girl on the park bench looking his way, he smiled the agonizingly embarrassed smile of the thoroughly married nobody caught bird-watching, and ducked back into the paper again.

He was reasonably certain that he looked the part of a middle-aged, steadily employed, harmless citizen enjoying a Sunday break in the bookkeeping and family routines. He was also quite certain, despite his official instructions, that it wouldn't make the slightest bit of difference if he didn't. These boy-meets-girl assignments always came off. Jo had never tackled a single one that had required him.

As a matter of fact, the newspaper, which he was supposed to be using only as a blind, interested him a good deal more than his job did. He had only barely begun to suspect the obvious ten years ago when the Service had snapped him up; now, after a decade as an agent, he was still fascinated to see how smoothly the

really important situations came off. The *dangerous* situations—not boy-meets-girl.

This affair of the Black Horse Nebula, for instance. Some days ago the papers and the commentators had begun to mention reports of disturbances in that area, and Jo's practiced eye had picked up the mention. Something big was cooking.

Today it had boiled over—the Black Horse Nebula had suddenly spewed ships by the hundreds, a massed armada that must have taken more than a century of effort on the part of a whole star cluster, a production drive conducted in the strictest and most fanatical kind of secrecy. . . .

And, of course, the Service had been on the spot in plenty of time. With three times as many ships, disposed with mathematical precision so as to enfilade the entire armada the moment it broke from the nebula. The battle had been a massacre, the attack smashed before the average citizen could even begin to figure out what it had been aimed at—and good had triumphed over evil once more.

Of course.

Furtive scuffings on the gravel drew his attention briefly. He looked at his watch, which said 14:58:03. That was the time, according to his instructions, when boy had to meet girl.

He had been given the strictest kind of orders to let nothing interfere with this meeting—the orders always issued on boy-meets-girl assignments. But, as usual, he had nothing to do but observe. The meeting was coming off on the dot, without any prodding from Jo. They always did.

Of course.

With a sigh, he folded his newspaper, smiling again at the couple—yes, it was the right man, too—and moved away, as if reluctantly. He wondered what would happen were he to pull away the false mustache, pitch the newspaper on the grass, and bound away with a joyous whoop. He suspected that the course of history would not be deflected by even a second of arc, but he was not minded to try the experiment.

The park was pleasant. The twin suns warmed the path and the greenery without any of the blasting heat which they would bring to bear later in the summer. Randolph was altogether the most comfortable planet he had visited in years. A little backward, perhaps, but restful, too.

It was also slightly over a hundred light-years away from Earth. It would be interesting to know how Service headquarters on Earth could have known in advance that boy would meet girl at a certain spot on Randolph, precisely at 14:58:03.

Or how Service headquarters could have ambushed with micrometric precision a major interstellar fleet, with no more preparation than a few days' buildup in the newspapers and video could evidence.

The press was free, on Randolph as everywhere. It reported the news it got. Any emergency concentration of Service ships in the Black Horse area, or anywhere else, would have been noticed and reported on. The Service did not forbid such reports for "security" reasons or for any other reasons. Yet there had been nothing to report but that (a) an armada of staggering size had erupted with no real warning from the Black Horse Nebula, and that (b) the Service had been ready.

By now, it was a commonplace that the Service was always ready. It had not had a defect or failure in well over two centuries. It had not even had a fiasco, the alarming-sounding technical word by which it referred to the possibility that a boy-meets-girl assignment might not come off.

Jo hailed a hopper. Once inside he stripped himself of the mustache, the bald spot, the forehead creases—all the make-up which had given him his mask of friendly innocuousness.

The hoppy watched the whole process in the rear-view mirror. Jo glanced up and met his eyes.

"Pardon me, mister, but I figured you didn't care if I saw you. You must be a Service man."

"That's right. Take me to Service HQ, will you?"

"Sure enough." The hoppy gunned his machine. It rose smoothly to the express level. "First time I ever got close to a Service man. Didn't hardly believe it at first

when I saw you taking your face off. You sure looked different."

"Have to, sometimes," Jo said, preoccupied.

"I'll bet. No wonder you know all about everything before it breaks. You must have a thousand faces each, your own mother wouldn't know you, eh? Don't you care if I know about your snooping around in disguise?"

Jo grinned. The grin created a tiny pulling sensation across one curve of his cheek, just next to his nose. He stripped away the overlooked bit of tissue and examined it critically.

"Of course not. Disguise is an elementary part of Service work. Anyone could guess that. We don't use it often, as a matter of fact—only on very simple assignments."

"Oh." The hoppy sounded slightly disappointed, as melodrama faded. He drove silently for about a minute. Then, speculatively: "Sometimes I think the Service must have time-travel, the things they pull. . . . Well, here you are. Good luck, mister."

"Thanks."

Jo went directly to Krasna's office. Krasna was a Randolpher. Earth-trained, and answerable to the Earth office, but otherwise pretty much on his own. His heavy, muscular face wore the same expression of serene confidence that was characteristic of Service officials everywhere—even some that, technically speaking, had no faces to wear it.

"Boy meets girl," Jo said briefly. "On the nose and on the spot."

"Good work, Jo. Cigarette?" Krasna pushed the box across his desk.

"Nope, not now. Like to talk to you, if you've got time."

Krasna pushed a button, and a toadstoollike chair rose out of the floor behind Jo. "What's on your mind?"

"Well," Jo said carefully. "I'm wondering why you patted me on the back just now for not doing a job."

"You did a job."

"I did not," Jo said flatly. "Boy would have met girl, whether I'd been here on Randolph or back on Earth. The course of true love always runs smooth. It has in all

my boy-meets-girl cases, and it has in the boy-meets-girl cases of every other agent with whom I've compared notes."

"Well, good," Krasna said, smiling. "That's the way we like to have it run. And that's the way we expect it to run. But, Jo, we like to have somebody on the spot, somebody with a reputation for resourcefulness, just in case there's a snag. There almost never is, as you've observed. But—if there were?"

Jo snorted. "If what you're trying to do is to establish preconditions for the future, any interference by a Service agent would throw the eventual result farther *off* the track. I know that much about probability."

"And what makes you think that we're trying to set up the future?"

"It's obvious even to the hoppers on your own planet; the one that brought me here told me he thought the Service had time-travel. It's especially obvious to all the individuals and governments and entire populations that the Service has bailed out of serious messes for centuries, with never a single failure." Jo shrugged. "A man can be asked to safeguard only a small number of boy-meets-girl cases before he realizes, as an agent, that what the Service is safeguarding is the future children of those meetings. Ergo—the Service *knows* what those children are to be like, and has reason to want their future existence guaranteed. What other conclusion is possible?"

Krasna took out a cigarette and lit it deliberately; it was obvious that he was using the maneuver to cloak his response.

"None," he admitted at last. "We have some foreknowledge, of course. We couldn't have made our reputation with espionage alone. But we have obvious other advantages: genetics, for instance, and operations research, the theory of games, the Dirac transmitter—it's quite an arsenal, and of course there's a good deal of prediction involved in all those things."

"I see that," Jo said. He shifted in his chair, formulating all he wanted to say. He changed his mind about the cigarette and helped himself to one. "But these

things don't add up to infallibility—and that's a qualitative difference, Kras. Take this affair of the Black Horse armada. The moment the armada appeared, we'll assume, Earth heard about it by Dirac, and started to assemble a counterarmada. But it takes *finite time* to bring together a concentration of ships and men, even if your message system is instantaneous.

"The Service's counterarmada was *already on hand*. It had been building there for so long and with so little fuss that nobody even noticed it concentrating until a day or so before the battle. Then planets in the area began to sit up and take notice, and be uneasy about what was going to break. But not very uneasy; the Service always wins—that's been a statistical fact for centuries. *Centuries*, Kras. Good Lord, it takes almost as long as that, in straight preparation, to pull some of the tricks we've pulled! The Dirac gives us an advantage of ten to twenty-five years in really extreme cases out on the rim of the Galaxy, but no more than that."

He realized that he had been fuming away on the cigarette until the roof of his mouth was scorched, and snubbed it out angrily. "That's a very different thing," he said, "than knowing in a general way how an enemy is likely to behave, or what kind of children the Mendelian laws say a given couple should have. It means that we've some way of reading the future in minute detail. That's in flat contradiction to everything I've been taught about probability, but I have to believe what I see."

Krasna laughed. "That's a very able presentation," he said. He seemed genuinely pleased. "I think you'll remember that you were first impressed into the Service when you began to wonder why the news was always good. Fewer and fewer people wonder about that nowadays; it's become a part of their expected environment." He stood up and ran a hand through his hair. "Now you've carried yourself through the next stage. Congratulations, Jo. You've just been promoted!"

"I have?" Jo said incredulously. "I came in here with the notion that I might get myself fired."

"No. Come around to this side of the desk, Jo, and

"I'll play you a little history." Krasna unfolded the desktop to expose a small visor screen. Obediently Jo rose and went around the desk to where he could see the blank surface. "I had a standard indoctrination tape sent up to me a week ago, in the expectation that you'd be ready to see it. Watch."

Krasna touched the board. A small dot of light appeared in the center of the screen and went out again. At the same time, there was a small *beep* of sound. Then the tape began to unroll and a picture clarified on the screen.

"As you suspected," Krasna said conversationally, "the Service is infallible. How it got that way is a story that started several centuries back."

II

Dana Lje—her father had been a Hollander, her mother born in the Celebes—sat down in the chair which Captain Robin Weinbaum had indicated, crossed her legs, and waited, her blue-black hair shining under the lights.

Weinbaum eyed her quizzically. The conqueror Resident who had given the girl her entirely European name had been paid in kind, for his daughter's beauty had nothing fair and Dutch about it. To the eye of the beholder, Dana Lje seemed a particularly delicate virgin of Bali, despite her Western name, clothing and assurance. The combination had already proven piquant for the millions who watched her television column, and Weinbaum found it no less charming at first hand.

"As one of your most recent victims," he said, "I'm not sure that I'm honored, Miss Lje. A few of my wounds are still bleeding. But I am a good deal puzzled as to why you're visiting me now. Aren't you afraid that I'll bite back?"

"I had no intention of attacking you personally, and I don't think I did," the video columnist said seriously. "It was just pretty plain that our intelligence had slipped badly in the Erskine affair. It was my job to say so. Obviously you were going to get hurt, since you're head of the bureau—but there was no malice in it."

"Cold comfort," Weinbaum said dryly. "But thank you, nevertheless."

The Eurasian girl shrugged. "That isn't what I came here about, anyway. Tell me, Captain Weinbaum—have you ever heard of an outfit calling itself Interstellar Information?"

Weinbaum shook his head. "Sounds like a skip-tracing firm. Not an easy business, these days."

"That's just what I thought when I first saw their letterhead," Dana said. "But the letter under it wasn't one that a private-eye outfit would write. Let me read part of it to you."

Her slim fingers burrowed in her inside jacket pocket and emerged again with a single sheet of paper. It was plain typewriter bond, Weinbaum noted automatically: she had brought only a copy with her, and had left the original of the letter at home. The copy, then, would be incomplete—probably seriously.

"It goes like this: 'Dear Miss Lje: As a syndicated video commentator with a wide audience and heavy responsibilities, you need the best sources of information available. We would like you to test our service, free of charge, in the hope of proving to you that it is superior to any other source of news on Earth. Therefore, we offer below several predictions concerning events to come in the Hercules and the so-called "Three Ghosts" areas. If these predictions are fulfilled 100 per cent—no less—we ask that you take us on as your correspondents for those areas, at rates to be agreed upon later. If the predictions are wrong in *any* respect, you need not consider us further.'

"H'm," Weinbaum said slowly. "They're confident cusses—and that's an odd juxtaposition. The Three Ghosts make up only a little solar system, while the Hercules area could include the entire star cluster—or maybe even the whole constellation, which is a hell of a lot of sky. This outfit seems to be trying to tell you that it has thousands of field correspondents of its own, maybe as many as the government itself. If so, I'll guarantee that they're bragging."

"That may well be so. But before you make up your mind, let me read you one of the two predictions." The

letter rustled in Dana Lje's hand. "‘At 03:16:10, on Year Day, 2090, the Hess-type interstellar liner *Brindisi* will be attacked in the neighborhood of the Three Ghosts system by four——’ "

Weinbaum sat bolt upright in his swivel chair. "Let me see that letter!" he said, his voice harsh with repressed alarm.

"In a moment," the girl said, adjusting her skirt composedly. "Evidently I was right in riding my hunch. Let me go on reading: ‘—by four heavily armed vessels flying the lights of the navy of Hammersmith II. The position of the liner at that time will be at coded co-ordinates 88-A-theta-88-aleph-D and-per-se-and. It will——’ "

"Miss Lje," Weinbaum said. "I'm sorry to interrupt you again, but what you've said already would justify me in jailing you at once, no matter how loudly your sponsors might scream. I don't know about this Interstellar Information outfit, or whether or not you did receive any such letter as the one you pretend to be quoting. But I can tell you that you've shown yourself to be in possession of information that only yours truly and four other men are supposed to know. It's already too late to tell you that everything you say may be held against you; all I can say now is, it's high time you clammed up!"

"I thought so," she said, apparently not disturbed in the least. "Then that liner *is* scheduled to hit those co-ordinates, and the coded time co-ordinate corresponds with the predicted Universal Time. Is it also true that the *Brindisi* will be carrying a top-secret communication device?"

"Are you deliberately trying to make me imprison you?" Weinbaum said, gritting his teeth. "Or is this just a stunt, designed to show me that my own bureau is full of leaks?"

"It could turn into that," Dana admitted. "But it hasn't, yet. Robin, I've been as honest with you as I'm able to be. You've had nothing but square deals from me up to now. I wouldn't yellow-screen you, and you know it. If this unknown outfit has this information, it

might easily have gotten it from where it hints that it got it, from the field."

"Impossible."

"Why?"

"Because the information in question hasn't even reached my *own* agents in the field yet—it couldn't possibly have leaked as far as Hammersmith II or anywhere else, let alone to the Three Ghosts system! Letters have to be carried on ships, you know that. If I were to send orders by ultrawave to my Three Ghosts agent, he'd have to wait three hundred and twenty-four years to get them. By ship, he can get them in a little over two months. These particular orders have only been under way to him five days. Even if somebody has read them on board the ship that's carrying them, they couldn't possibly be sent on to the Three Ghosts any faster than they're traveling now."

Dana nodded her dark head. "All right. Then what are we left with but a leak in your headquarters here?"

"What, indeed," Weinbaum said grimly. "You'd better tell me who signed this letter of yours."

"The signature is J. Shelby Stevens."

Weinbaum switched on the intercom. "Margaret, look in the business register for an outfit called Interstellar Information and find out who owns it."

Dana Lje said, "Aren't you interested in the rest of the prediction?"

"You bet I am. Does it tell you the name of this communications device?"

"Yes," Dana said.

"What is it?"

"The Dirac communicator."

Weinbaum groaned and turned on the intercom again. "Margaret, send in Dr. Wald. Tell him to drop everything and gallop. Any luck with the other thing?"

"Yes, sir," the intercom said. "It's a one-man outfit, wholly owned by a J. Shelby Stevens, in Rico City. It was first registered this year."

"Arrest him, on suspicion of espionage."

The door swung open and Dr. Wald came in, all six and a half feet of him. He was extremely blond, and looked awkward, gentle, and not very intelligent.

"Thor, this young lady is our press nemesis, Dana Lje. Dana, Dr. Wald is the inventor of the Dirac communicator, about which you have so damnably much information."

"It's out *already*?" Dr. Wald said, scanning the girl with grave deliberation.

"It is, and lots more—*lots* more. Dana, you're a good girl at heart, and for some reason I trust you, stupid though it is to trust anybody in this job. I should detain you until Year Day, videocasts or no videocasts. Instead, I'm just going to ask you to sit on what you've got, and I'm going to explain why."

"Shoot."

"I've already mentioned how slow communication is between star and star. We have to carry all our letters on ships, just as we did locally before the invention of the telegraph. The overdrive lets us beat the speed of light, but not by much of a margin over really long distances. Do you understand that?"

"Certainly," Dana said. She appeared a bit nettled, and Weinbaum decided to give her the full dose at a more rapid pace. After all, she could be assumed to be better informed than the average layman.

"What we've needed for a long time, then," he said, "is some virtually instantaneous method of getting a message from somewhere to anywhere. Any time lag, no matter how small it seems at first, has a way of becoming major as longer and longer distances are involved. Sooner or later we must have this instantaneous method, or we won't be able to get messages from one system to another fast enough to hold our jurisdiction over outlying regions of space."

"Wait a minute," Dana said. "I'd always understood that ultrawave is faster than light."

"Effectively it is; physically it isn't. You don't understand that?"

She shook her dark head.

"In a nutshell," Weinbaum said, "ultrawave is radiation, and all radiation in free space is limited to the speed of light. The way we hype up ultrawave is to use an old application of wave-guide theory, whereby the real transmission of energy is at light speed, but an imag-

inary thing called 'phase velocity' is going faster. But the gain in speed of transmission isn't large—by ultrawave, for instance, we get a message to Alpha Centauri in one year instead of nearly four. Over long distances, that's not nearly enough extra speed."

"Can't it be speeded further?" she said, frowning.

"No. Think of the ultrawave beam between here and Centaurus III as a caterpillar. The caterpillar himself is moving quite slowly, just at the speed of light. But the pulses which pass along his body are going forward faster than he is—and if you've ever watched a caterpillar, you'll know that that's true. But there's a physical limit to the number of pulses you can travel along that caterpillar, and we've already reached that limit. We've taken phase velocity as far as it will go.

"That's why we need something faster. For a long time our relativity theories discouraged hope of anything faster—even the high-phase velocity of a guided wave didn't contradict those theories; it just found a limited, mathematically imaginary loophole in them. But when Thor here began looking into the question of the velocity of propagation of a Dirac pulse, he found the answer. The communicator he developed does seem to act over long distances, *any* distance, instantaneously—and it may wind up knocking relativity into a cocked hat."

The girl's face was a study in stunned realization. "I'm not sure I've taken in all the technical angles," she said. "But if I'd had any notion of the political dynamite in this thing——"

"—you'd have kept out of my office," Weinbaum said grimly. "A good thing you didn't. The *Brindisi* is carrying a model of the Dirac communicator out to the periphery for a final test; the ship is supposed to get in touch with me from out there at a given Earth time, which we've calculated very elaborately to account for the residual Lorentz and Milne transformations involved in overdrive flight, and for a lot of other time phenomena that wouldn't mean anything at all to you.

"If that signal arrives here at the given Earth time, then—aside from the havoc it will create among the theoretical physicists whom we decide to let in on it—

we will really have our instant communicator, and can include all of occupied space in the same time zone. And we'll have a terrific advantage over any lawbreaker who has to resort to ultrawave locally and to letters carried by ships over the long haul."

"Not," Dr. Wald said sourly, "if it's already leaked out."

"It remains to be seen how much of it has leaked," Weinbaum said. "The principle is rather esoteric, Thor, and the name of the thing alone wouldn't mean much even to a trained scientist. I gather that Dana's mysterious informant didn't go into technical details . . . or did he?"

"No," Dana said.

"Tell the truth, Dana. I know that you're suppressing some of that letter."

The girl started slightly. "All right—yes, I am. But nothing technical. There's another part of the prediction that lists the number and class of ships you will send to protect the *Brindisi*—the prediction says they'll be sufficient, by the way—and I'm keeping that to myself, to see whether or not it comes true along with the rest. If it does, I think I've hired myself a correspondent."

"If it does," Weinbaum said, "you've hired yourself a jailbird. Let's see how much mind reading J. Whatsit Stevens can do from the subcellar of Fort Yaphank."

III

Weinbaum let himself into Steven's cell, locking the door behind him and passing the keys out to the guard. He sat down heavily on the nearest stool.

Stevens smiled the weak benevolent smile of the very old, and laid his book aside on the bunk. The book, Weinbaum knew—since his office had cleared it—was only a volume of pleasant, harmless lyrics by a New Dynasty poet named Nims.

"Were our predictions correct, Captain?" Stevens said. His voice was high and musical, rather like that of a boy soprano.

Weinbaum nodded. "You still won't tell us how you did it?"

"But I already have," Stevens protested. "Our intelligence network is the best in the Universe, Captain. It is superior even to your own excellent organization, as events have shown."

"Its results are superior, that I'll grant," Weinbaum said glumly. "If Dana Lje had thrown your letter down her disposal chute, we would have lost the *Brindisi* and our Dirac transmitter both. Incidentally, did your original letter predict accurately the number of ships we would send?"

Stevens nodded pleasantly, his neatly trimmed white beard thrusting forward slightly as he smiled.

"I was afraid so," Weinbaum leaned forward. "Do you have the Dirac transmitter, Stevens?"

"Of course, Captain. How else could my correspondents report to me with the efficiency you have observed?"

"Then why don't our receivers pick up the broadcasts of your agents? Dr. Wald says it's inherent in the principle that Dirac 'casts are picked up by *all* instruments tuned to receive them, bar none. And at this stage of the game there are so few such broadcasts being made that we'd be almost certain to detect any that weren't coming from our own operatives."

"I decline to answer that question, if you'll excuse the impoliteness," Stevens said, his voice quavering slightly. "I am an old man, Captain, and this intelligence agency is my sole source of income. If I told you how we operated, we would no longer have any advantage over your own service, except for the limited freedom from secrecy which we have. I have been assured by competent lawyers that I have every right to operate a private investigation bureau, properly licensed, upon any scale that I may choose, and that I have the right to keep my methods secret, as the so-called 'intellectual assets' of my firm. If you wish to use our services, well and good. We will provide them, with absolute guarantees on all information we furnish you, for an appropriate fee. But our methods are our own property."

Robin Weinbaum smiled twistedly. "I'm not a naïve man, Mr. Stevens," he said. "My service is hard on naïveté. You know as well as I do that the government

can't allow you to operate on a free-lance basis, supplying top-secret information to anyone who can pay the price, or even free of charge to video columnists on a 'test' basis, even though you arrive at every jot of that information independently of espionage—which I still haven't entirely ruled out, by the way. If you can duplicate this *Brindisi* performance at will, we will have to have your services exclusively. In short, you become a hired civilian arm of my own bureau."

"Quite," Stevens said, returning the smile in a fatherly way. "We anticipated that, of course. However, we have contracts with other governments to consider; Erskine, in particular. If we are to work exclusively for Earth, necessarily our price will include compensation for renouncing our other accounts."

"Why should it? Patriotic public servants work for their government at a loss, if they can't work for it any other way."

"I am quite aware of that. I am quite prepared to renounce my other interests. But I do require to be paid."

"How much?" Weinbaum said, suddenly aware that his fists were clenched so tightly that they hurt.

Stevens appeared to consider, nodding his flowery white poll in senile deliberation. "My associates would have to be consulted. Tentatively, however, a sum equal to the present appropriation of your bureau would do, pending further negotiations."

Weinbaum shot to his feet, eyes wide. "You old buccaneer! You know damned well that I can't spend my entire appropriation on a single civilian service! Did it ever occur to you that most of the civilian outfits working for us are on cost-plus contracts, and that our civilian executives are being paid just a credit a year, by their own choice? You're demanding nearly two thousand credits an hour from your own government, and claiming the legal protection that the government affords you at the same time, in order to let those fanatics on Erskine run up a higher bid!"

"The price is not unreasonable," Stevens said. "The service is worth the price."

"That's where you're wrong! We have the discoverer

of the machine working for us. For less than half the sum you're asking, we can find the application of the device that you're trading on—of that you can be damned sure."

"A dangerous gamble, Captain."

"Perhaps. We'll soon see!" Weinbaum glared at the placid face. "I'm forced to tell you that you're a free man, Mr. Stevens. We've been unable to show that you came by your information by any illegal method. You had classified facts in your possession, but no classified documents, and it's your privilege as a citizen to make guesses, no matter how educated."

"But we'll catch up with you sooner or later. Had you been reasonable, you might have found yourself in a very good position with us, your income as assured as any political income can be, and your person respected to the hilt. Now, however, you're subject to censorship—you have no idea how humiliating that can be, but I'm going to see to it that you find out. There'll be no more newsbeats for Dana Lje, or for anyone else. I want to see every word of copy that you file with any client outside the bureau. Every word that is of use to me will be used, and you'll be paid the statutory one cent a word for it—the same rate that the FBI pays for anonymous gossip. Everything I don't find useful will be killed without clearance. Eventually we'll have the modification of the Dirac that you're using, and when that happens, you'll be so flat broke that a pancake with a harelip could spit right over you."

Weinbaum paused for a moment, astonished at his own fury.

Stevens's clarinetlike voice began to sound in the windowless cavity. "Captain, I have no doubt that you can do this to me, at least incompletely. But it will prove fruitless. I will give you a prediction, at no charge. It is guaranteed, as are all our predictions. It is this: *You will never find that modification.* Eventually, I will give it to you, on my own terms, but you will never find it for yourself, nor will you force it out of me. In the meantime, not a word of copy will be filed with you; for, despite the fact that you are an arm of the government, I can well afford to wait you out."

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"Bluster," Weinbaum said.

"Fact. Yours is the bluster—loud talk based on nothing more than a hope. I, however, *know* whereof I speak. . . . But let us conclude this discussion. It serves no purpose; you will need to see my points made the hard way. Thank you for giving me my freedom. We will talk again under different circumstances on—let me see; ah, yes, on June 9 of the year 2091. That year is, I believe, almost upon us."

Stevens picked up his book again, nodding at Weinbaum, his expression harmless and kindly, his hands showing the marked tremor of *paralysis agitans*. Weinbaum moved helplessly to the door and flagged the turnkey. As the bars closed behind him, Stevens's voice called out: "Oh, yes; and a Happy New Year, Captain."

Weinbaum blasted his way back into his own office, at least twice as mad as the proverbial nest of hornets, and at the same time rather dismally aware of his own probable future. If Stevens's second prediction turned out to be as phenomenally accurate as his first had been, Capt. Robin Weinbaum would soon be peddling a natty set of secondhand uniforms.

He glared down at Margaret Soames, his receptionist. She glared right back; she had known him too long to be intimidated.

"Anything?" he said.

"Dr. Wald's waiting for you in your office. There are some field reports, and a couple of Diracs on your private tape. Any luck with the old codger?"

"That," he said crushingly, "is Top Secret."

"Poof. That means that nobody still knows the answer but J. Shelby Stevens."

He collapsed suddenly. "You're so right. That's just what it does mean. But we'll bust him wide open sooner or later. We've *got* to."

"You'll do it," Margaret said. "Anything else for me?"

"No. Tip off the clerical staff that there's a half holiday today, then go take in a stereo or a steak or something yourself. Dr. Wald and I have a few private wires

to pull . . . and unless I'm sadly mistaken, a private bottle of aquavit to empty."

"Right," the receptionist said. "Tie one on for me, Chief. I understand that beer is the best chaser for aquavit—I'll have some sent up."

"If you should return after I am suitably squiffed," Weinbaum said, feeling a little better already, "I will kiss you for your thoughtfulness. *That* should keep you at your stereo at least twice through the third feature."

As he went on through the door of his own office, she said demurely behind him, "It certainly should."

As soon as the door closed, however, his mood became abruptly almost as black as before. Despite his comparative youth—he was now only fifty-five—he had been in the service a long time, and he needed no one to tell him the possible consequences which might flow from possession by a private citizen of the Dirac communicator. If there was ever to be a Federation of Man in the Galaxy, it was within the power of J. Shelby Stevens to ruin it before it had fairly gotten started. And there seemed to be nothing at all that could be done about it.

"Hello, Thor," he said glumly. "Pass the bottle."

"Hello, Robin. I gather things went badly. Tell me about it."

Briefly, Weinbaum told him. "And the worst of it," he finished, "is that Stevens himself predicts that we won't find the application of the Dirac that he's using, and that eventually we'll have to buy it at his price. Somehow I believe him—but I can't see how it's possible. If I were to tell Congress that I was going to spend my entire appropriation for a single civilian service, I'd be out on my ear within the next three sessions."

"Perhaps that isn't his real price," the scientist suggested. "If he wants to barter, he'd naturally begin with a demand miles above what he actually wants."

"Sure, sure . . . but frankly, Thor, I'd hate to give the old reprobate even a single credit if I could get out of it." Weinbaum sighed. "Well, let's see what's come in from the field."

Thor Wald moved silently away from Weinbaum's desk while the officer unfolded it and set up the Dirac

screen. Stacked neatly next to the ultraphone—a device Weinbaum had been thinking of, only a few days ago, as permanently outmoded—were the tapes Margaret had mentioned. He fed the first one into the Dirac and turned the main toggle to the position labeled START.

Immediately the whole screen went pure white and the audio speakers emitted an almost instantly end-stopped blare of sound—a *beep* which, as Weinbaum already knew, made up a continuous spectrum from about 30 cycles per second to well above 18,000 cps. Then both the light and noise were gone as if they had never been, and were replaced by the familiar face and voice of Weinbaum's local ops chief in Rico City.

"There's nothing unusual in the way of transmitters in Stevens's offices here," the operative said without preamble. "And there isn't any local Interstellar Information staff, except for one stenographer, and she's as dumb as they come. About all we could get from her is that Stevens is 'such a sweet old man.' No possibility that she's faking it; she's genuinely stupid, the kind that thinks Betelgeuse is something Indians use to darken their skins. We looked for some sort of list or code table that would give us a line on Stevens's field staff, but that was another dead end. Now we're maintaining a twenty-four-hour Dinwiddie watch on the place from a joint across the street. Orders?"

Weinbaum dictated to the blank stretch of tape which followed: "Margaret, next time you send any Dirac tapes in here, cut that damnable *beep* off them first. Tell the boys in Rico City that Stevens has been released, and that I'm proceeding for an Order In Security to tap his ultraphone and his local lines—this is one case where I'm sure we can persuade the court that tapping's necessary. Also—and be damned sure you code this—tell them to proceed with the tap immediately and to maintain it regardless of whether or not the court O.K.s it. I'll thumbprint a Full Responsibility Confession for them. We can't afford to play pat-a-cake with Stevens—the potential is just too damned big. And oh, yes, Margaret, send the message by carrier, and send out general orders to everybody concerned not to use the Dirac again except when distance and time rule ev-

ery other medium out. Stevens has already admitted that he can receive Dirac 'casts."

He put down the mike and stared morosely for a moment at the beautiful Eridanean scrollwood of his desktop. Wald coughed inquiringly and retrieved the aquavit.

"Excuse me, Robin," he said, "but I should think that would work both ways."

"So should I. And yet the fact is that we've never picked up so much as a whisper from either Stevens or his agents. I can't think of any way that could be pulled, but evidently it can."

"Well, let's rethink the problem, and see what we get," Wald said. "I didn't want to say so in front of the young lady, for obvious reasons—I mean Miss Lje, of course, not Margaret—but the truth is that the Dirac is essentially a simple mechanism in principle. I seriously doubt that there's any way to transmit a message from it which can't be detected—and an examination of the theory with that proviso in mind might give us something new."

"What proviso?" Weinbaum said. Thor Wald left him behind rather often these days.

"Why, that a Dirac transmission doesn't *necessarily* go to all communicators capable of receiving it. If that's true, then the reasons why it is true should emerge from the theory."

"I see. O.K., proceed on that line. I've been looking at Stevens's dossier while you were talking, and it's all an absolute desert. Prior to the opening of the office in Rico City, there's no dope whatever on J. Shelby Stevens. The man as good as rubbed my nose in the fact that he's using a pseud when I first talked to him. I asked him what the 'J' in his name stood for, and he said, 'Oh, let's make it Jerome.' But who the man behind the pseud is . . ."

"Is it possible that he's using his own initials?"

"No," Weinbaum said. "Only the dumbest ever do that, or transpose syllables, or retain any connection at all with their real names. Those are the people who are in serious emotional trouble, people who drive themselves into anonymity, but leave clues strewn all around

the landscape—those clues are really a cry for help, for discovery. Of course we're working on that angle—we can't neglect anything—but J. Shelby Stevens isn't that kind of case, I'm sure." Weinbaum stood up abruptly. "O.K., Thor—what's first on your technical program?"

"Well . . . I suppose we'll have to start with checking the frequencies we use. We're going on Dirac's assumption—and it works very well, and always has—that a positron in motion through a crystal lattice is accompanied by de Broglie waves which are transforms of the waves of an electron in motion somewhere else in the Universe. Thus if we control the frequency and path of the positron, we control the placement of the electron—we cause it to appear, so to speak, in the circuits of a communicator somewhere else. After that, reception is just a matter of amplifying the bursts and reading the signal."

Wald scowled and shook his blond head. "If Stevens is getting out messages which we don't pick up, my first assumption would be that he's worked out a fine-tuning circuit that's more delicate than ours, and is more or less sneaking his messages under ours. The only way that could be done, as far as I can see at the moment, is by something really fantastic in the way of exact frequency control of his positron gun. If so, the logical step for us is to go back to the beginning of our tests and rerun our diffractions to see if we can refine our measurements of positron frequencies."

The scientist looked so inexpressibly gloomy as he offered this conclusion that a pall of hopelessness settled over Weinbaum in sheer sympathy. "You don't look as if you expected that to uncover anything new."

"I don't. You see, Robin, things are different in physics now than they used to be in the twentieth century. In those days, it was always presupposed that physics was limitless—the classic statement was made by Weyl, who said that 'It is the nature of a real thing to be inexhaustible in content.' We know now that that's not so, except in a remote, associational sort of way. Nowadays, physics is a defined and self-limited science; its scope is still prodigious, but we can no longer think of it as endless.

"This is better established in particle physics than in

any other branch of the science. Half of the trouble physicists of the last century had with Euclidean geometry—and hence the reason why they evolved so many recomplicated theories of relativity—is that it's a geometry of lines, and thus can be subdivided infinitely. When Cantor proved that there really is an infinity, at least mathematically speaking, that seemed to clinch the case for the possibility of a really infinite physical universe, too."

Wald's eyes grew vague, and he paused to gulp down a slug of the licorice-flavored aquavit which would have made Weinbaum's every hair stand on end.

"I remember," Wald said, "the man who taught me theory of sets at Princeton, many years ago. He used to say: 'Cantor teaches us that there are many kinds of infinities. *There* was a crazy old man!'"

Weinbaum rescued the bottle hastily. "So go on, Thor."

"Oh." Wald blinked. "Yes. Well, what we know now is that the geometry which applies to ultimate particles, like the positron, isn't Euclidean at all. It's Pythagorean—a geometry of points, not lines. Once you've measured one of those points, and it doesn't matter what kind of quantity you're measuring, you're down as far as you can go. At that point, the Universe becomes discontinuous, and no further refinement is possible.

"And I'd say that our positron-frequency measurements have already gotten that far down. There isn't another element in the Universe denser than plutonium, yet we get the same frequency values by diffraction through plutonium crystals that we get through osmium crystals—there's not the slightest difference. If J. Shelby Stevens is operating in terms of fractions of those values, then he's doing what an organist would call 'playing in the cracks'—which is certainly something you can *think* about doing, but something that's in actuality impossible to do. *Hoop.*"

"Hoop?" Weinbaum said.

"Sorry. A hiccup only."

"Oh. Well, maybe Stevens has rebuilt the organ?"

"If he has rebuilt the metrical frame of the Universe to accommodate a private skip-tracing firm," Wald said

firmly, "I for one see no reason why we can't counter-check him—*hoop*—by declaring the whole cosmos null and void."

"All right, all right," Weinbaum said, grinning. "I didn't mean to push your analogy right over the edge—I was just asking. But let's get to work on it anyhow. We can't just sit here and let Stevens get away with it. If this frequency angle turns out to be as hopeless as it seems, we'll try something else."

Wald eyed the aquavit bottle owlishly. "It's a very pretty problem," he said. "Have I ever sung you the song we have in Sweden called 'Nat-og-Dag?'"

"*Hoop*," Weinbaum said to his own surprise, in a high falsetto. "Excuse me. No. Let's hear it."

The computer occupied an entire floor of the Security building, its seemingly identical banks laid out side by side on the floor along an advanced pathological state of Peano's "space-filling curve." At the current business end of the line was a master control board with a large television screen at its center, at which Dr. Wald was stationed, with Weinbaum looking, silently but anxiously, over his shoulder.

The screen itself showed a pattern which, except that it was drawn in green light against a dark gray background, strongly resembled the grain in a piece of highly polished mahogany. Photographs of similar patterns were stacked on a small table to Dr. Wald's right; several had spilled over onto the floor.

"Well, there it is," Wald sighed at length. "And I won't struggle to keep myself from saying 'I told you so.' What you've had me do here, Robin, is to reconfirm about half the basic postulates of particle physics—which is why it took so long, even though it was the first project we started." He snapped off the screen. "There are no cracks for J. Shelby to play in. That's definite."

"If you'd said 'That's flat,' you would have made a joke," Weinbaum said sourly. "Look . . . isn't there still a chance of error? If not on your part, Thor, then in the computer? After all, it's set up to work only with the unit charges of modern physics; mightn't we have to

disconnect the banks that contain that bias before the machine will follow the fractional-charge instructions we give it?"

"'Disconnect,' he says," Wald groaned, mopping his brow reflectively. "The bias exists everywhere in the machine, my friend, because it functions everywhere on those same unit charges. It wasn't a matter of subtracting banks; we had to add one with a bias all its own, to counteract the corrections the computer would otherwise apply to the instructions. The technicians thought I was crazy. Now, five months later, I've proved it."

Weinbaum grinned in spite of himself. "What about the other projects?"

"All done—some time back, as a matter of fact. The staff and I checked every single Dirac tape we've received since you released J. Shelby from Yaphank, for any sign of intermodulation, marginal signals, or anything else of the kind. There's nothing, Robin, absolutely nothing. That's our net result, all around."

"Which leaves us just where we started," Weinbaum said. "All the monitoring projects came to the same dead end; I strongly suspect that Stevens hasn't risked any further calls from his home office to his field staff, even though he seemed confident that we'd never intercept such calls—as we haven't. Even our local wire tapping hasn't turned up anything but calls by Stevens's secretary, making appointments for him with various clients, actual and potential. Any information he's selling these days he's passing on in person—and not in his office, either, because we've got bugs planted all over that and haven't heard a thing."

"That must limit his range of operation enormously," Wald objected.

Weinbaum nodded. "Without a doubt—but he shows no signs of being bothered by it. He can't have sent any tips to Erskine recently, for instance, because our last tangle with that crew came out very well for us, even though we had to use the Dirac to send the orders to our squadron out there. If he overheard us, he didn't even try to pass the word. Just as he said, he's sweating us out—" Weinbaum paused. "Wait a minute, here

comes Margaret. And by the length of her stride, I'd say she's got something particularly nasty on her mind."

"You bet I do," Margaret Soames said vindictively. "And it'll blow plenty of lids around here, or I miss my guess. The I. D. squad has finally pinned down J. Shelby Stevens. They did it with the voice-comparator alone."

"How does that work?" Wald said interestedly.

"Blink microphone," Weinbaum said impatiently. "Isolates inflections on single, normally stressed syllables and matches them. Standard I. D. searching technique, on a case of this kind, but it takes so long that we usually get the quarry by other means before it pays off. Well, don't stand there like a dummy, Margaret. Who is he?"

"He," Margaret said, "is your sweetheart of the video waves, Miss Dana Lje."

"They're crazy!" Wald said, staring at her.

Weinbaum came slowly out of his first shock of stunned disbelief. "No, Thor," he said finally. "No, it figures. If a woman is going to go in for disguises, there are always two she can assume outside her own sex: a young boy, and a very old man. And Dana's an actress; that's no news to us."

"But—but why did she do it, Robin?"

"That's what we're going to find out right now. So we wouldn't get the Dirac modification by ourselves, eh! Well, there are other ways of getting answers besides particle physics. Margaret, do you have a pick-up order out for that girl?"

"No," the receptionist said. "This is one chestnut I wanted to see you pull out for yourself. You give me the authority, and I send the order—not before."

"Spiteful child. Send it, then, and glory in my gritted teeth. Come on, Thor—let's put the nutcracker on this chestnut."

As they were leaving the computer floor, Weinbaum stopped suddenly in his tracks and began to mutter in an almost inaudible voice.

Wald said, "What's the matter, Robin?"

"Nothing. I keep being brought up short by those predictions. What's the date?"

"M'm . . . June 9. Why?"

"It's the exact date that 'Stevens' predicted we'd meet again, damn it! Something tells me that this isn't going to be as simple as it looks."

If Dana Lje had any idea of what she was in for—and considering the fact that she was 'J. Shelby Stevens' it had to be assumed that she did—the knowledge seemed not to make her at all fearful. She sat as composedly as ever before Weinbaum's desk, smoking her eternal cigarette, and waited, one dimpled knee pointed directly at the bridge of the officer's nose.

"Dana," Weinbaum said, "this time we're going to get all the answers, and we're not going to be gentle about it. Just in case you're not aware of the fact, there are certain laws relating to giving false information to a security officer, under which we could heave you in prison for a minimum of fifteen years. By application of the statutes on using communications to defraud, plus various local laws against transvestism, pseudonymity and so on, we could probably pile up enough additional short sentences to keep you in Yaphank until you really *do* grow a beard. So I'd advise you to open up."

"I have every intention of opening up," Dana said. "I know, practically word for word, how this interview is going to proceed, what information I'm going to give you, just when I'm going to give it to you—and what you're going to pay me for it. I knew all that many months ago. So there would be no point in my holding out on you."

"What you're saying, Miss Lje," Thor Wald said in a resigned voice, "is that the future is fixed, and that you can read it, in every essential detail."

"Quite right, Dr. Wald. Both those things are true."

There was a brief silence.

"All right," Weinbaum said grimly. "Talk."

"All right, Captain Weinbaum, pay me," Dana said calmly.

Weinbaum snorted.

"But I'm quite serious," she said. "You still don't know what I know about the Dirac communicator, I won't be forced to tell it, by threat of prison or by any

other threat. You see, I know for a fact that you aren't going to send me to prison, or give me drugs, or do anything else of that kind. I know for a fact, instead, that you are going to pay me—so I'd be very foolish to say a word until you do. After all, it's quite a secret you're buying. Once I tell you what it is, you and the entire service will be able to read the future as I do, and then the information will be valueless to me."

Weinbaum was completely speechless for a moment. Finally he said, "Dana, you have a heart of purest brass, as well as a knee with an invisible gunsight on it. I say that I'm *not* going to give you my appropriation, regardless of what the future may or may not say about it. I'm not going to give it to you because the way my government—and yours—runs things makes such a price impossible. Or is that really your price?"

"It's my real price . . . but it's also an alternative. Call it my second choice. My first choice, which means the price I'd settle for, comes in two parts: (a) to be taken into your service as a responsible officer; and, (b) to be married to Captain Robin Weinbaum."

Weinbaum sailed up out of his chair. He felt as though copper-colored flames a foot long were shooting out of each of his ears.

"Of all the—" he began. There his voice failed completely.

From behind him, where Wald was standing, came something like a large, Scandinavian-model guffaw being choked into insensibility.

Dana herself seemed to be smiling a little.

"You see," she said, "I don't point my best and most accurate knee at every man I meet."

Weinbaum sat down again, slowly and carefully. "Walk, do not run, to nearest exit," he said. "Women and childlike security officers first. Miss Lje, are you trying to sell me the notion that you went through this elaborate hanky-panky—beard and all—out of a burning passion for my dumpy and underpaid person?"

"Not entirely," Dana Lje said. "I want to be in the bureau, too, as I said. Let me confront you, though, Captain, with a fact of life that doesn't seem to have occurred to you at all. Do you accept as a fact that I

can read the future in detail, and that that, to be possible at all, means that the future is fixed?"

"Since Thor seems able to accept it, I suppose I can too—provisionally."

"There's nothing provisional about it," Dana said firmly. "Now, when I first came upon this—uh, this gimmick—quite a while back, one of the first things that I found out was that I was going to go through the 'J. Shelby Stevens' masquerade, force myself onto the staff of the bureau, and marry you, Robin. At the time, I was both astonished and completely rebellious. I didn't want to be on the bureau staff; I liked my freelance life as a video commentator. I didn't want to marry you, though I wouldn't have been averse to living with you for a while—say a month or so. And above all, the masquerade struck me as ridiculous.

"But the facts kept staring me in the face. I *was* going to do all those things. There were no alternatives, no fanciful 'branches of time,' no decision-points that might be altered to make the future change. My future, like yours, Dr. Wald's, and everyone else's, was fixed. It didn't matter a snap whether or not I had a decent motive for what I was going to do; I was going to do it anyhow. Cause and effect, as I could see for myself, just don't exist. One event follows another because events are just as indestructible in space-time as matter and energy are.

"It was the bitterest of all pills. It will take me many years to swallow it completely, and you too. Dr. Wald will come around a little sooner, I think. At any rate, once I was intellectually convinced that all this was so, I had to protect my own sanity. I knew that I couldn't alter what I was going to do, but the least I could do to protect myself was to supply myself with motives. Or, in other words, just plain rationalizations. That much, it seems, we're free to do; the consciousness of the observer is just along for the ride through time, and can't alter events—but it can comment, explain, invent. That's fortunate, for none of us could stand going through motions which were truly free of what we think of as personal significances.

"So I supplied myself with the obvious motives. Since

I was going to be married to you and couldn't get out of it, I set out to convince myself that I loved you. Now I do. Since I was going to join the bureau staff, I thought over all the advantages that it might have over video commentating, and found that they made a respectable list. Those are my motives.

"But I had no such motives at the beginning. Actually, there are never motives behind actions. All actions are fixed. What we called motives evidently are rationalizations by the helpless observing consciousness, which is intelligent enough to smell an event coming—and, since it cannot avert the event, instead cooks up reasons for wanting it to happen."

"Wow," Dr. Wald said, inelegantly but with considerable force.

"Either 'wow' or 'balderdash' seems to be called for—I can't quite decide which," Weinbaum agreed. "We know that Dana is an actress, Thor, so let's not fall off the apple tree quite yet. Dana, I've been saving the *really* hard question for the last. That question is: *How?* How did you arrive at this modification of the Dirac transmitter? Remember, we know your background, where we didn't know that of 'J. Shelby Stevens.' You're not a scientist. There were some fairly highpowered intellects among your distant relatives, but that's as close as you come."

"I'm going to give you several answers to that question," Dana Lje said. "Pick the one you like best. They're all true, but they tend to contradict each other here and there.

"To begin with, you're right about my relatives, of course. If you'll check your dossier again, though, you'll discover that those so-called 'distant' relatives were the last surviving members of my family besides myself. When they died, second and fourth and ninth cousins though they were, their estates reverted to me, and among their effects I found a sketch of a possible instantaneous communicator based on de Broglie-wave inversion. The material was in very rough form, and mostly beyond my comprehension, because I am, as you say, no scientist myself. But I was interested; I could

see, dimly, what such a thing might be worth—and not only in money.

"My interest was fanned by two coincidences—the kind of coincidences that cause-and-effect just can't allow, but which seem to happen all the same in the world of unchangeable events. For most of my adult life, I've been in communications industries of one kind or another, mostly branches of video. I had communications equipment around me constantly, and I had coffee and doughnuts with communications engineers every day. First I picked up the jargon; then, some of the procedures; and eventually a little real knowledge. Some of the things I learned can't be gotten any other way. Some other things are ordinarily available only to highly educated people like Dr. Wald here, and came to me by accident, in horseplay, between kisses, and a hundred other ways—all natural to the environment of a video network."

Weinbaum found, to his own astonishment, that the "between kisses" clause did not sit very well in his chest. He said, with unintentional brusqueness: "What's the other coincidence?"

"A leak in your own staff."

"Dana, you ought to have that set to music."

"Suit yourself."

"I can't suit myself," Weinbaum said petulantly. "I work for the government. Was this leak direct to you?"

"Not at first. That was why I kept insisting to you in person that there might be such a leak, and why I finally began to hint about it in public, on my program. I was hoping that you'd be able to seal it up inside the bureau before my first rather tenuous contact with it got lost. When I didn't succeed in provoking you into protecting yourself, I took the risk of making direct contact with the leak myself—and the first piece of secret information that came to me through it was the final point I needed to put my Dirac communicator together. When it was all assembled, it did more than just communicate. It predicted. And I can tell you why."

Weinbaum said thoughtfully, "I don't find this very hard to accept, so far. Pruned of the philosophy, it even makes some sense of the 'J. Shelby Stevens' affair. I as-

sume that by letting the old gentleman become known as somebody who knew more about the Dirac transmitter than I did, and who wasn't averse to negotiating with anybody who had money, you kept the leak working through you—rather than transmitting data directly to unfriendly governments."

"It did work out that way," Dana said. "But that wasn't the genesis or the purpose of the Stevens masquerade. I've already given you the whole explanation of how that came about."

"Well, you'd better name me that leak, before the man gets away."

"When the price is paid, not before. It's too late to prevent a getaway, anyhow. In the meantime, Robin, I want to go on and tell you the other answer to your question about how I was able to find this particular Dirac secret, and you didn't. What answers I've given you up to now have been cause-and-effect answers, with which we're all more comfortable. But I want to impress on you that all apparent cause-and-effect relationships are accidents. There is no such thing as a cause, and no such thing as an effect. I found the secret because I found it; that event was fixed; that certain circumstances seem to explain why I found it, in the old cause-and-effect terms, is irrelevant. Similarly, with all your superior equipment and brains, you didn't find it for one reason, and one reason alone: because you didn't find it. The history of the future says you didn't."

"I pays my money and I takes no choice, eh?" Weinbaum said ruefully.

"I'm afraid so—and I don't like it any better than you do."

"Thor, what's your opinion of all this?"

"It's just faintly flabbergasting," Wald said soberly. "However, it hangs together. The deterministic universe which Miss Lje paints was a common feature of the old relativity theories, and as sheer speculation has an even longer history. I would say that, in the long run, how much credence we place in the story as a whole will rest upon her method of, as she calls it, reading the future. If it is demonstrable beyond any doubt, then the rest becomes perfectly credible—philosophy and all. If it

doesn't, then what remains is an admirable job of acting, plus some metaphysics which, while self-consistent, is not original with Miss Lje."

"That sums up the case as well as if I'd coached you, Dr. Wald," Dana said. "I'd like to point out one more thing. If I can read the future, then 'J. Shelby Stevens' never had any need for a staff of field operatives, and he never needed to send a single Dirac message which you might intercept. All he needed to do was to make predictions from his readings, which he knew to be infallible; no private espionage network had to be involved."

"I see that," Weinbaum said dryly. "All right, Dana, let's put the proposition this way: *I do not believe you*. Much of what you say is probably true, but in totality I believe it to be false. On the other hand, if you're telling the whole truth, you certainly deserve a place on the bureau staff—it would be dangerous as hell *not* to have you with us—and the marriage is a more or less minor matter, except to you and me. You can have that with no strings attached; I don't want to be bought, any more than you would."

"So: if you will tell me where the leak is, we will consider that part of the question closed. I make that condition not as a price, but because I don't want to get myself engaged to somebody who might be shot as a spy within a month."

"Fair enough," Dana said. "Robin, your leak is Margaret Soames. She is an Erskine operative, and nobody's bubblebrain. She's a highly trained technician."

"Well, I'll be damned," Weinbaum said in astonishment. "Then she's already flown the coop—she was the one who first told me we'd identified you. She must have taken on that job in order to hold up delivery long enough to stage an exit."

"That's right. But you'll catch her, day after tomorrow. And you are now a hooked fish, Robin."

There was another suppressed burble from Thor Wald.

"I accept the fate happily," Weinbaum said, eying the gunsight knee. "Now, if you will tell me how you work your swami trick, and if it backs up everything you've

said to the letter, as you claim, I'll see to it that you're also taken into the bureau and that all charges against you are quashed. Otherwise, I'll probably have to kiss the bride between the bars of a cell."

Dana smiled. "The secret is very simple. It's in the beep."

Weinbaum's jaw dropped. "The beep? The Dirac noise?"

"That's right. You didn't find it out because you considered the beep to be just a nuisance, and ordered Miss Soames to cut it off all tapes before sending them in to you. Miss Soames, who had some inkling of what the beep meant, was more than happy to do so, leaving the reading of the beep exclusively to 'J. Shelby Stevens'—who she thought was going to take on Erskine as a client."

"Explain," Thor Wald said, looking intense.

"Just as you assumed, every Dirac message that is sent is picked up by every receiver that is capable of detecting it. *Every* receiver—including the first one ever built, which is yours, Dr. Wald, through the hundreds of thousands of them which will exist throughout the Galaxy in the twenty-fourth century, to the untold millions which will exist in the thirtieth century, and so on. The Dirac beep is the simultaneous reception of *every one of the Dirac messages which have ever been sent, or ever will be sent*. Incidentally, the cardinal number of the total of those messages is a relatively small and of course finite number; it's far below really large finite numbers such as the number of electrons in the universe, even when you break each and every message down into individual 'bits' and count those."

"Of course," Dr. Wald said softly. "Of course! But, Miss Lje . . . how do you tune for an individual message? We tried fractional positron frequencies, and got nowhere."

"I didn't even know fractional positron frequencies existed," Dana confessed. "No, it's simple—so simple that a lucky layman like me could arrive at it. You tune individual messages out of the beep by time lag, nothing more. All the messages arrive at the same instant, in the

smallest fraction of time that exists, something called a 'chronon.' "

"Yes," Wald said. "The time it takes one electron to move from one quantum-level to another. That's the Pythagorean point of time measurement."

"Thank you. Obviously no gross physical receiver can respond to a message that brief, or at least that's what I thought at first. But because there are relay and switching delays, various forms of feedback and so on, in the apparatus itself, the beep arrives at the output end as a complex pulse which has been 'splattered' along the time axis for a full second or more. That's an effect which you can exaggerate by recording the 'splattered' beep on a high-speed tape, the same way you would record any event that you wanted to study in slow motion. Then you tune up the various failure-points in your receiver, to exaggerate one failure, minimize all the others, and use noise-suppressing techniques to cut out the background."

Thor Wald frowned. "You'd still have a considerable garble when you were through. You'd have to sample the messages——"

"Which is just what I did; Robin's little lecture to me about the ultrawave gave me that hint. I set myself to find out how the ultrawave channel carries so many messages at once, and I discovered that you people sample the incoming pulses every thousandth of a second and pass on one pip only when the wave deviates in a certain way from the mean. I didn't really believe it would work on the Dirac beep, but it turned out just as well: 90 percent as intelligible as the original transmission after it came through the smearing device. I'd already got enough from the beep to put my plan in motion, of course—but now every voice message in it was available, and crystal-clear: if you select three pips every thousandth of a second, you can even pick up an intelligible transmission of music—a little razzy, but good enough to identify the instruments that are playing—and that's a very close test of any communications device."

"There's a question of detail here that doesn't quite follow," said Weinbaum, for whom the technical talk

was becoming a little too thick to fight through. "Dana, you say that you knew the course this conversation was going to take—yet it isn't being Dirac-recorded, nor can I see any reason why any summary of it would be sent out on the Dirac afterwards."

"That's true, Robin. However, when I leave here, I will make such a transcast myself, on my own Dirac. Obviously I will—because I've *already* picked it up, from the beep."

"In other words, you're going to call yourself up—months ago."

"That's it," Dana said. "It's not as useful a technique as you might think at first, because it's dangerous to make such broadcasts while a situation is still developing. You can safely 'phone back' details only after the given situation has gone to completion, as a chemist might put it. Once you know, however, that when you use the Dirac you're dealing with time, you can coax some very strange things out of the instrument."

She paused and smiled. "I have heard," she said conversationally, "the voice of the President of our Galaxy, in 3480, announcing the federation of the Milky Way and the Magellanic Clouds. I've heard the commander of a world-line cruiser, traveling from 8873 to 8704 along the world line of the planet Hathshepa, which circles a star on the rim of NGC 4725, calling for help across eleven million light-years—but what kind of help he was calling for, or will be calling for, is beyond my comprehension. And many other things. When you check on me, you'll hear these things too—and you'll wonder what many of them mean."

"And you'll listen to them even more closely than I did, in the hope of finding out whether or not anyone was able to understand in time to help."

Weinbaum and Wald looked dazed.

Her voice became a little more somber. "Most of the voices in the Dirac beep are like that—they're cries for help, which you can overhear decades or centuries before the senders get into trouble. You'll feel obligated to answer every one, to try to supply the help that's needed. And you'll listen to the succeeding messages and say:

'Did we—will we get there in time? Did we understand in time?'

"And in most cases you won't be sure. You'll know the future, but not what most of it means. The farther into the future you travel with the machine, the more incomprehensible the messages become, and so you're reduced to telling yourself that time will, after all, have to pass by at its own pace, before enough of the surrounding events can emerge to make those remote messages clear.

"The long-run effect, as far as I can think it through, is not going to be that of omniscience—of our consciousness being extracted entirely from the time stream and allowed to view its whole sweep from one side. Instead, the Dirac in effect simply slides the bead of consciousness forward from the present a certain distance. Whether it's five hundred or five thousand years still remains to be seen. At that point the law of diminishing returns sets in—or the noise factor begins to overbalance the information, take your choice—and the observer is reduced to traveling in time at the same old speed. He's just a bit ahead of himself."

"You've thought a great deal about this," Wald said slowly. "I dislike to think of what might have happened had some less conscientious person stumbled on the beep."

"That wasn't in the cards," Dana said.

In the ensuing quiet, Weinbaum felt a faint, irrational sense of let-down, of something which had promised more than had been delivered—rather like the taste of fresh bread as compared to its smell, or the discovery that Thor Wald's Swedish "folk song" Nat-og-Dag was only Cole Porter's *Night and Day* in another language. He recognized the feeling: it was the usual emotion of the hunter when the hunt is over, the born detective's professional version of the *post coitum triste*. After looking at the smiling, supple Dana Lje a moment more, however, he was almost content.

"There's one more thing," he said. "I don't want to be insufferably skeptical about this—but I want to see it work. Thor, can we set up a sampling and smearing device such as Dana describes and run a test?"

"In fifteen minutes," Dr. Wald said. "We have most of the unit in already assembled form on our big ultra-wave receiver, and it shouldn't take any effort to add a high-speed tape unit to it. I'll do it right now."

He went out. Weinbaum and Dana looked at each other for a moment, rather like strange cats. Then the security officer got up, with what he knew to be an air of somewhat grim determination, and seized his fiancée's hands, anticipating a struggle.

That first kiss was, by intention at least, mostly *pro forma*. But by the time Wald padded back into the office, the letter had been pretty thoroughly superseded by the spirit. The scientist harrumphed and set his burden on the desk. "This is all there is to it," he said, "but I had to hunt all through the library to find a Dirac record with a beep still on it. Just a moment more while I make connections. . . ."

Weinbaum used the time to bring his mind back to the matter at hand, although not quite completely. Then two tape spindles began to whirl like so many bees, and the end-stopped sound of the Dirac beep filled the room. Wald stopped the apparatus, reset it, and started the smearing tape very slowly in the opposite direction.

A distant babble of voices came from the speaker. As Weinbaum leaned forward tensely, one voice said clearly and loudly above the rest:

"Hello, Earth bureau. Lt. T. L. Matthews at Hercules Station NGC 6341, transmission date 13-22-2091. We have the last point on the orbit curve of your dope-runners plotted, and the curve itself points to a small system about twenty-five light-years from the base here; the place hasn't even got a name on our charts. Scouts show the home planet at least twice as heavily fortified as we anticipated, so we'll need another cruiser. We have a 'can-do' from you in the beep for us, but we're waiting as ordered to get it in the present. NGC 6341 Matthews out."

After the first instant of stunned amazement—for no amount of intellectual willingness to accept could have prepared him for the overwhelming fact itself—Weinbaum had grabbed a pencil and begun to write at

top speed. As the voice signed out he threw the pencil down and looked excitedly at Dr. Wald.

"Seven months ahead," he said, aware that he was grinning like an idiot. "Thor, you know the trouble we've had with that needle in the Hercules haystack! This orbit-curve trick must be something Matthews has yet to dream up—at least he hasn't come to me with it yet, and there's nothing in the situation as it stands now that would indicate a closing time of six months for the case. The computers said it would take three more years."

"It's new data," Dr. Wald agreed solemnly.

"Well, don't stop there, in God's name! Let's hear some more!"

Dr. Wald went through the ritual, much faster this time. The speaker said:

"Nausentampen. Eddettompic. Berobsilom. Aimkaksetchoc. Sanbetogmow. Datdectamset. Domatrosmin. Out."

"My word," Wald said. "What's all that?"

"That's what I was talking about," Dana Lje said. "At least half of what you get from the beep is just as incomprehensible. I suppose it's whatever has happened to the English language, thousands of years from now."

"No, it isn't," Weinbaum said. He had resumed writing, and was still at it, despite the comparative briefness of the transmission. "Not this sample, anyhow. That, ladies and gentlemen, is code—no language consists exclusively of four-syllable words, of that you can be sure. What's more, it's a version of our code. I can't break it down very far—it takes a full-time expert to read this stuff—but I get the date and some of the sense. It's March 12, 3022, and there's some kind of a mass evacuation taking place. The message seems to be a routing order."

"But why will we be using code?" Dr. Wald wanted to know. "It implies that we think somebody might overhear us—somebody else with a Dirac. That could be very messy."

"It could indeed," Weinbaum said. "But we'll find out, I imagine. Give her another spin, Thor."

"Shall I try for a picture this time?"

Weinbaum nodded. A moment later, he was looking squarely into the green-skinned face of something that looked like an animated traffic signal with a helmet on it. Though the creature had no mouth, the Dirac speaker was saying quite clearly, "Hello, Chief. This is Thammos NGC 2287, transmission date Gor 60, 302 by my calendar, July 2, 2973 by yours. This is a lousy little planet. Everything stinks of oxygen, just like Earth. But the natives accept us and that's the important thing. We've got your genius safely born. Detailed report coming later by paw. NGC 2287 Thammos out."

"I wish I knew my New General Catalogue better," Weinbaum said. "Isn't that M 41 in Canis Major, the one with the red star in the middle? And we'll be using non-humanoids there! What *was* that creature, anyhow? Never mind, spin her again."

Dr. Wald spun her again. Weinbaum, already feeling a little dizzy, had given up taking notes. That could come later, all that could come later. Now he wanted only scenes and voices, more and more scenes and voices from the future. They were better than aquavit, even with a beer chaser.

IV

The indoctrination tape ended, and Krasna touched a button. The Dirac screen darkened, and folded silently back into the desk.

"They didn't see their way through to us, not by a long shot," he said. "They didn't see, for instance, that when one section of the government becomes nearly all-knowing—no matter how small it was to begin with—it necessarily becomes all of the government that there is. Thus the bureau turned into the Service and pushed everyone else out.

"On the other hand, those people did come to be afraid that a government with an all-knowing arm might become a rigid dictatorship. That couldn't happen and didn't happen, because the more you know, the wider your field of possible operation becomes and the more fluid and dynamic a society you need. How could a

rigid society expand to other star systems, let alone other galaxies? It couldn't be done."

"I should think it could," Jo said slowly. "After all, if you know in advance what everybody is going to do . . ."

"But we don't, Jo. That's just a popular fiction—or, if you like, a red herring. Not all of the business of the cosmos is carried on over the Dirac, after all. The only events we can ever overhear are those which are transmitted as a message. Do you order your lunch over the Dirac? Of course you don't. Up to now, you've never said a word over the Dirac in your life.

"And there's much more to it than that. All dictatorships are based on the proposition that government can somehow control a man's thoughts. We know now that the consciousness of the observer is the only free thing in the Universe. Wouldn't we look foolish trying to control that, when our entire physics shows that it's impossible to do so? That's why the Service is in no sense a thought police. We're interested only in acts. We're an Event Police."

"But why?" Jo said. "If all history is fixed, why do we bother with these boy-meets-girl assignments, for instance? The meetings will happen anyhow."

"Of course they will," Krasna agreed immediately. "But look, Jo. Our interests as a government depend upon the future. We operate *as if* the future is as real as the past, and so far we haven't been disappointed: the Service is 100 per cent successful. But that very success isn't without its warnings. What would happen if we *stopped* supervising events? We don't know, and we don't dare take the chance. Despite the evidence that the future is fixed, we have to take on the role of the caretaker of inevitability. We believe that nothing can possibly go wrong . . . but we have to act on the philosophy that history helps only those who help themselves.

"That's why we safeguard huge numbers of courtships right through to contract, and even beyond it. We have to see to it that *every single person who is mentioned in any Dirac 'cast gets born*. Our obligation as Event Police is to make the events of the future possi-

ble, because those events are crucial to our society—even the smallest of them. It's an enormous task, believe me, and it gets bigger and bigger every day. Apparently it always will."

"Always?" Jo said. "What about the public? Isn't it going to smell this out sooner or later? The evidence is piling up at a terrific rate."

"Yes and no," Krasna said. "Lots of people are smelling it out right now, just as you did. But the number of new people we need in the Service grows faster—it's always ahead of the number of laymen who follow the clues to the truth."

Jo took a deep breath. "You take all this as if it were as commonplace as boiling an egg, Kras," he said. "Don't you ever wonder about some of the things you get from the beep? That 'cast Dana Lje picked up from Canes Venatici, for instance, the one from the ship that was traveling backward in time? How is that possible? What could be the purpose? Is it——"

"Pace, pace," Krasna said. "I don't know and I don't care. Neither should you. That event is too far in the future for us to worry about. We can't possibly know its context yet, so there's no sense in trying to understand it. If an Englishman of around 1600 had found out about the American Revolution, he would have thought it a tragedy; an Englishman of 1950 would have a very different view of it. We're in the same spot. The messages we get from the really far future have no contexts as yet."

"I think I see," Jo said. "I'll get used to it in time, I suppose, after I use the Dirac for a while. Or does my new rank authorize me to do that?"

"Yes, it does. But, Jo, first I want to pass on to you a rule of Service etiquette that must never be broken. You won't be allowed anywhere near a Dirac mike until you have it burned into your memory beyond any forgetfulness."

"I'm listening, Kras, believe me."

"Good. This is the rule: *The date of a Serviceman's death must never be mentioned in a Dirac 'cast.*"

Jo blinked, feeling a little chilly. The reason behind the rule was decidedly tough-minded, but its ultimate

kindness was plain. He said, "I won't forget that. I'll want that protection myself. Many thanks, Kras. What's my new assignment?"

"To begin with," Krasna said, grinning, "as simple a job as I've ever given you, right here on Randolph. Skin out of here and find me that cab driver—the one who mentioned time-travel to you. He's uncomfortably close to the truth; closer than you were in one category.

"Find him, and bring him to me. The Service is about to take in a new raw recruit!"

A Work of Art

INSTANTLY, HE REMEMBERED dying. He remembered it, however, as if at two removes—as though he were remembering a memory, rather than an actual event; as though he himself had not really been there when he died.

Yet the memory was all from his own point of view, not that of some detached and disembodied observer which might have been his soul. He had been most conscious of the rasping, unevenly drawn movements of the air in his chest. Blurring rapidly, the doctor's face had bent over him, loomed, come closer, and then had vanished as the doctor's head passed below his cone of vision, turned sideways to listen to his lungs.

It had become rapidly darker, and then, only then, had he realized that these were to be his last minutes. He had tried dutifully to say Pauline's name, but his memory contained no record of the sound—only of the rattling breath, and of the film of sootiness thickening in the air, blotting out everything for an instant.

Only an instant, and then the memory was over. The room was bright again, and the ceiling, he noticed with

wonder, had turned a soft green. The doctor's head lifted again and looked down at him.

It was a different doctor. This one was a far younger man, with an ascetic face and gleaming, almost fey eyes. There was no doubt about it. One of the last conscious thoughts he had had was that of gratitude that the attending physician, there at the end, had not been the one who secretly hated him for his one-time associations with the Nazi hierarchy. The attending doctor, instead, had worn an expression amusingly proper for that of a Swiss expert called to the deathbed of an eminent man: a mixture of worry at the prospect of losing so eminent a patient, and complacency at the thought that, at the old man's age, nobody could blame this doctor if he died. At 85, pneumonia is a serious matter, with or without penicillin.

"You're all right now," the new doctor said, freeing his patient's head of a whole series of little silver rods which had been clinging to it by a sort of network cap. "Rest a minute and try to be calm. Do you know your name?"

He drew a cautious breath. There seemed to be nothing at all the matter with his lungs now; indeed, he felt positively healthy. "Certainly," he said, a little nettled. "Do you know yours?"

The doctor smiled crookedly. "You're in character, it appears," he said. "My name is Barkun Kris; I am a mind sculptor. Yours?"

"Richard Strauss."

"Very good," Dr. Kris said, and turned away. Strauss, however, had already been diverted by a new singularity. *Strauss* is a word as well as a name in German; it has many meanings—an ostrich, a bouquet; von Wolzogen had had a high old time working all the possible puns into the libretto of *Feuersnot*. And it happened to be the first German word to be spoken either by himself or by Dr. Kris since that twice-removed moment of death. The language was not French or Italian, either. It was most like English, but not the English Strauss knew; nevertheless, he was having no trouble speaking it and even thinking in it.

Well, he thought, I'll be able to conduct The Love of Danae after all. It isn't every composer who can première his own opera posthumously. Still, there was something queer about all this—the queerest part of all being that conviction, which would not go away, that he had actually been dead for just a short time. Of course medicine was making great strides, but . . .

"Explain all this," he said, lifting himself to one elbow. The bed was different, too, and not nearly as comfortable as the one in which he had died. As for the room, it looked more like a dynamo shed than a sick-room. Had modern medicine taken to reviving its corpses on the floor of the Siemens-Schuckert plant?

"In a moment," Dr. Kris said. He finished rolling some machine back into what Strauss impatiently supposed to be its place, and crossed to the pallet. "Now. There are many things you'll have to take for granted without attempting to understand them, Dr. Strauss. Not everything in the world today is explicable in terms of your assumptions. Please bear that in mind."

"Very well. Proceed."

"The date," Dr. Kris said, "is 2161 by your calendar—or, in other words, it is now two hundred and twelve years after your death. Naturally, you'll realize that by this time nothing remains of your body but the bones. The body you have now was volunteered for your use. Before you look into a mirror to see what it's like, remember that its physical difference from the one you were used to is all in your favor. It's in perfect health, not unpleasant for other people to look at, and its physiological age is about fifty."

A miracle? No, not in this new age, surely. It was simply a work of science. But what a science! This was Nietzsche's eternal recurrence and the immortality of the superman combined into one.

"And where is this?" the composer said.

"In Port York, part of the State of Manhattan, in the United States. You will find the country less changed in some respects than I imagine you anticipate. Other changes, of course, will seem radical to you; but it's hard for me to predict which ones will strike you that

way. A certain resilience on your part will bear cultivating."

"I understand," Strauss said, sitting up. "One question, please; is it still possible for a composer to make a living in this century?"

"Indeed it is," Dr. Kris said, smiling. "As we expect you to do. It is one of the purposes for which we've—brought you back."

"I gather, then," Strauss said somewhat dryly, "that there is still a demand for my music. The critics in the old days——"

"That's not quite how it is," Dr. Kris said. "I understand some of your work is still played, but frankly I know very little about your current status. My interest is rather——"

A door opened somewhere, and another man came in. He was older and more ponderous than Kris and had a certain air of academicism; but he too was wearing the oddly tailored surgeon's gown, and looked upon Kris's patient with the glowing eyes of an artist.

"A success, Kris?" he said. "Congratulations."

"They're not in order yet," Dr. Kris said. "The final proof is what counts. Dr. Strauss, if you feel strong enough, Dr. Seirds and I would like to ask you some questions. We'd like to make sure your memory is clear."

"Certainly. Go ahead."

"According to our records," Kris said, "you once knew a man whose initials were RKL; this was while you were conducting at the Vienna *Staatsoper*." He made the double "a" at least twice too long, as though German were a dead language he was striving to pronounce in some "classical" accent. "What was his name, and who was he?"

"That would be Kurt List—his first name was Richard, but he didn't use it. He was assistant stage manager."

The two doctors looked at each other. "Why did you offer to write a new overture to *The Woman Without a Shadow*, and give the manuscript to the City of Vienna?"

"So I wouldn't have to pay the garbage removal tax on the Maria Theresa villa they had given me."

"In the back yard of your house at Garmisch-Partenkirchen there was a tombstone. What was written on it?"

Strauss frowned. That was a question he would be happy to be unable to answer. If one is to play childish jokes upon oneself, it's best not to carve them in stone, and put the carving where you can't help seeing it every time you go out to tinker with the Mercedes. "It says," he replied wearily, "*Sacred to the memory of Guntram, Minnesinger, slain in a horrible way by his father's own symphony orchestra.*"

"When was *Guntram* premièred?"

"In—let me see—1894, I believe."

"Where?"

"In Weimar."

"Who was the leading lady?"

"Pauline de Ahna."

"What happened to her afterward?"

"I married her. Is she . . ." Strauss began anxiously.

"No," Dr. Kris said. "I'm sorry, but we lack the data to reconstruct more or less ordinary people."

The composer sighed. He did not know whether to be worried or not. He had loved Pauline, to be sure; on the other hand, it would be pleasant to be able to live the new life without being forced to take off one's shoes every time one entered the house, so as not to scratch the polished hardwood floors. And also pleasant, perhaps, to have two o'clock in the afternoon come by without hearing Pauline's everlasting, "*Richard—jetzt komponiert!*"

"Next question," he said.

For reasons which Strauss did not understand, but was content to take for granted, he was separated from Drs. Kris and Seirds as soon as both were satisfied that the composer's memory was reliable and his health stable. His estate, he was given to understand, had long since been broken up—a sorry end for what had been

one of the principal fortunes of Europe—but he was given sufficient money to set up lodgings and resume an active life. He was provided, too, with introductions which proved valuable.

It took longer than he had expected to adjust to the changes that had taken place in music alone. Music was, he quickly began to suspect, a dying art, which would soon have a status not much above that held by flower arranging back in what he thought of as his own century. Certainly it couldn't be denied that the trend toward fragmentation, already visible back in his own time, had proceeded almost to completion in 2161.

He paid no more attention to American popular tunes than he had bothered to pay in his previous life. Yet it was evident that their assembly-line production methods—all the ballad composers openly used a slide-rule-like device called a Hit Machine—now had their counterparts almost throughout serious music.

The conservatives these days, for instance, were the twelve-tone composers—always, in Strauss's opinions, a dryly mechanical lot, but never more so than now. Their gods—Berg, Schoenberg, von Webern—were looked upon by the concert-going public as great masters, on the abstruse side perhaps, but as worthy of reverence as any of the Three B's.

There was one wing of the conservatives, however, which had gone the twelve-tone procedure one better. These men composed what was called "stochastic music," put together by choosing each individual note by consultation with tables of random numbers. Their bible, their basic text, was a volume called *Operational Aesthetics*, which in turn derived from a discipline called information theory; and not one word of it seemed to touch upon any of the techniques and customs of composition which Strauss knew. The ideal of this group was to produce music which would be "universal"—that is, wholly devoid of any trace of the composer's individuality, wholly a musical expression of the universal Laws of Chance. The Laws of Chance seemed to have a style of their own, all right; but to Strauss it seemed the style of an idiot child being taught to hammer a flat piano, to keep him from getting into trouble.

By far the largest body of work being produced, however, fell into a category misleadingly called "science-music." The term reflected nothing but the titles of the works, which dealt with space flight, time travel, and other subjects of a romantic or an unlikely nature. There was nothing in the least scientific about the music, which consisted of a *mélange* of clichés and imitations of natural sounds, in which Strauss was horrified to see his own time-distorted and diluted image.

The most popular form of science-music was a nine-minute composition called a concerto, though it bore no resemblance at all to the classical concerto form; it was instead a sort of free rhapsody after Rachmaninoff—long after. A typical one—"Song of Deep Space"—it was called, by somebody named H. Valerion Krafft—began with a loud assault on the tam-tam, after which all the strings rushed up the scale in unison, followed at a respectful distance by the harp and one clarinet in parallel 6/4's. At the top of the scale cymbals were bashed together, *force possible*, and the whole orchestra launched itself into a major-minor, wailing sort of melody; the whole orchestra, that is, except for the French horns, which were plodding back down the scale again in what was evidently supposed to be a countermelody. The second phrase of the theme was picked up by a solo trumpet with a suggestion of tremolo; the orchestra died back to its roots to await the next cloudburst, and at this point—as any four-year-old could have predicted—the piano entered with the second theme.

Behind the orchestra stood a group of thirty women, ready to come in with a wordless chorus intended to suggest the eeriness of Deep Space—but at this point, too, Strauss had already learned to get up and leave. After a few such experiences he could also count upon meeting in the lobby Sindi Noniss, the agent to whom Dr. Kris had introduced him, and who was handling the reborn composer's output—what there was of it thus far. Sindi had come to expect these walkouts on the part of his client, and patiently awaited them, standing beneath a bust of Gian Carlo Menotti; but he liked them less and less, and lately had been greeting them by turn-

ing alternately red and white like a toti-potent barber pole.

"You shouldn't have done it," he burst out after the Krafft incident. "You can't just walk out on a new Krafft composition. The man's the president of the Interplanetary Society for Contemporary Music. How am I ever going to persuade them that you're a contemporary if you keep snubbing them?"

"What does it matter?" Strauss said. "They don't know me by sight."

"You're wrong; they know you very well, and they're watching every move you make. You're the first major composer the mind sculptors ever tackled, and the ISCM would be glad to turn you back with a rejection slip."

"Why?"

"Oh," said Sindi, "there are lots of reasons. The sculptors are snobs; so are the ISCM boys. Each of them wants to prove to the other that their own art is the king of them all. And then there's the competition; it would be easier to flunk you than to let you into the market. I really think you'd better go back in. I could made up some excuse——"

"No," Strauss said shortly. "I have work to do."

"But that's just the point, Richard. How are we going to get an opera produced without the ISCM? It isn't as though you wrote theremin solos, or something that didn't cost so——"

"I have work to do," he said, and left.

And he did: work which absorbed him as had no other project during the last thirty years of his former life. He had scarcely touched pen to music paper—both had been astonishingly hard to find—when he realized that nothing in his long career had provided him with touchstones by which to judge what music he should write *now*.

The old tricks came swarming back by the thousands, to be sure: the sudden, unexpected key changes at the crest of a melody; the interval stretching; the piling of divided strings, playing in the high harmonics, upon the already tottering top of a climax; the scurry and bustle

as phrases were passed like lightning from one choir of the orchestra to another; the flashing runs in the brass, the chuckling in the clarinets, the snarling mixtures of colors to emphasize dramatic tension—all of them.

But none of them satisfied him now. He had been content with them for most of a lifetime, and had made them do an astonishing amount of work. But now it was time to strike out afresh. Some of the tricks, indeed, actively repelled him: where had he gotten the notion, clung to for decades, that violins screaming out in unison somewhere in the stratosphere was a sound interesting enough to be worth repeating inside a single composition, let alone in all of them?

And nobody, he reflected contentedly, ever approached such a new beginning better equipped. In addition to the past lying available in his memory, he had always had a technical armamentarium second to none; even the hostile critics had granted him that. Now that he was, in a sense, composing his first opera—his first after fifteen of them!—he had every opportunity to make it a masterpiece.

And every such intention.

There were, of course, many minor distractions. One of them was that search for old-fashioned score paper, and a pen and ink with which to write on it. Very few of the modern composers, it developed, wrote their music at all. A large bloc of them used tape, patching together snippets of tone and sound snipped from other tapes, superimposing one tape on another, and varying the results by twirling an elaborate array of knobs this way or that. Almost all the composers of 3-V scores, on the other hand, wrote on the sound track itself, rapidly scribbling jagged wiggly lines which, when passed through a photocell-audio circuit, produced a noise reasonably like an orchestra playing music, overtones and all.

The last-ditch conservatives who still wrote notes on paper, did so with the aid of a musical typewriter. The device, Strauss had to admit, seemed perfected at last; it had manuals and stops like an organ, but it was not much more than twice as large as a standard letter-writing type-

writer, and produced a neat page. But he was satisfied with his own spidery, highly-legible manuscript and refused to abandon it, badly though the one pen nib he had been able to buy coarsened it. It helped to tie him to his past.

Joining the ISCM had also caused him some bad moments, even after Sindi had worked him around the political road blocks. The Society man who examined his qualifications as a member had run through the questions with no more interest than might have been shown by a veterinarian examining his four thousandth sick calf.

"Had anything published?"

"Yes, nine tone poems, about three hundred songs, an——"

"Not when you were alive," the examiner said, somewhat disquietingly. "I mean since the sculptors turned you out again."

"Since the sculptors—ah, I understand. Yes, a string quartet, two song cycles, a——"

"Good. Alfie, write down 'songs.' Play an instrument?"

"Piano."

"Hm." The examiner studied his fingernails. "Oh, well. Do you read music? Or do you use a Scriber, or tape clips? Or a Machine?"

"I read."

"Here." The examiner sat Strauss down in front of a viewing lectern, over the lit surface of which an endless belt of translucent paper was traveling. On the paper was an immensely magnified sound track. "Whistle me the tune of that, and name the instruments it sounds like."

"I don't read that *Musiksticheln*," Strauss said frostily, "or write it, either. I use standard notation, on music paper."

"Alfie, write down 'Reads notes only.' " He laid a sheet of grayly printed music on the lectern above the ground glass. "Whistle me that."

"That" proved to be a popular tune called "Vangs, Snifters and Store-Credit Snooky" which had been written on a Hit Machine in 2159 by a guitar-faking politi-

cian who sang it at campaign rallies. (In some respects, Strauss reflected, the United States had indeed not changed very much.) It had become so popular that anybody could have whistled it from the title alone, whether he could read the music or not. Strauss whistled it, and to prove his bona fides added, "It's in the key of B flat."

The examiner went over to the green-painted upright piano and hit one greasy black key. The instrument was horribly out of tune—the note was much nearer to the standard 44/cps A than it was to B flat—but the examiner said, "So it is. Alfie, write down, 'Also reads flats.' All right, son, you're a member. Nice to have you with us; not many people can read that old-style notation any more. A lot of them think they're too good for it."

"Thank you," Strauss said.

"My feeling is, if it was good enough for the old masters, it's good enough for us. We don't have people like them with us these days, it seems to me. Except for Dr. Krafft, of course. They were *great* back in the old days—men like Shilkrit, Steiner, Tiomkin, and Pearl . . . and Wilder and Jannsen. Real Goffin."

"*Doch gewiss*," Strauss said politely.

But the work went forward. He was making a little income now, from small works. People seemed to feel a special interest in a composer who had come out of the mind sculptors' laboratories; and in addition the material itself, Strauss was quite certain, had merits of its own to help sell it.

It was the opera which counted, however. That grew and grew under his pen, as fresh and new as his new life, as founded in knowledge and ripeness as his long full memory. Finding a libretto had been troublesome at first. While it was possible that something existed that might have served among the current scripts for 3-V—though he doubted it—he found himself unable to tell the good from the bad through the fog cast over both by incomprehensibly technical production directions. Eventually, and for only the third time in his whole career, he had fallen back upon a play written in a lan-

guage other than his own, and—for the first time—decided to set it in that language.

The play was Christopher Fry's *Venus Observed*, in all ways a perfect Strauss opera libretto, as he came gradually to realize. Though nominally a comedy, with a complex farcial plot, it was a verse play with considerable depth to it, and a number of characters who cried out to be brought by music into three dimensions, plus a strong undercurrent of autumnal tragedy, of leaf-fall and apple-fall—precisely the kind of contradictory dramatic mixture which von Hofmannsthal had supplied him with in *The Knight of the Rose*, in *Ariadne at Naxos*, and in *Arabella*.

Alas for von Hofmannsthal, but here was another long-dead playwright who seemed nearly as gifted; and the musical opportunities were immense. There was, for instance, the fire which ended act two; what a gift for a composer to whom orchestration and counterpoint were as important as air and water! Or take the moment where Perpetua shoots the apple from the Duke's hand; in that one moment a single passing reference could add Rossini's marmoreal *William Tell* to the musical texture as nothing but an ironic footnote! And the Duke's great curtain speech beginning:

Shall I be sorry for myself? In Mortality's name
I'll be sorry for myself. Branches and boughs.
Brown hills, the valleys faint with brume,
A burnish on the lake . . .

There was a speech for a great tragic comedian, in the spirit of Falstaff; the final union of laughter and tears, punctuated by the sleepy comments of Reedbeck, to whose sonorous snore (trombones, no less than five of them, *con sordini*?) the opera would gently end. . . .

What could be better? And yet he had come upon the play only by the unlikeliest series of accidents. At first he had planned to do a straight knockabout farce, in the idiom of *The Silent Woman*, just to warm himself up. Remembering that Zweig had adapted that libretto for him, in the old days, from a play by Ben Jonson, Strauss had begun to search out English plays of the

period just after Jonson's, and had promptly run aground on an awful specimen in heroic couplets called *Venice Preserv'd*, by one Thomas Otway. The Fry play had directly followed the Otway in the card catalogue, and he had looked at it out of curiosity; why should a Twentieth Century playwright be punning on a title from the Eighteenth?

After two pages of the Fry play, the minor puzzle of the pun disappeared entirely from his concern. His luck was running again; he had an opera.

Sindi worked miracles in arranging for the performance. The date of the première was set even before the score was finished, reminding Strauss pleasantly of those heady days when Fuerstner had been snatching the conclusion of *Elektra* off his work table a page at a time, before the ink was even dry, to rush it to the engraver before publication deadline. The situation now, however, was even more complicated, for some of the score had to be scribed, some of it taped, some of it engraved in the old way, to meet the new techniques of performance; there were moments when Sindi seemed to be turning quite gray.

But *Venus Observed* was, as usual, forthcoming complete from Strauss's pen in plenty of time. Writing the music in first draft had been hellishly hard work, much more like being reborn than had been that confused awakening in Barkun Kris's laboratory, with its overtones of being dead instead; but Strauss found that he still retained all of his old ability to score from the draft almost effortlessly, as undisturbed by Sindi's half-audible worrying in the room with him as he was by the terrifying supersonic bangs of the rockets that bulleted invisibly over the city.

When he was finished, he had two days still to spare before the beginning of rehearsals. With those, furthermore, he would have nothing to do. The techniques of performance in this age were so completely bound up with the electronic arts as to reduce his own experience—he, the master *Kapellmeister* of them all—to the hopelessly primitive.

He did not mind. The music, as written, would speak

for itself. In the meantime he found it grateful to forget the months'-long preoccupation with the stage for a while. He went back to the library and browsed lazily through old poems, vaguely seeking texts for a song or two. He knew better than to bother with recent poets; they could not speak to him, and he knew it. The Americans of his own age, he thought, might give him a clue to understanding this America of 2161; and if some such poem gave birth to a song, so much the better.

The search was relaxing and he gave himself up to enjoying it. Finally he struck a tape that he liked: a tape read in a crackled old voice that twanged of Idaho as that voice had twanged in 1910, in Strauss's own ancient youth. The poet's name was Pound; he said, on the tape

*. . . the souls of all men great
At times pass through us,
And we are melted into them, and are not
Save reflexions of their souls.
Thus I am Dante for a space and am
One François Villon, ballad-lord and thief
Or am such holy ones I may not write,
Lest Blasphemy be writ against my name;
This for an instant and the flame is gone.
'Tis as in midmost us there glows a sphere
Translucent, molten gold, that is the "I"
And into this some form projects itself;
Christus, or John, or eke the Florentine;
And as the clear space is not if a form's
Imposed thereon,
So cease we from all being for the time,
And these, the Masters of the Soul, live on.*

He smiled. That lesson had been written again and again, from Plato onward. Yet the poem was a history of his own case, a sort of theory for the metempsychosis he had undergone, and in its formal way it was moving. It would be fitting to make a little hymn of it, in honor of his own rebirth, and of the poet's insight.

A series of solemn, breathless chords framed them-

selves in his inner ear, against which the words might be intoned in a high, gently bending hush at the beginning . . . and then a dramatic passage in which the great names of Dante and Villon would enter ringing like challenges to Time. . . . He wrote for a while in his notebook before he returned the spool to its shelf.

These, he thought, are good auspices.

And so the night of the première arrived, the audience pouring into the hall, the 3-V cameras riding on no visible supports through the air, and Sindi calculating his share of his client's earnings by a complicated game he played on his fingers, the basic law of which seemed to be that one plus one equals ten. The hall filled to the roof with people from every class, as though what was to come would be a circus rather than an opera.

There were, surprisingly, nearly fifty of the aloof and aristocratic mind sculptors, clad in formal clothes which were exaggerated black versions of their surgeons' gowns. They had bought a bloc of seats near the front of the auditorium, where the gigantic 3-V figures which would shortly fill the "stage" before them (the real singers would perform on a small stage in the basement) could not but seem monstrously out of proportion: but Strauss supposed that they had taken this into account and dismissed it.

There was a tide of whispering in the audience as the sculptors began to trickle in, and with it an undercurrent of excitement the meaning of which was unknown to Strauss. He did not attempt to fathom it, however; he was coping with his own mounting tide of opening-night tension, which, despite all the years, he had never quite been able to shake.

The sourceless, gentle light in the auditorium dimmed, and Strauss mounted the podium. There was a score before him, but he doubted that he would need it. Directly before him, poking up from among the musicians, were the inevitable 3-V snouts, waiting to carry his image to the singers in the basement.

The audience was quiet now. This was the moment. His baton swept up and then decisively down, and the prelude came surging up out of the pit.

For a little while he was deeply immersed in the always tricky business of keeping the enormous orchestra together and sensitive to the flexing of the musical web beneath his hand. As his control firmed and became secure, however, the task became slightly less demanding, and he was able to pay more attention to what the whole sounded like.

There was something decidedly wrong with it. Of course there were the occasional surprises as some bit of orchestral color emerged with a different *Klang* than he had expected; that happened to every composer, even after a lifetime of experience. And there were moments when the singers, entering upon a phrase more difficult to handle than he had calculated, sounded like someone about to fall off a tightrope (although none of them actually fluffed once; they were as fine a troupe of voices as he had ever had to work with).

But these were details. It was the over-all impression that was wrong. He was losing not only the excitement of the première—after all, that couldn't last at the same pitch all evening—but also his very interest in what was coming from the stage and the pit. He was gradually tiring; his baton arm becoming heavier; as the second act mounted to what should have been an impassioned outpouring of shining tone, he was so bored as to wish he could go back to his desk to work on that song.

Then the act was over; only one more to go. He scarcely heard the applause. The twenty minutes' rest in his dressing room was just barely enough to give him the necessary strength.

And suddenly, in the middle of the last act, he understood.

There was nothing new about the music. It was the old Strauss all over again—but weaker, more dilute than ever. Compared with the output of composers like Krafft, it doubtless sounded like a masterpiece to this audience. But he knew.

The resolutions, the determination to abandon the old clichés and mannerisms, the decision to say something new—they had all come to nothing against the force of habit. Being brought to life again meant bring-

ing to life as well all those deeply graven reflexes of his style. He had only to pick up his pen and they overpowered him with easy automatism, no more under his control than the jerk of a finger away from a flame.

His eyes filled; his body was young, but he was an old man, an old man. Another thirty-five years of this? Never. He had said all this before, centuries before. Nearly a half century condemned to saying it all over again, in a weaker and still weaker voice, aware that even this debased century would come to recognize in him only the burnt husk of greatness?—no; never, never.

He was aware, dully, that the opera was over. The audience was screaming its joy. He knew the sound. They had screamed that way when *Day of Peace* had been premièred, but they had been cheering the man he had been, not the man that *Day of Peace* showed with cruel clarity he had become. Here the sound was even more meaningless: cheers of ignorance, and that was all.

He turned slowly. With surprise, and with a surprising sense of relief, he saw that the cheers were not, after all, for him.

They were for Dr. Barkun Kris.

Kris was standing in the middle of the bloc of mind sculptors, bowing to the audience. The sculptors nearest him were shaking his hand one after the other. More grasped at it as he made his way to the aisle, and walked forward to the podium. When he mounted the rostrum and took the composer's limp hand, the cheering became delirious.

Kris lifted his arm. The cheering died instantly to an intent hush.

"Thank you," he said clearly. "Ladies and gentlemen, before we take leave of Dr. Strauss, let us again tell him what a privilege it has been for us to hear this fresh example of his mastery. I am sure no farewell could be more fitting."

The ovation lasted five minutes, and would have gone another five if Kris had not cut it off.

"Dr. Strauss," he said, "in a moment, when I speak a certain formulation to you, you will realize that your name is Jerom Bosch, born in our century and with a life in it all your own. The superimposed memories which have made you assume the mask, the *persona*, of a great composer will be gone. I tell you this so that you may understand why these people here share your applause with me."

A wave of assenting sound.

"The art of mind sculpture—the creation of artificial personalities for aesthetic enjoyment—may never reach such a pinnacle again. For you should understand that as Jerom Bosch you had no talent for music at all; indeed, we searched a long time to find a man who was utterly unable to carry even the simplest tune. Yet we were able to impose upon such unpromising material not only the personality, but the genius, of a great composer. That genius belongs entirely to you—to the *persona* that thinks of itself as Richard Strauss. None of the credit goes to the man who volunteered for the sculpture. That is your triumph, and we salute you for it."

Now the ovation could no longer be contained. Strauss, with a crooked smile, watched Dr. Kris bow. This mind sculpturing was a suitably sophisticated kind of cruelty for this age; but the impulse, of course, had always existed. It was the same impulse that had made Rembrandt and Leonardo turn cadavers into art works.

It deserved a suitably sophisticated payment under the *lex talionis*: an eye for an eye, a tooth for a tooth—and a failure for a failure.

No, he need not tell Dr. Kris that the "Strauss" he had created was as empty of genius as a hollow gourd. The joke would always be on the sculptor, who was incapable of hearing the hollowness of the music now preserved on the 3-V tapes.

But for an instant a surge of revolt poured through his blood stream. *I am I*, he thought. *I am Richard Strauss until I die, and will never be Jerom Bosch, who was utterly unable to carry even the simplest tune.* His hand, still holding the baton, came sharply up, though

whether to deliver or to ward off a blow he could not tell.

He let it fall again, and instead, at last, bowed—not to the audience, but to Dr. Kris. He was sorry for nothing, as Kris turned to him to say the word that would plunge him back into oblivion, except that he would now have no chance to set that poem to music.

This Earth of Hours

THE ADVANCE SQUADRON was coming into line as Master Sergeant Oberholzer came onto the bridge of the *Novoe Washingtongrad*, saluted, and stood stiffly to the left of Lieutenant Champion, the exec, to wait for orders. The bridge was crowded and crackling with tension, but after twenty years in the Marines it was all old stuff to Oberholzer. The *Hobo* (as most of the enlisted men called her, out of earshot of the brass) was at the point of the formation, as befitted a virtually indestructible battleship already surfeited with these petty conquests. The rest of the cone was sweeping on ahead, in the swift enveloping maneuver which had reduced so many previous planets before they had been able to understand what was happening to them.

This time, the planet at the focus of all those shifting conic sections of raw naval power was a place called Callë. It was showing now on a screen that Oberholzer could see, turning as placidly as any planet turned when you were too far away from it to see what guns it might be pointing at you. Lieutenant Champion was watching it too, though he had to look out of the very corners of his eyes to see it at all.

If the exec were caught watching the screen instead of the meter board assigned to him, Captain Hammer would probably reduce him to an ensign. Nevertheless, Campion never took his eyes off the image of Callë. This one was going to be rough.

Captain Hammer was watching, too. After a moment he said, "Sound!" in a voice like sandpaper.

"By the pulse six, sir," Lieutenant Spring's voice murmured from the direction of the 'scope. His junior, a very raw youngster named Rover, passed him a chit from the plotting table. "For that read: By the briefs five eight nine, sir," the invisible navigator corrected.

Oberholzer listened without moving while Captain Hammer muttered under his breath to Flo-Mar 12-Upjohn, the only civilian allowed on the bridge—and small wonder, since he was the Consort of State of the Matriarchy itself. Hammer had long ago become accustomed enough to his own bridge to be able to control who overheard him, but 12-Upjohn's answering whisper must have been audible to every man there.

"The briefing said nothing about a second inhabited planet," the Consort said, a little peevishly. "But then there's very little we *do* know about this system—that's part of our trouble. What makes you think it's a colony?"

"A colony from Callë, not one of ours," Hammer said, in more or less normal tones; evidently he had decided against trying to keep only half of the discussion private. "The electromagnetic 'noise' from both planets has the same spectrum—the energy level, the output, is higher on Callë, that's all. That means similar machines being used in similar ways. And let me point out, Your Excellency, that the outer planet is in opposition to Callë now, which will put it precisely in our rear if we complete this maneuver."

"When we complete this maneuver," 12-Upjohn said firmly. "Is there any evidence of communication between the two planets?"

Hammer frowned. "No," he admitted.

"Then we'll regard the colonization hypothesis as unproved—and stand ready to strike back hard if events prove us wrong. I think we have a sufficient force here

to reduce *three* planets like Callë if we're driven to that pitch."

Hammer grunted and resigned the argument. Of course it was quite possible that 12-Upjohn was right; he did not lack for experience—in fact, he wore the Silver Earring, as the most-traveled Consort of State ever to ride the Standing Wave. Nevertheless Oberholzer repressed a sniff with difficulty. Like all the military, he was a colonial; he had never seen the Earth, and never expected to; and both as a colonial and as a Marine who had been fighting the Matriarchy's battles all his adult life, he was more than a little contemptuous of Earthmen, with their tandem names and all that they implied. Of course it was not the Consort of State's fault that he had been born on Earth, and so had been named only Marvin 12 out of the misfortune of being a male; nor that he had married into Florence Upjohn's cabinet, that being the only way one could become a cabinet member and Marvin 12 having been taught from birth to believe such a post the highest honor a man might covet. All the same, neither 12-Upjohn nor his entourage of drones filled Oberholzer with confidence.

Nobody, however, had asked M. Sgt. Richard Oberholzer what he thought, and nobody was likely to. As the chief of all the non-Navy enlisted personnel on board the *Hobo*, he was expected to be on the bridge when matters were ripening toward criticality; but his duty there was to listen, not to proffer advice. He could not in fact remember any occasion when an officer had asked his opinion, though he had received—and executed—his fair share of near-suicidal orders from bridges long demolished.

"By the pulse five point five," Lieutenant Spring's voice sang.

"Sergeant Oberholzer," Hammer said.

"Aye, sir."

"We are proceeding as per orders. You may now brief your men and put them into full battle gear."

Oberholzer saluted and went below. There was little enough he could tell the squad—as 12-Upjohn had said, Callë's system was nearly unknown—but even that

little would improve the total ignorance in which they had been kept till now. Luckily, they were not much given to asking questions of a strategic sort; like impressed spacehands everywhere, the huge mass of the Matriarchy's interstellar holdings meant nothing to them but endlessly riding the Standing Wave, with battle and death lurking at the end of every jump. Luckily also, they were inclined to trust Oberholzer, if only for the low cunning he had shown in keeping most of them alive, especially in the face of unusually Crimean orders from the bridge.

This time Oberholzer would need every ounce of trust and erg of obedience they would give him. Though he never expected anything but the worst, he had a queer cold feeling that this time he was going to get it. There were hardly any data to go on yet, but there had been something about Callë that looked persuasively like the end of the line.

Very few of the forty men in the wardroom even looked up as Oberholzer entered. They were checking their gear in the dismal light of the fluorescents, with the single-mindedness of men to whom a properly wound gun-tube coil, a properly set face-shield gasket, a properly fueled and focused vaulting jet, have come to mean more than parents, children, retirement pensions, the rule of law, or the logic of empire. The only man to show any flicker of interest was Sergeant Cassirir—as was normal, since he was Oberholzer's understudy—and he did no more than look up from over the straps of his antigas suit and say, "Well?"

"Well," Oberholzer said, "now hear this."

There was a sort of composite jingle and clank as the men lowered their gear to the deck or put it aside on their bunks.

"We're investing a planet called Callë in the Canes Venatici cluster," Oberholzer said, sitting down on an olive-drab canvas pack stuffed with lysurgic acid grenades. "A cruiser called the *Assam Dragon*—you were with her on her shakedown, weren't you, Himber?—touched down here ten years ago with a flock of tenders and got swallowed up. They got two or three quick yells for help out and that was that—nothing anybody could

make much sense of, no weapons named or description of the enemy. So here we are, loaded for the kill."

"Wasn't any Calley in command of the *Assam Dragon* when I was aboard," Himber said doubtfully.

"Nah. Place was named for the astronomer who spotted her, from the rim of the cluster, a hundred years ago," Oberholzer said. "Nobody names planets for ship captains. Anybody got any sensible questions?"

"Just what kind of trouble are we looking for?" Casirir said.

"That's just it—we don't know. This is closer to the center of the Galaxy than we've ever gotten before. It may be a population center too; could be that Callë is just one piece of a federation, at least inside its own cluster. That's why we've got the boys from Momma on board; this one could be damn important."

Somebody sniffed. "If this cluster is full of people, how come we never picked up signals from it?"

"How do you know we never did?" Oberholzer retorted. "For all I know, maybe that's why the *Assam Dragon* came here in the first place. Anyhow that's not our problem. All we're——"

The lights went out. Simultaneously, the whole mass of the *Novoe Washingtongrad* shuddered savagely, as though a boulder almost as big as she was had been dropped on her.

Seconds later, the gravity went out too.

II

Flo-Mar 12-Upjohn knew no more of the real nature of the disaster than did the wardroom squad, nor did anybody on the bridge, for that matter. The blow had been undetectable until it struck, and then most of the fleet was simply annihilated; only the *Hobo* was big enough to survive the blow, and she survived only partially—in fact, in five pieces. Nor did the Consort of State ever know by what miracle the section he was in hit Callë still partially under power; he was not privy to the self-salvaging engineering principles of battleships. All he knew—once he struggled back to consciousness—was that he was still alive, and that there was a

broad shaft of sunlight coming through a top-to-bottom split in one wall of what had been his office aboard ship.

He held his ringing head for a while, then got up in search of water. Nothing came out of the dispenser, so he unstrapped his dispatch case from the underside of his desk and produced a pint palladium flask of vodka. He had screwed up his face to sample this—at the moment he would have preferred water—when a groan reminded him that there might be more than one room in his suddenly shrunken universe, as well as other survivors.

He was right on both counts. Though the ship section he was in consisted mostly of engines of whose function he had no notion, there were also three other state-rooms. Two of these were deserted, but the third turned out to contain a battered member of his own staff, by name Robin One.

The young man was not yet conscious and 12-Upjohn regarded him with a faint touch of despair. Robin One was perhaps the last man in space that the Consort of State would have chosen to be shipwrecked with.

That he was utterly expendable almost went without saying; he was, after all, a drone. When the perfection of sperm electrophoresis had enabled parents for the first time to predetermine the sex of their children, the predictable result had been an enormous glut of males—which was directly accountable for the present regime on Earth. By the time the people and the lawmakers, thoroughly frightened by the crazy years of fashion upheavals, "beefcake," polyandry, male prostitution, and all the rest, had come to their senses, the Matriarchy was in to stay; a weak electric current had overturned civilized society as drastically as the steel knife had demoralized the Eskimos.

Though the tide of excess males had since receded somewhat, it had left behind a wrack, of which Robin One was a bubble. He was a drone, and hence superfluous by definition—fit only to be sent colonizing, on diplomatic missions or otherwise thrown away.

Superfluity alone, of course, could hardly account for

his presence on 12-Upjohn's staff. Officially, Robin One was an interpreter; actually—since nobody could know the language the Consort of State might be called upon to understand on this mission—he was a poet, a class of unattached males with special privileges in the Matriarchy, particularly if what they wrote was of the middling-difficult or Hillyer Society sort. Robin One was an eminently typical member of this class, distractible, sulky, jealous, easily wounded, homosexual, lazy except when writing, and probably (to give him the benefit of the doubt, for 12-Upjohn had no ear whatever for poetry) the second-worst poet of his generation.

It had to be admitted that assigning 12-Upjohn a poet as an interpreter on this mission had not been a wholly bad idea, and that if Hildegard Muller of the Interstellar Understanding Commission had not thought of it, no mere male would have been likely to—least of all Bar-Rob 4-Agberg, Director of Assimilation. The nightmare of finding the whole of the center of the Galaxy organized into one vast federation, much older than Earth's, had been troubling the State Department for a long time, at first from purely theoretical considerations—all those heart-stars were much older than those in the spiral arms, and besides, where star density in space is so much higher, interstellar travel does not look like quite so insuperable an obstacle as it long had to Earthmen—and later from certain practical signs, of which the obliteration of the *Assam Dragon* and her tenders had been only the most provocative. Getting along with these people on the first contact would be vital, and yet the language barrier might well provoke a tragedy wanted by neither side, as the obliteration of Nagasaki in World War II had been provoked by the mistranslation of a single word. Under such circumstances, a man with a feeling for strange words in odd relationships might well prove to be useful, or even vital.

Nevertheless, it was with a certain grim enjoyment that 12-Upjohn poured into Robin One a good two-ounce jolt of vodka. Robin coughed convulsively and sat up, blinking.

"Your Excellency—how—what's happened? I thought we were dead. But we've got lights again, and gravity."

He was observant, that had to be granted. "The lights are ours but the gravity is Callë's," 12-Upjohn explained tersely. "We're in a part of the ship that cracked up."

"Well, it's good that we've got power."

"We can't afford to be philosophical about it. Whatever shape it's in, this derelict is a thoroughly conspicuous object and we'd better get out of it in a hurry."

"Why?" Robin said. "We were supposed to make contact with these people. Why not just sit here until they notice and come to see us?"

"Suppose they just blast us to smaller bits instead? They didn't stop to parley with the fleet, you'll notice."

"This is a different situation," Robin said stubbornly. "I wouldn't have stopped to parley with that fleet myself, if I'd had the means of knocking it out first. It didn't look a bit like a diplomatic mission. But why should they be afraid of a piece of a wreck?"

The Consort of State stroked the back of his neck reflectively. The boy had a point. It was risky; on the other hand, how long would they survive foraging in completely unknown territory? And yet obviously they couldn't stay cooped up in here forever—especially if it was true that there was already no water.

He was spared having to make up his mind by a halloo from the direction of the office. After a startled stare at each other, the two hit the deck running.

Sergeant Oberholzer's face was peering grimly through the split in the bulkhead.

"Oho," he said. "So you *did* make it." He said something unintelligible to some invisible person outside, and then squirmed through the breach into the room, with considerable difficulty, since he was in full battle gear. "None of the officers did, so I guess that puts you in command."

"In command of what?" 12-Upjohn said dryly.

"Not very much," the Marine admitted. "I've got five men surviving, one of them with a broken hip, and a section of the ship with two drive units in it. It would lift, more or less, if we could jury-rig some controls, but

I don't know where we'd go in it without supplies or a navigator—or an overdrive, for that matter." He looked about speculatively. "There was a Standing Wave transceiver in this section, I think, but it'd be a miracle if it still functioned."

"Would you know how to test it?" Robin asked.

"No. Anyhow we've got more immediate business than that. We've picked up a native. What's more, he speaks English—must have picked it up from the *As-sam Dragon*. We started to ask him questions, but it turns out he's some sort of top official, so we brought him over here on the off chance that one of you was alive."

"What a break!" Robin One said explosively.

"A whole series of them," 12-Upjohn agreed, none too happily. He had long ago learned to be at his most suspicious when the breaks seemed to be coming his way. "Well, better bring him in."

"Can't," Oberholzer said. "Apologies, Your Excellency, but he wouldn't fit. You'll have to come to him."

III

It was impossible to imagine what sort of stock the Callëan had evolved from. He seemed to be a thorough-going mixture of several different phyla. Most of him was a brown, segmented tube about the diameter of a barrel and perhaps twenty-five feet long, rather like a cross between a python and a worm. The front segments were carried upright, raising the head a good ten feet off the ground.

Properly speaking, 12-Upjohn thought, the Callëan really had no head, but only a front end, marked by two enormous faceted eyes and three upsetting simple eyes which were usually closed. Beneath these there was a collar of six short, squidlike tentacles, carried wrapped around the creature in a ropy ring. He was as impossible-looking as he was fearsome, and 12-Upjohn felt at a multiple disadvantage from the beginning.

"How did you learn our language?" he said, purely as a starter.

"I learned it from you," the Callëan said promptly.

The voice was unexpectedly high, a quality which was accentuated by the creature's singsong intonation; 12-Upjohn could not see where it was coming from. "From your ship which I took apart, the dragon-of-war."

"Why did you do that?"

"It was evident that you meant me ill," the Callëan sang. "At that time I did not know that you were sick, but that became evident at the dissections."

"Dissection! You dissected the crew of the *Dragon*?"

"All but one."

There was a growl from Oberholzer. The Consort of State shot him a warning glance.

"You may have made a mistake," 12-Upjohn said. "A natural mistake, perhaps. But it was our purpose to offer you trade and peaceful relationships. Our weapons were only precautionary."

"I do not think so," the Callëan said, "and I never make mistakes. That you make mistakes is natural, but it is not natural to me."

12-Upjohn felt his jaw dropping. That the creature meant what he said could not be doubted: his command of the language was too complete to permit any more sensible interpretation. 12-Upjohn found himself at a loss; not only was the statement the most staggering he had ever heard from any sentient being, but while it was being made he had discovered how the Callëan spoke: the sounds issued at low volume from a multitude of spiracles or breath-holes all along the body, each hole producing only one pure tone, the words and intonations being formed in mid-air by intermodulation—a miracle of co-ordination among a multitude of organs obviously unsuitable for sound-forming at all. This thing was formidable—that would have been evident even without the lesson of the chunk of the *Novoe Washingtongrad* canted crazily in the sands behind them.

Sands? He looked about with a start. Until that moment the Callëan had so hypnotized his attention that he had forgotten to look at the landscape, but his unconscious had registered it. Sand, and nothing but sand. If there were better parts of Callë than this desert, they were not visible from here, all the way to the horizon.

"What do you propose to do with us?" he said at last. There was really nothing else to say; cut off in every possible sense from his home world, he no longer had any base from which to negotiate.

"Nothing," the Callëan said. "You are free to come and go as you please."

"You're no longer afraid of us?"

"No. When you came to kill me I prevented you, but you can no longer do that."

"There you've made a mistake, all right," Oberholzer said, lifting his rifle toward the multicolored, glittering jewels of the Callëan's eyes. "You know what this is—they must have had them on the *Dragon*."

"Don't be an idiot, Sergeant," 12-Upjohn said sharply. "We're in no position to make any threats." Nor, he added silently, should the Marine have called attention to his gun before the Callëan had taken any overt notice of it.

"I know what it is," the creature said. "You cannot kill me with that. You tried it often before and found you could not. You would remember this if you were not sick."

"I never saw anything that I couldn't kill with a Sussmann flamer," Oberholzer said between his teeth. "Let me try it on the bastard, Your Excellency."

"Wait a minute," Robin One said, to 12-Upjohn's astonishment. "I want to ask some questions—if you don't mind, Your Excellency?"

"I don't mind," 12-Upjohn said after an instant. Anything to get the Marine's crazy impulse toward slaughter sidetracked. "Go ahead."

"Did you dissect the crew of the *Assam Dragon* personally?" Robin asked the Callëan.

"Of course."

"Are you the ruler of this planet?"

"Yes."

"Are you the only person in this system?"

"No."

Robin paused and frowned. Then he said: "Are you the only person of your species in your system?"

"No. There is another on Xixobrax—the fourth planet."

Robin paused once more, but not, it seemed to 12-Upjohn, as though he were in any doubt; it was only as though he were gathering his courage for the key question of all. 12-Upjohn tried to imagine what it might be, and failed.

"How many of you are there?" Robin One said.

"I cannot answer that. As of the instant you asked me that question, there were eighty-three hundred thousand billion, one hundred and eighty-nine million, four hundred and sixty-five thousand, one hundred and eighty; but now the number has changed, and it goes on changing."

"Impossible," 12-Upjohn said, stunned. "Not even two planets could support such a number—and you'd never allow a desert like this to go on existing if you had even a fraction of that population to support. I begin to think, sir, that you are a type normal to my business: the ordinary, unimaginative liar."

"He's not lying," Robin said, his voice quivering. "It all fits together. Just let me finish, sir, please. I'll explain, but I've got to go through to the end first."

"Well," 12-Upjohn said, helplessly, "all right, go ahead." But he was instantly sorry, for what Robin One said was:

"Thank you. I have no more questions."

The Callëan turned in a great liquid wheel and poured away across the sand dunes at an incredible speed. 12-Upjohn shouted after him, without any clear idea of what it was that he was shouting—but no matter, for the Callëan took no notice. Within seconds, it seemed, he was only a threadworm in the middle distance, and then he was gone. They were all alone in the chill desert air.

Oberholzer lowered his rifle bewilderedly. "He's fast," he said to nobody in particular. "Cripes, but he's fast. I couldn't even keep him in the sights."

"That proves it," Robin said tightly. He was trembling, but whether with fright or elation, 12-Upjohn could not tell; possibly both.

"It had better prove something," the Consort of State said, trying hard not to sound portentous. There was something about this bright remote desert that made

empty any possible pretense to dignity. "As far as I can see, you've just lost us what may have been our only chance to treat with these creatures . . . just as surely as the sergeant would have done it with his gun. Explain, please."

"I didn't really catch on until I realized that he was using the second person singular when he spoke to us," Robin said. If he had heard any threat implied in 12-Upjohn's charge, it was not visible; he seemed totally preoccupied. "There's no way to tell them apart in modern English. We thought he was referring to us as 'you' plural, but he wasn't, any more than his 'I' was a plural. He thinks we're all a part of the same personality—including the men from the *Dragon*, too—*just as he is himself*. That's why he left when I said I had no more questions. He can't comprehend that each of us has an independent ego. For him such a thing doesn't exist."

"Like ants?" 12-Upjohn said slowly. "I don't see how an advanced technology . . . but no, I do see. And if it's so, it means that any Callëan we run across could be their chief of state, but that no one of them actually is. The only other real individual is next door, on the fourth planet—another hive ego."

"Maybe not," Robin said. "Don't forget that he thinks we're part of one, too."

12-Upjohn dismissed that possibility at once. "He's sure to know his own system, after all. . . . What alarms me is the population figure he cited. It's got to be *at least* clusterwide—and from the exactness with which he was willing to cite it, for a given instant, he had to have immediate access to it. An instant, effortless census."

"Yes," Robin said. "Meaning mind-to-mind contact, from one to all, throughout the whole complex. That's what started me thinking about the funny way he used pronouns."

"If that's the case, Robin, we are *spurlos versenkt*. And my pronoun includes the Earth."

"They may have some limitations," Robin said, but it was clear that he was only whistling in the dark. "But at least it explains why they butchered the *Dragon's* crew

so readily—and why they're willing to let us wander around their planet as if we didn't even exist. We don't, for them. They can't have any respect for a single life. No wonder they didn't give a damn for the sergeant's gun!"

His initial flush had given way to a marble paleness; there were beads of sweat on his brow in the dry hot air, and he was trembling harder than ever. He looked as though he might faint in the next instant, though only the slightest of stutters disturbed his rush of words. But for once the Consort of State could not accuse him of agitation over trifles.

Oberholzer looked from one to the other, his expression betraying perhaps only disgust, or perhaps blank incomprehension—it was impossible to tell. Then, with a sudden sharp *snick* which made them both start, he shot closed the safety catch on the Sussmann.

"Well," he said in a smooth cold empty voice, "now we know what we'll eat."

IV

Their basic and dangerous division of plans and purposes began with that.

Sergeant Oberholzer was not a fool, as the hash marks on his sleeve and the battle stars on his ribbons attested plainly; he understood the implications of what the Callëan had said—at least after the Momma's boy had interpreted them; and he was shrewd enough not to undervalue the contribution the poor terrified fairy had made to their possible survival on this world. For the moment, however, it suited the Marine to play the role of the dumb sergeant to the hilt. If a full understanding of what the Callëans were like might reduce him to a like state of trembling impotence, he could do without it.

Not that he really believed that any such thing could happen to him; but it was not hard to see that Momma's boys were halfway there already—and if the party as a whole hoped to get anything done, they had to be jolted out of it as fast as possible.

At first he thought he had made it. "Certainly not!" the Consort of State said indignantly. "You're a man, sergeant, not a Callëan. Nothing the Callëans do is any excuse for your behaving otherwise than as a man."

"I'd rather eat an enemy than a friend," Oberholzer said cryptically. "Have you got any supplies inside there?"

"I—I don't know. But that has nothing to do with it."

"Depends on what you mean by 'it.' But maybe we can argue about that later. What are your orders, Your Excellency?"

"I haven't an order in my head," 12-Upjohn said with sudden, disarming frankness. "We'd better try to make some sensible plans first, and stop bickering. Robin, stop snuffling, too. The question is, what can we do besides trying to survive, and cherishing an idiot hope for a rescue mission?"

"For one thing, we can try to spring the man from the *Dragon's* crew that these worms have still got alive," Oberholzer said. "If that's what he meant when he said they dissected all but one."

"That doesn't seem very feasible to me," 12-Upjohn said. "We have no idea where they're holding him——"

"Ask them. This one answered every question you asked him."

"—and even supposing that he's near by, we couldn't free him from a horde of Callëans, no matter how many dead bodies they let you pile up. At best, sooner or later you'd run out of ammunition."

"It's worth trying," Oberholzer said. "We could use the manpower."

"What for?" Robin One demanded. "He'd be just one more mouth to feed. At the moment, at least, they're feeding him."

"For raising ship," Oberholzer retorted. "If there's any damn chance of welding our two heaps of junk together and getting off this mudball. We ought to look into it, anyhow."

Robin One was looking more alarmed by the minute. If the prospect of getting into a fight with the Callëans

had scared him, Oberholzer thought, the notion of hard physical labor evidently was producing something close to panic.

"Where could we go?" he said. "Supposing that we could fly such a shambles at all?"

"I don't know," Oberholzer said. "We don't know what's possible yet. But anything's better than sitting around here and starving. First off, I want that man from the *Dragon*."

"I'm opposed to it," 12-Upjohn said firmly. "The Callëans are leaving us to our own devices now. If we cause any real trouble they may well decide that we'd be safer locked up, or dead. I don't mind planning to lift ship if we can—but no military expeditions."

"Sir," Oberholzer said, "military action on this planet is what I was sent here for. I reserve the right to use my own judgment. You can complain, if we ever get back—but I'm not going to let a man rot in a worm-burrow while I've got a gun on my back. You can come along or not, but we're going."

He signaled to Cassirir, who seemed to be grinning slightly. 12-Upjohn stared at him for a moment, and then shook his head.

"We'll stay," he said. "Since we have no water, Sergeant, I hope you'll do us the kindness of telling us where your part of the ship lies."

"That way, about two kilometers," Oberholzer said. "Help yourself. If you want to settle in there, you'll save us the trouble of toting Private Hannes with us on a stretcher."

"Of course," the Consort of State said. "We'll take care of him. But, Sergeant . . ."

"Yes, Your Excellency?"

"If this stunt of yours still leaves us all alive afterwards, and we do get back to any base of ours, I will *certainly* see to it that a complaint is lodged. I'm not disowning you now because it's obvious that we'll all have to work together to survive, and a certain amount of amity will be essential. But don't be deceived by that."

"I understand, sir," Oberholzer said levelly. "Cassirir, let's go. We'll backtrack to where we nabbed the

worm, and then follow his trail to wherever he came from. Fall in."

The men shouldered their Sussmanns. 12-Upjohn and Robin One watched them go. At the last dune before the two would go out of sight altogether, Oberholzer turned and waved, but neither waved back. Shrugging, Oberholzer resumed plodding.

"Sarge?"

"Yeah?"

"How *do* you figure to spring this joker with only four guns?"

"Five guns if we spring him—I've got a side arm," Oberholzer reminded him. "We'll play it by ear, that's all. I want to see just how serious these worms are about leaving us alone, and letting us shoot them if we feel like it. I've got a hunch that they aren't very bright, one at a time, and don't react fast to strictly local situations. If this whole planet is like one huge body, and the worms are its brain cells, then we're germs—and maybe it'd take more than four germs to make the body do anything against us that counted, at least fast enough to do any good."

Cassirir was frowning absurdly; he did not seem to be taking the theory in without pain. Well, Cassirir had never been much of a man for tactics.

"Here's where we found the guy," one of the men said, pointing at the sand.

"That's not much of a trail," Cassirir said. "If there's any wind it'll be wiped out like a shot."

"Take a sight on it, that's all we need. You saw him run off—straight as a ruled line, no twists or turns around the dunes or anything. Like an army ant. If the trail sands over, we'll follow the sight. It's a cinch it leads someplace."

"All right," Cassirir said, getting out his compass. After a while the four of them resumed trudging.

There were only a few drops of hot, flat-tasting water left in the canteens, and their eyes were gritty and red from dryness and sand, when they topped the ridge that overlooked the nest. The word sprang instantly into Oberholzer's mind, though perhaps he had been expecting

some such thing ever since Robin One had compared the Callëans to ants.

It was a collection of rough white spires, each perhaps fifty feet high, rising from a common doughlike mass which almost filled a small valley. There was no greenery around it and no visible source of water, but there were three roads, two of them leading into oval black entrances which Oberholzer could see from here. Occasionally—not often—a Callëan would scuttle out and vanish, or come speeding over the horizon and dart into the darkness. Some of the spires bore masts carrying what seemed to be antennae or more recondite electronic devices, but there were no windows to be seen; and the only sound in the valley, except for the dry dusty wind, was a subdued composite hum.

"Man!" Cassirir said, whispering without being aware of it. "It must be as black as the ace of spades in there. Anybody got a torch?"

Nobody had. "We won't need one anyhow," Oberholzer said confidently. "They've got eyes, and they can see in desert sunlight. That means they can't move around in total darkness. Let's go—I'm thirsty."

They stumbled down into the valley and approached the nearest black hole cautiously. Sure enough, it was not as black as it had appeared from the hill; there was a glow inside, which had been hidden from them against the contrast of the glaringly lit sands. Nevertheless, Oberholzer found himself hanging back.

While he hesitated, a Callëan came rocketing out of the entrance and pulled to a smooth, sudden stop.

"You are not to get in the way," he said, in exactly the same piping singsong voice the other had used.

"Tell me where to go and I'll stay out of your way," Oberholzer said. "Where is the man from the warship that you didn't dissect?"

"In Gnitonis, halfway around the world from here."

Oberholzer felt his shoulders sag, but the Callëan was not through. "You should have told me that you wanted him," he said. "I will have him brought to you. Is there else that you need?"

"Water," Oberholzer said hopefully.

"That will be brought. There is no water you can use

here. Stay out of the cities; you will be in the way."

"How else can we eat?"

"Food will be brought. You should make your needs known; you are of low intelligence and helpless. I forbid nothing, I know you are harmless, and your life is short in any case; but I do not want you to get in the way."

The repetition was beginning to tell on Oberholzer, and the frustration created by his having tried to use a battering ram against a freely swinging door was compounded by his mental picture of what the two Momma's boys would say when the squad got back.

"Thank you," he said, and bringing the Sussmann into line, he trained it on the Callëan's squidlike head and squeezed the trigger.

It was at once established that the Callëans were as mortal to Sussmann flammers as is all other flesh and blood; this one made a very satisfactory corpse. Unsatisfied, the flamer bolt went on to burn a long slash in the wall of the nest, not far above the entrance. Oberholzer grounded the rifle and waited to see what would happen next; his men hefted their weapons tensely.

For a few minutes there was no motion but the random twitching of the headless Callëan's legs. Evidently he was still not entirely dead, though he was a good four feet shorter than he had been before, and plainly was feeling the lack. Then, there was a stir inside the dark entrance.

A ten-legged animal about the size of a large rabbit emerged tentatively into the sunlight, followed by two more, and then by a whole series of them, perhaps as many as twenty. Though Oberholzer had been unabashed by the Callëans themselves, there was something about these things that made him feel sick. They were coal black and shiny, and they did not seem to have any eyes; their heavily armored heads bore nothing but a set of rudimentary palps and a pair of enormous pincers, like those of a June beetle.

Sightless or no, they were excellent surgeons. They cut the remains of the Callëan swiftly into sections, precisely one metamere to a section, and bore the carrion back inside the nest. Filled with loathing, Oberholzer stepped quickly forward and kicked one of the last in

the procession. It toppled over like an unstable kitchen stool, but regained its footing as though nothing had happened. The kick had not hurt it visibly, though Oberholzer's toes felt as though he had kicked a Victorian iron dog. The creature, still holding its steak delicately in its living tongs, mushed implacably after the others back into the dubiety of the nest. Then all that was left in the broiling sunlight was a few pools of blackening blood seeping swiftly into the sand.

"Let's get out of here," Cassirir said raggedly.

"Stand fast," Oberholzer growled. "If they're mad at us, I want to know about it right now."

But the next Callëan to pass them, some twenty eternal minutes later, hardly even slowed down. "Keep out of the way," he said, and streaked away over the dunes. Snarling, Oberholzer caromed a bolt after him, but missed him clean.

"All right," he said. "Let's go back. No hitting the canteens till we're five kilometers past the mid-point cairn. March!"

The men were all on the verge of prostration by the time that point was passed, but Oberholzer never once had to enforce the order. Nobody, it appeared was eager to come to an end on Callë as a series of butcher's cuts in the tongs of a squad of huge black beetles.

V

"I know what they think," the man from the *Assam Dragon* said. "I've heard them say it often enough."

He was a personable youngster, perhaps thirty, with blond wavy hair which had been turned almost white by the strong Callëan sunlight: his captors had walked him for three hours every day on the desert. He had once been the *Assam Dragon's* radioman, a post which in interstellar flight is a branch of astronomy, not of communications; nevertheless, Oberholzer and the marines called him Sparks, in deference to a tradition which, 12-Upjohn suspected, the marines did not even know existed.

"Then why wouldn't there be a chance of our estab-

lishing better relations with the 'person' on the fourth planet?" 12-Upjohn said. "After all, there's never been an Earth landing there."

"Because the 'person' on Xixobrax is a colony of Callë, and knows everything that goes on here. It took the two planets in co-operation to destroy the fleet. There's almost full telepathic communion between the two—in fact, all through the Central Empire. The only rapport that seems to weaken over short distances—interplanetary distances—is the sense of identity. That's why each planet has an 'I' of its own, its own ego. But it's not the kind of ego we know anything about. Xixobrax wouldn't give us any better deal than Callë has, any more than I'd give Callë a better deal than you would, Your Excellency. They have common purposes and allegiances. All the Central Empire seems to be like that."

12-Upjohn thought about it; but he did not like what he thought. It was a knotty problem, even in theory.

Telepathy among men had never amounted to anything. After the pioneer exploration of the microcosm with the Arpe Effect—the second of two unsuccessful attempts at an interstellar drive, long before the discovery of the Standing Wave—it had become easy to see why this would be so. Psi forces in general were characteristic only of the subspace in which the primary particles of the atom had their being; their occasional manifestations in the macrocosm were statistical accidents, as weak and indirigible as spontaneous radioactive decay.

Up to now this had suited 12-Upjohn. It had always seemed to him that the whole notion of telepathy was a dodge—an attempt to by-pass the plain duty of each man to learn to know his brother, and, if possible, to learn to love him; the telepathy fanatics were out to short-circuit the task, to make easy the most difficult assignment a human being might undertake. He was well aware, too, of the bias against telepathy which was inherent in his profession of diplomat; yet he had always been certain of his case, hazy though it was around the edges. One of his proofs was that telepathy's main defenders invariably were incorrigibly lazy writers, from Upton Sinclair and Theodore Dreiser all the way down to . . .

All the same, it seemed inarguable that the whole center of the Galaxy, an enormously diverse collection of peoples and cultures, was being held together in a common and strife-free union by telepathy alone, or perhaps by telepathy and its even more dubious adjuncts: a whole galaxy held together by a force so unreliable that two human beings sitting across from each other at a card table had never been able to put it to an even vaguely practicable use.

Somewhere, there was a huge hole in the argument.

While he had sat helplessly thinking in these circles, even Robin One was busy, toting power packs to the welding crew which was working outside to braze together on the desert the implausible, misshapen lump of metal which the Marine sergeant was fanatically determined would become a ship again. Now the job was done, though no shipwright would admire it, and the question of where to go with it was being debated in full council. Sparks, for his part, was prepared to bet that the Callëans would not hinder their departure.

"Why would they have given us all this oxygen and stuff if they were going to prevent us from using it?" he said reasonably. "They know what it's for—even if they have no brains, collectively they're plenty smart enough."

"No brains?" 12-Upjohn said. "Or are you just exaggerating?"

"No brains," the man from the *Assam Dragon* insisted. "Just lots of ganglia. I gather that's the way all of the races of the Central Empire are organized, regardless of other physical differences. That's what they mean when they say we're all sick—hadn't you realized that?"

"No," 12-Upjohn said in slowly dawning horror. "You had better spell it out."

"Why, they say that's why we get cancer. They say that the brain is the ultimate source of all tumors, and is itself a tumor. They call it 'hostile symbiosis.' "

"Malignant?"

"In the long run. Races that develop them kill themselves off. Something to do with solar radiation; animals

on planets of Population II stars develop them, Population I planets don't."

Robin One hummed an archaic twelve-tone series under his breath. There were no words to go with it, but the Consort of State recognized it; it was part of a chorale from a twentieth-century American opera, and the words went: *Weep, weep beyond time for this Earth of hours.*

"It fits," he said heavily. "So to receive and use a weak field like telepathy, you need a weak brain. Human beings will never make it."

"Earthworms of the galaxy, unite," Robin One said.

"They already have," Sergeant Oberholzer pointed out. "So where does all this leave us?"

"It means," 12-Upjohn said slowly, "that this Central Empire, where the stars are almost all Population I, is spreading out toward the spiral arms where the Earth lies. Any cluster civilizations they meet are natural allies—clusters are purely Population I—and probably have already been mentally assimilated. Any possible natural allies we meet, going around Population II stars, we may well pick a fight with instead."

"That's not what I meant," Sergeant Oberholzer said.

"I know what you meant; but this changes things. As I understand it, we have a chance of making a straight hop to the nearest Earth base, if we go on starvation rations——"

"—and if I don't make more than a point zero five per cent error in plotting the course," Sparks put in.

"Yes. On the other hand, we can make *sure* of getting there by going in short leaps via planets known to be inhabited, but never colonized and possibly hostile. The only other possibility is Xixobrax, which I think we've ruled out. Correct?"

"Right as rain," Sergeant Oberholzer said. "Now I see what you're driving at, Your Excellency. The only thing is—you didn't mention that the stepping stone method will take us the rest of our lives."

"So I didn't," 12-Upjohn said bleakly. "But I hadn't forgotten it. The other side of *that* coin is that it will be

even longer than that before the Matriarchy and the Central Empire collide."

"After which," Sergeant Oberholzer said with a certain relish, "I doubt that it'll be a Matriarchy, whichever wins. Are you calling for a vote, sir?"

"Well—yes, I seem to be."

"Then let's grasshopper," Sergeant Oberholzer said unhesitatingly. "The boys and I can't fight a point zero five per cent error in navigation—but for hostile planets, we've got the flamers."

Robin One shuddered. "I don't mind the fighting part," he said unexpectedly. "But I *do* simply loathe the thought of being an old, old man when I get home. All the same, we do have to get the word back."

"You're agreeing with the sergeant?"

"Yes, that's what I said."

"I agree," Sparks said. "Either way we may not make it, but the odds are in favor of doing it the hard way."

"Very good," 12-Upjohn said. He was uncertain of his exact emotion at this moment; perhaps gloomy satisfaction was as close a description as any. "I make it unanimous. Let's get ready."

The sergeant saluted and prepared to leave the cabin; but suddenly he turned back.

"I didn't think very much of either of you, a while back," he said brutally. "But I'll tell you this: there must be something about brains that involves guts, too. I'll back 'em any time against any critter that lets itself be shot like a fish in a barrel—whatever the odds."

The Consort of State was still mulling that speech over as the madman's caricature of an interstellar ship groaned and lifted its lumps and angles from Callë. Who knows, he kept telling himself, who knows, it might even be true.

But he noticed that Robin One was still humming the chorale from *Psyche and Eros*; and ahead the galactic night was as black as death.

The Oath

REMEMBERING CONSCIENTIOUSLY TO use the hand brake as well as the foot, Dr. Frank Tucci began to slow down toward the middle of the bridge, examining the toll booths ahead with a cold eye.

He despised everything about scouting by motor scooter, though he agreed, when forced to it, that a man on a scooter made the smallest possible target consistent with getting anywhere—and besides, it conserved gas, of which there was very little left. Most of all he despised crossing bridges. It made him feel even more exposed than usual, and toll booths made natural ambushes.

These, however, were as deserted as they looked. The glass had been broken and the tills rifled. Without question the man who had taken the money had not lived long enough afterward to discover that it was worthless. Still, the looting of money was unusual, for there had been little time for it. Most people outside target areas had died during the first two days; the 38-hour dose in the open had averaged 9100 roentgens.

Naturally the small town ahead would be thoroughly looted of food and other valuables, but that was different. There was a physician in the area—that was the man Dr. Tucci had come all this way to see—and as usual, people would have drifted in again to settle around him. People meant looting, necessarily. For one thing, they were accustomed to getting 70 per cent of their calcium from milk, and the only milk that was drinkable out here was canned stuff from before the Day.

There might still be a cow or two outside the Vaults, but her milk would be lethal.

There would be no more dairy products of any kind for the lifetime of anyone now living, once the lootables were gone. There was too much strontium-90 in the soil. The Nutrition Board had worked out some way around the calcium supply problem, Tucci had heard, but he knew nothing about it; that wasn't his province.

His province was in the valley ahead, in the large reddish frame house where, all the reports assured him, he would find another doctor—or somebody who was passing for one. The house, he noted professionally, was fairly well situated. There was a broad creek running rapidly over a stone bed not far away, and the land was arable and in cultivation: truck crops for the most part, a good acre of them, enough to supply a small family by today's starvation standards. The family was there, that was evident: two children in the four-to-seven age bracket—hence survivors, both of them—were playing a stalking game in the rows of corn to which the other acre was planted.

Tucci wondered if the owner knew the Indian trick of planting pumpkins, beans, and a fish from the stream in the same hill with the corn. If he didn't, he wasn't getting more than half as much from the acre as he might.

The position was not optimum for defense. Though the centrally located house did offer clear shots all around, anyone could put it under siege almost indefinitely from the high ground which surrounded it. But presumably a doctor did not need to conduct a lonely defense against the rare roving band, since his neighbors would help him. A "neighbor" in that sense would include anyone within a hundred miles who could pick up a weapon and get to the scene fast enough.

Even a mob might pause before it could come to that. Its first sight of the house would be from here, looking down into the valley; and on the roof of the house, over green paint much streaked by repeated anti-fallout hosings, was painted a large red cross.

That would hardly have protected the owner during the first six months after the Day, but that was more than a year ago. Things had settled somewhat since

then. Initially a good deal of venom had expressed itself against doctors when the dying had discovered that they could not be saved. That was why, now, rumors of the existence of a physician could bring Dr. Tucci two hundred bumpy miles on a rusty Lambretta whose side panels had fallen off, carrying a conspicuous five-gallon can of the liquid gold that was gasoline on his luggage rack, sweating inside a bullet-proof suit in whose efficacy he thoroughly disbelieved.

He gunned the motor three times in neutral before putting the scooter back in gear and starting it slowly down the hill. The last thing he wanted was to seem to be sneaking up on anybody. Sure enough, as he clambered down from his perch onto the road in front of the house and lurched the scooter up onto its kickstand, he saw someone watching him from a ground floor window.

He knew that he was an odd sight. Short dumpy men look particularly short and dumpy on motor scooters, and he doubted that his green crash helmet and dark goggles made him look any less bizarre. But those, at least, he could take off. There was nothing he could do right now about the putatively bullet-proof coverall.

He was met at the door by a woman. She was a tall, muscular blonde wearing shorts and a halter, a cloth tying up her hair in the back. He approved of her on sight. She was rather pretty in her own heroic fashion, but more than that, she was obviously strong and active. That was what counted these days, although animal cunning was also very helpful.

"Good morning," he said. He produced from his pocket the ritual gift of canned beans without which it was almost impossible to open negotiations with a stranger. "My name is Frank Tucci, from up north. I'm looking for someone named Gottlieb, Nathan Gottlieb; I think—"

"Thank you, this is where he lives," the woman said, with unusual graciousness. Obviously she was not afraid or suspicious. "I'm Sigrid Gottlieb. You'll have to wait a while, I'm afraid. He's seeing another patient now, and there are several others waiting."

"Patient?" Tucci said, without attempting to look

surprised. He knew that he would overdo it. Just speaking slowly should be sufficient for an unsuspecting audience. "But it's—of course everything's different now, but the Gottlieb I'm looking for is a poet."

Another pause. He added, "Er . . . was a poet."

"Is a poet," Sigrid said. "Well, come in please, Mr. Tucci. He'll be astonished. At least, *I'm* astonished—hardly anybody knew his name, even Back Then."

Score one, thanks to the Appalachian Vaults' monstrous library. Out of a personal crotchet, Tucci checked with the library each name that rumor brought him, and this time it had paid off. It never had before.

From here on out, it ought to be easy.

Nathan Gottlieb listened with such intensity that he reduced every other listener in Tucci's memory to little better than a catatonic. His regard made Tucci acutely aware of the several small lies upon which his story rested; and of the fact that Gottlieb was turning over and over in his hands the ritual can of beans Tucci had given Sigrid. In a while, perhaps Gottlieb would see that it had been made *after* the Day, and would draw the appropriate conclusions. Well, there was no help for it. Onward and upward.

Physically, Gottlieb was small and gaunt, nearly a foot shorter than his wife, and rather swarthy. He looked as though, nude, you might be able to count all his bones. His somatotype suggested that he had not looked much plumper Back Then. But the body hardly mattered. What overwhelmed Tucci was the total, balanced alertness which informed its every muscle. Somehow, he kept talking.

". . . Then when the word was brought in that there was not only a settlement here, but that a man named Nathan Gottlieb was some sort of key figure in it, it rang a bell. Sheer accident, since the name was common enough, and I'd never been much of a reader, either; but right away a line came to me and I couldn't get rid of it."

"A line?"

"Yes. It goes: 'And the duned gold clean drifted over the forelock of time.' It had haunted me for years, and

when I saw your name in the report, it came back, full force."

"As a last line, it's a smasher," Gottlieb said thoughtfully. "Too bad the rest of the poem wasn't up to it. The trouble was, the minute I thought of it, I knew it was a last line, and I waited around for two years for a poem to come along to go with it. None ever did, so finally I constructed one synthetically, with the predictable bad results."

"Nobody would ever know if you didn't tell them," Tucci said with genuine warmth. He had, as a matter of fact, particularly admired that poem for the two whole days *since* he had first read it. "In any event, I was sufficiently curious to don my parachute-silk underwear and come jolting down here to see if you were the same man as the one who wrote *The Coming-Forth*. I'm delighted to find that you are, but I'm overwhelmed to find you practicing medicine as well! We're terribly short of physicians, and that happens to be my particular department. So all in all it's an incredible coincidence."

"That's for true," Gottlieb said, turning the can around in his hands. "And there's still a part of it that I don't understand. Who is this 'we' you mention?"

"Well. We just call it the Corporation now, since it's the last there is. Originally it was the Bryan Moving and Warehouse Corporation. If you lived in this area Back Then, you may remember our radio commercials on WASM-FM, for our Appalachian Mountain Vaults. 'Businessmen, what would happen to your records if some (unnamed) disaster struck? Put them in our mountain vaults, and die happy.' That was the general pitch."

"I remember. I didn't think you meant it."

"We did. Oddly enough, a good many corporation executives took us at face value, too. When the Day came, of course, it was obvious that those papers were going to be no good to anybody. We threw them out and moved in ourselves, instead. We had thought that would be the most likely outcome and had been planning on it."

Gottlieb nodded, and set the can on the floor be-

tween his feet, as though the question it had posed him was now answered. "A sane procedure, that's for sure. Go on."

"Well, since the Reds saturated Washington and the ten 'hard' SAC sites out West, we appear to be the only such major survival project that came through. We've had better than a year to hear differently, and haven't heard a whisper. We know that there were several other industrial projects, but they were conducted in such secrecy that the enemy evidently concluded they were really military. We advertised ours on the radio, and like you, they didn't believe that we could be serious; or so we conclude.

"Now we're out and doing. We're trying to organize a—well, not a government exactly, since we don't want to make laws and we don't want to give orders—but at least the service functions of government, to help bring things into some kind of shape. Doing for people, in short, what they can't do for themselves, especially with things in their present shambles."

"I see. And how do you profit?"

"Profit? In a great many ways, all intangible, but quite real. We attract specialists, which we need. This indebts the community to us and helps us manage it better. It's a large community now, about as big as New York and Pennsylvania combined, though it's shaped rather more like Texas. How many people are included I can't say; we may try to run a census in a year or so. Every specialist we recruit is, so to speak, an argument for reviving the institution of government."

He paused, counted to ten, and added: "I hope you are persuaded. Now that I've found you out, I'd be most reluctant to let you off the hook."

Gottlieb said, "I'm flattered, but I think you're making a mistake. I'm still only a poet, and as such, quite useless. I'm the world's worst medical man, even in these times."

"Ah. Now that's something I've been burning to ask you. How *did* you get into this profession?"

"Deliberately. When Sigrid and I got alarmed by all those Berlin crises, and then the summit fiasco, and decided to start on a basement shelter out here, I had to

start thinking of what I might be able to do if we did survive. There wasn't any way to make a living as a poet Back Then, either, but I'd always been able to turn a marginal dollar as a flack—you know, advertising copy, the trade papers, popular articles, ghosting speeches, all those dodges. But obviously there wasn't going to be anything doing in those lines in a primitive world."

"So you chose medicine instead?" Tucci said. "But why? Surely you had some training in it?"

"Some," Gottlieb said. "I was a medical laboratory technician for four years in World War II—the Army's idea of what to do with a poet, I suppose. I did urinalyses, haematology, blood chemistry, bacteriology, serology and so on; it involved some ward collecting too, so I got to see the patients, not just their body fluids. At first I did it all by the cookbook, but after a while I began to understand parts of it, and by God I seemed to have a feeling for it. I think most literary people might, if they'd just have been able to get rid of their notion that the humanities were superior to the sciences. You know, the pride of the professor of medieval Latin, really a desperately complicated language, is the fact that he couldn't 'do' simple arithmetic. Hell, *anybody* can do arithmetic; my oldest daughter could 'do' algebra at the age of nine, and I think she's a little retarded. Anyhow, that's why I chose medicine. Nowadays I understand why the real medicos had the interne system Back Then, though. There's nothing that turns you into a doctor like actually working at it, accumulating patient-hours and diagnostic experience."

Tucci nodded abstractedly. "What did you do for equipment, *materia medica*, and so on?"

"I don't have any equipment to speak of. I don't do even simple surgery; I have to be hyperconservative out of sheer ignorance—lancing a boil and installing a tube drain is as far in that line as I dare to go. And of course I've no electricity. I've been reading up on building a dam across my creek and winding a simple generator, but so far the proposition's been too much for me. I'm not at all handy, though I've been forced to try.

"As for supplies, that was easy—just a matter of

knowing in advance what I hoped to do. I simply looted the local drugstore the moment I came out of the hole, while everybody else who'd survived that long was busy loading up on canned goods and clothing and hardware. I was lucky that the whole dodge hadn't occurred to the pharmacist himself before the Day came, but it didn't. He hadn't even thought to dig himself a hole.

"I figured that anything I missed in the line of consumer goods would come my way later, if the doctor business paid off. And you'd be surprised how much of my medical knowledge comes from the package inserts the manufacturers used to include with the drugs. By believing a hundred per cent of the cautions and contraindications, and maybe thirty per cent of the claims, I hardly ever poison a patient."

"Hmmm," Tucci said, suppressing a smile only by a heroic effort. "How long will your supplies hold out?"

"Quite a while yet, I think. I'm being conservative there, too. In infectious cases, for instance, if I have a choice between an antibiotic and synthetic—such as a sulfa drug—I use the antibiotic, since it has an expiration date and the sulfa drug doesn't. In another year I'm going to have to start doubling my antibiotic doses, but there's no use worrying about that—and I'll still have an ample stock of the synthetics."

Tucci thought about it, conscientiously. It was a strange case, and he was not sure he liked it. Most of the few "doctors" he had tracked down in the field were simple quacks, practicing folk medicine or outright fakery to fill a gap left by the wholesale slaughter of specialists of all kinds, bar none—doctors, plumbers, farmers, you name it, it was almost extinct. Occasionally he had hit a survivor who had been a real physician Back Then; those had been great discoveries, and instantly recruited.

Gottlieb was neither one nor the other. He had no right to practice, by the old educational, lodge-brother or government standards. Yet obviously he was trying to do an honest job from a limited but real base of knowledge. The Vaults could use him, that was certain; but would they offer him the incentives they still reserved for the genuine, 24-carat, pre-Day M.D.?

Tucci decided that they would have to. This was the first case of its kind, but it would not be the last. Sooner or later they would have to face up to it.

"I think we can solve at least some of your problems," he said slowly. "So far as shelf-life of antibiotics is concerned, we keep them in cold storage and have enough to last a good fifty years. We have electricity, and we can give you the use of a great deal of equipment, as you learn how to use it: for example, X-rays, fluoroscopes, ECGs, EEGs. I think we need you, Mr. Gottlieb; and it's self-evident that you need us."

Gottlieb shook his head, slowly, but not at all hesitantly. It took Tucci several seconds to register that that was what he was doing.

"No," he said. "You're very kind. But I'm afraid it doesn't attract me."

The refusal was stunning, but Tucci was well accustomed to shocks. He drew a deep breath and came back fighting.

"For heaven's sake, why not? I don't like to be importunate, but you ought at least to think of what the other advantages might be. You could give up this marginal farming; we have a large enough community so we can leave that to experienced farmers. We use specialists in their specialties. You and your family could live in the Vaults, and breathe filtered air; that alone should run your children's life expectancy up by a decade or more. You know very well that the roentgen level in the open is still far above any trustable level, and if you came out of your hole in anything under three months—as I'm sure you did—you and your family have had your lifetime dose already. And above all, you'd be able to practice medicine in a way that's quite impossible here, and help many more people than you're helping now."

Gottlieb stood up. "I don't doubt a word of that," he said. "The answer is still no. I could explain, but it would be faster in the long run if you first took a look at the kind of medicine I'm actually practicing now. After that the explanations can be shorter, and probably more convincing."

"Well . . . of course. It's your decision. I'll play it your way."

"Good. I've still got three patients out there. I'm aware that you yourself are a bona-fide physician, Dr. Tucci; you disguise it well, but not well enough. And you may not want me so badly when we're through."

The first patient was a burly, bearded, twisted man with heavily calloused hands who might always have been a farmer; in any event, everybody in the field was some kind of farmer now. He stank mightily, and part of the stench seemed to Tucci to be alcohol. His troubles, which he explained surlily, were intimate.

"Before we go on, there's something we have to get clear, Mr. Herwood," Gottlieb told him, in what subsequently proved to be a set speech for new patients. "I'm not a real doctor and I can't promise to help you. I know something about medicine and I'll do the best I can, as I see it. If it doesn't work, you don't pay me. Okay?"

"I don't give a damn," the patient said. "You do what you can, that's okay with me."

"Good." Gottlieb took a smear and rang a little hand bell on his desk. His 15-year-old daughter popped her head in through the swinging door that led to the kitchen, and Gottlieb handed her the slide.

"Check this for gram-positive diplococci," he told her. She nodded and disappeared. Gottlieb filled in the time discussing payment with the patient. Herwood had, it turned out, a small case of anchovy fillets which he had liberated in the first days, when people were grabbing up anything, but nobody in his surviving family would eat them. Only tourists ate such stuff, not people.

The teen-ager pushed open the swinging door again. "Positive," she reported.

"Thanks, honey. Now, Mr. Herwood, who's your contact?"

"Don't follow you."

"Who'd you get this from?"

"I don't have to tell you that."

"Of course you don't," Gottlieb said. "I don't have to treat you, either."

Herwood squirmed in his straight-backed chair. He was obviously in considerable physical discomfort.

"You got no right to blackjack me," he growled. "I thought you was here to help people, not t' make trouble."

"That's right. But I already told you. I'm not a real doctor. I never took the Hippocratic Oath and I'm not *bound* to help anybody. I make up my own mind about that. In this case, I want to see that woman, and if I don't get to see her, I don't treat you."

"Well . . ." Herwood shifted again in the chair. "All right, damn you. You got me over a barrel and you know it. I'll tell her to come in."

"That's only a start," Gottlieb said patiently. "That leaves it up to her. Not good enough. I want to know her name, so if she doesn't show up for treatment here herself, I can do something about it."

"You got no right."

"I said so. But that's how it's going to be."

The argument continued for several minutes more, but it was clear from the beginning that Gottlieb had won it. . . . He gave the man an injection with matter-of-fact skill.

"That should start clearing up the trouble, but don't jump to conclusions when you begin to feel better. It'll be temporary. These things are stubborn. I'll need to see you three more times, at least. So don't forget to tell Gertie that I want to see her—and that I know who she is."

Herwood left, muttering blackly. Gottlieb turned to his observer.

"I see a lot of that kind of thing, of course. I'm doing my best to stamp it out—which I might even be able to do in a population as small and isolated as this," he said. "I don't have any moral strictures on the subject, incidentally. The old codes are gone, and good riddance. In fact, without widespread promiscuity I can't see how we'll ever repopulate the world before we become extinct. But the diseases involved cost us an enormous sum in man-hours; and some of them have long latent periods that store up hell for the next generations. In *this* generation it's actually possible to wipe them out

for good and all—and if it can be done, it should be done.”

“True,” Tucci said noncommittally. Thus far, he was baffled. Gottlieb had done nothing that he would not have done himself.

The next patient was also a man, shockingly plump, though as work-worn as his predecessor. Gottlieb greeted him with obvious affection. His symptoms made up an odd constellation, obviously meaningless to the patient himself; and after a while Tucci began to suspect that they meant very little to Gottlieb, either.

“How did that toe clear up?” Gottlieb was saying.

“All right, fine, Nat. It’s just that I keep getting these boils and all every time I hit a splinter, looks like. And lately I’m always thirsty, I can’t seem to get enough water; and the more I drink the more it cuts into my sleep, so I’m tired all the time too. The same with food. People are talking, they say I eat like a pig, and it’s true, and it shows. But I can’t help it. A bad name to have, these days, and me with a family.”

“I know what you mean. But it’s pretty indefinite now, Hal. We’ll just have to wait and see what develops.” Gottlieb paused, and quite surreptitiously drew a deep, sad breath. “Try to cut down a little on the intake, I’ll give you *some* pills that will help you there, and some sleeping tablets. Don’t hit the sleepy pills too hard, though.”

Payment was arranged. It was only nominal this time.

“Are you aware,” Tucci said when they were alone again, “that you’ve just committed manslaughter—at the very least?”

“Sure I am,” Gottlieb said in a low voice. “I told you you wouldn’t like what you saw. The man’s a new diabetic. There’s nothing I can do for him, that’s all.”

“Surely that’s not so. I’m aware that you can’t store insulin without any refrigeration, but surely there were some of the oral hypoglycemic agents in the stock you found at the drugstore—tolbutamide, carbutamide, chlorpropamide? If you don’t recognize them by their old trade names, I can help you. In the meantime—

well, at least you could have put the man on a rational diet."

"I threw all those pills out," Gottlieb said flatly. "I don't treat diabetics. Period. You heard what I told Herwood: I never took the Hippocratic Oath, and I don't subscribe to it. In the present instance, we're having a hard enough time with all the new antisurvival mutations that have cropped up. I am not going to have any hand in preserving any of the old ones. If I ever hit a hemophiliac, the first thing I'll do is puncture him for a test—and forget to put a patch over the hole. Do you remember, Dr. Tucci, that just before the Day there was a national society soliciting funds to look for a *cure* for hemophilia? When the Oath takes you that far, into-saving lethal genes, either it's crazy or you are!"

"What would you have done with LaGuardia? Or Edison?" Tucci said evenly.

"Were they hemophiliacs?" Gottlieb said in astonishment.

"No. But they were diabetics. It's the same thing, in your universe."

After a long time, Gottlieb said, almost to himself:

"I can't say. It isn't easy. Am I to save every lethal gene because I suspect that the man who carries it is a genius? That may have been worth while in the old days, when there were millions of diabetics. But now? The odds are all against it. I make harder decisions than that every day, Dr. Tucci. Hal is no genius, but he's a friend of mine."

"And so you've killed him."

"Yes," Gottlieb said stonily. "He wasn't the first, and he won't be the last. There are not many people left in the world. We cannot tolerate lethal genes. The doctor who does may save one adult life—but he will kill hundreds of children. I won't do that. I never swore to preserve *every* life that was put in my hands, regardless of consequences. That's my curse . . . and my lever on the world."

"In short, you have set yourself up to play God."

"To *play* God?" Gottlieb said. "Now you're talking nonsense. In this village, I *am* God . . . the only god that's left."

The last patient was relatively commonplace. She had frequent, incapacitating headaches—and had earned them, for she had five children, two survivors and three new ones. While Gottlieb doled out aspirin to her (for which he charged a price so stiff—after all, there had been 15,670,944,200 aspirin tablets, approximately, in storage in the United States alone on the Day—that Tucci suspected it was intended to discourage a further visit), Tucci studied her fasciae and certain revealing tics, tremors, and failures of coordination which were more eloquent to him than anything she had said.

"There, that does it for today," Gottlieb said. "And with no more telephones, I'm almost never called out at night—never for anything trivial. I'll clean up and then we can talk further. You'll eat with us, of course. I have a canned Polish ham I've been saving for our first guest after the Day, and you've earned the right to be that guest."

"I'd be honored," Tucci said. "But first, one question. Have you a diagnosis for the last patient?"

"Oh, migraine, I suppose, though that's about as good as no diagnosis at all. Possibly menopausal—or maybe just copelessness. That's a disease I invented, but I see a lot of it. Why?"

"It's not copelessness. It's glioblastoma multiforme—a runaway malignant tumor of the brain. At the moment, that's only a provisional opinion, but I think exploration would confirm it. Aspirin won't last her long—and in the end, neither will morphine."

"Well . . . I'm sorry. Annie's a warm and useful woman. But if you're right, that's that."

"No. We have a treatment. We give the patient a boric acid injection—"

"Great God," Gottlieb said. "The side effects must be fierce."

"Yes, but if the patient is doomed anyhow? . . . After all, it's a little late in the day for gentleness."

"Sorry. Go ahead. Why boric acid?"

"Boron won't ordinarily cross the blood-brain barrier," Tucci explained. "But it will concentrate in the tumor. Then we irradiate the whole brain with slow neutrons. The boron atoms split, emitting two quanta of

gamma radiation per atom, and the tumor is destroyed. The fission fragments are nontoxic, and the neutrons don't harm the normal brain tissue. As for the secondary gammas, they can't get through more than a layer of tissue a single cell thick, so they never leave the tumor at all. It works very well—one of our inheritances from Back Then; a man named Lee Farr invented it."

"Fantastic! If only poor Annie could have—" Gottlieb's mouth shut with the suddenness of a rabbit-trap, and his eyes began to narrow.

"Wait a minute," he said. "I'm being a little slow today. You said, 'We *have* a treatment'—not 'We *had*.' What you mean me to understand is that you also have an atomic pile. That's the only possible source of *slow* neutrons."

"Yes, we have one. It generates our electricity. It's clumsy and inefficient—but we've got it."

"All right," Gottlieb said slowly. "I'll go and change, and then we'll talk. But the purpose of my demonstration, Dr. Tucci, is what I mean *you* to understand; and I wish you'd think about it a while, while I'm gone."

The dinner was enormously pleasant; remarkably good even by the standards of the Vaults, and almost a unique experience in the field. Sigrid Gottlieb proved to be a witty table companion as well as an imaginative cook. Some of her shafts had barbs on them, for it was plain that she had overheard enough to divine Tucci's mission and had chosen to resent it. But these were not frequent enough or jagged enough to make Tucci believe that she was trying to make up her husband's mind for him. All well and good.

As for the children—the one prospect of the meal to which Tucci had not been looking forward, for as a bachelor he was categorically frightened of children—they were not even in evidence. They were fed in the kitchen by the eldest, the same girl who served as her father's laboratory technician.

There was no medical talk until dinner was over. Instead, Gottlieb talked of poetry, with a curious mixture of intensity and wistfulness. This kept his guest a little on guard. Tucci knew more than most surviving Ameri-

cans about the subject, he was sure, but far less than he had pretended to know.

Afterward, however, Gottlieb got directly to the point.

"Any conclusions?" he said.

"A few," Tucci said, refusing to be rushed. "I'm still quite convinced that you'd be better off with us. I'm not terribly alarmed by your odd brand of medicine—and I don't know whether you were afraid I would be or whether you meant me to be. In the Vaults, we sometimes have to short-circuit the Oath too, for similar reasons."

"Yes. I don't doubt that you do. The Oath was full of traps even Back Then," Gottlieb said. "But I hoped you'd see that there's more to my refusal to join you than that. To begin with, Dr. Tucci, *I don't like medicine*; so I don't care whether I could do it better in the Vaults, or not."

"Oh? Well, then, you're quite right. I have somehow missed the point."

"It's this. You say you are so well organized that you can use specialists as specialists, rather than requiring them to do their own subsistence farming, policing, and so on. But—could you use me *as a poet*? No, of course not. I'd have to practice medicine in the Vaults.

"But to what end? I really hate medicine. No, I shouldn't say that, but I'm certainly no fonder of it than I am of farming. I picked it as a profession because I knew it would be in demand after the Day—and that's all.

"In your Vaults I'd be an apprentice, to a trade I don't much like. After all, you're sure to have real M.D.s there, beginning with yourself. All of a sudden, I'd be nobody. And more than that, I'd lose control over policy—over the kind of medicine *I* think suitable for the world we live in now—which is the only aspect of my practice that does interest me. I don't want to save diabetics at your behest. I want to let them die, at mine. Call it playing God if you like, but nothing else makes sense to me now. Do you follow me?"

"I'm afraid I do. But go on anyhow."

"There isn't much farther to go. I'm satisfied where I

am—that's the essence of it. My patients may not be as well served by me as they think they are, but all the same they swear by me and come back for more. And I'm the only one of my kind in these parts. I don't have to farm my place to the last square inch because most of my fees are in kind—which is lucky, because I have a brown thumb. Sigrid is a little better with plants, but not much. I don't have to fortify it, or keep a twenty-four-hour watch, because my patients wouldn't dare let anything happen to me. I don't need the medical facilities, the laboratories and equipment and so on that you're offering me, because I wouldn't know how to use them.

"So of course I'll keep on the way I've been going. What else could I do?"

"I'm sure," Tucci said quietly, "that you'd find plenty of time in the Vaults to practice poetry as well—and many people who value it. I doubt that you find either here."

"What of it? Poetry has been a private art for a century, anyhow," Gottlieb said bitterly. "Certainly it's no art for a captive audience, which wants to pat the poet on the head because it thinks he's really valuable for something quite different, like writing advertising copy or practicing medicine. I'm no longer interested in being tolerated. I wrote that off the day before the Day, and I'm not going back to it."

"But surely if—"

"Listen to me, Dr. Tucci," Gottlieb said. "If you are really running a sort of Institute for Advanced Study, and can promise me *all* my time to perfect myself as a poet, I'll go with you."

"Obviously, I can't make such a promise."

"Then I'll stay here. If I *have* to practice medicine, I may as well do so under conditions that I myself have laid down. Otherwise it would be too unrewarding for me to even tolerate. I wasn't really called to the vocation in the beginning, and there are times even now when it makes me quite sick. I can't help it; that's the way I am."

"So we have nothing more to say to each other, it seems," Tucci said. "I'm truly sorry that it worked out

this way. I had no idea that the question would even arise. But, in a way, I'm on your side. And besides, were you to come with us, you'd leave your own people without a doctor—and though many of them would doubtless follow you into our community, there must be almost as many who wouldn't be able to do so."

"That's true," Gottlieb said, but he said it with a sort of convulsive shrug, as of a man who would dismiss the question and finds that it is not so easy as that. "Thank you anyhow for the offer. I must say that I feel a little like a boy getting a diploma; all this fakery, and now . . . well; and it's run so late that you will have to spend the night with us. I don't want the Vaults to lose you on my account."

"I'm grateful for all your thoughtfulness—yours, and your wife's as well."

"Come back when you can," Gottlieb said, "and we'll talk poetry some more."

"Thank you," Tucci said inadequately. And that was all. He was guided up to bed, in the wake of a hurricane lamp.

Or was it all? In the insect-strident night, so full of reminders of how many birds had died after the Day, and how loaded with insensible latent death was the black air he breathed as he lay tense in the big cool bed, Tucci was visited by a whole procession of phantoms. Mostly they were images of himself. Some of them were dismissible as nightmares, surfacing during brief shallow naps from which he was awakened by convulsive starts that made his whole body leap against the sheets, as though his muscles were crazily trying to relax in a single bound the moment sleep freed them from the tensions of his cortex. He was used to that. It had been going on for years, and he had come to take it as a sign that though he was not yet deeply asleep, he would be shortly. In the meantime, the nightmares were fantastic and entertaining, not at all like the smothering, dread-loaded replays of the Day which woke him groaning and drenched with sweat many mornings just after dawn.

This time the starts did not presage deep sleep; instead, they left him wide awake and considering images

of himself more disquieting than any he could remember having seen in dreams. One of the shallow nightmares was a fantasy of what might be going on in the Gottlieb's bedroom—evidently Sigrid had marked Tucci's celibate psyche more profoundly than he had realized—but from this he awoke suddenly to find himself staring at the invisible ceiling and straining to visualize, not the passages of love between the poet and his wife about which he had been dreaming, but what they might be saying about Dr. Frank Tucci and his errand.

That errand hadn't looked hard to begin with. By all the rules of this kind of operation, Sigrid should now be bringing all possible feminine pressures to bear against Gottlieb's stand, and furthermore, she should be winning. After all, she would think first of her children, an argument of almost absolute potency compared with Gottlieb's abstract and selfish reasons for refusing to go to the Vaults. That was generally how it went.

But Gottlieb was not typical. He was, in fact, decidedly hard upon Tucci's image of himself. He was a quack, by his own admission, but he was not a charlatan—a distinction without a difference before the Day, but presently one of the highest importance, now that Tucci was forced to think about it. And in this cool darkness after the preliminary, complacent nightmares, Tucci was beginning to see himself with horror as a flipped coin. Not a quack, no. He was an authentic doctor with a pre-Day degree, nobody could take that away from him. But he *was* a charlatan, or at the very least a shill. When, after all, had Tucci last practiced medicine? Not since the Day. Ever since, he had been scooting about the empty menacingly quiet countryside on recruiting errands—practicing trickery, not medicine.

Outside, a cloud rolled off the moon, and somewhere nearby a chorus of spring peepers began to sing: *Here we are, here we are, here we are. . . .* They had been tadpoles in the mud when the hot water had come down toward the rivers in the spring floods; they might be bearing heavy radiation loads, but that was not something they were equipped to think about. They were celebrating only the eternal *now* in which they had become

inch-long frogs, each with a St. Andrew's cross upon its back . . . *Here we are, we made it* . . .

Here we are. We made it. Some are quacks, and nevertheless practice medicine as best they can. Some are flacks, for all their qualifications, and do nothing but shill . . . and burden the practitioners with hard decisions the Tuccis have become adroit at ducking. The Tuccis can always say that they were specialists before the Day—Tucci himself had been an electrophysiologist, and most of the machines that he needed to continue down the road were still unavailable in the Vaults—but every doctor *begins* as a general practitioner. Was there any excuse, now, for shilling instead of practicing?

The phantoms marched whitely across the ceiling. Their answer was *No*, and again. *No*.

In this world, in fact, Gottlieb was a doctor, and Dr. Frank Tucci was not. That was the last nightmare of all.

He was ruminatively strapping his gear onto the baggage rack of the scooter, very early the next morning, when he heard the screen door bang and looked up to see Gottlieb coming down the front walk toward him. There were, he saw for the first time, tall lilacs and lilies of the valley blooming all around the sides of the house. It was hard to believe that the world had ended, even here in Gottlieb's hollow. He straightened painfully in the bullet-proof suit and hoisted his bubble goggles.

"Nice of you," he said. "But you really needn't have seen me off. Keeping doctor's hours, you need all the sleep you can store up."

"Oh sure," Gottlieb said abstractedly. He leaned on the sagging gate. "But I wanted to talk to you. I had some trouble sleeping—I was thinking—I woke up this morning on the floor, and that hasn't happened to me since just before my final exams. If you've got a minute—"

"Of course. Certainly. But I'd like to get on the road before too long, to skip some of the heat of the day. This helmet absolutely fries my brains when the sun is high."

"Sure. I only wanted to say—I've changed my mind."

"Well. *That* was worth waiting for." Tucci took the helmet off and dropped the goggles carefully into it. "I hope you won't mind if I'm in a hurry, or rather, if *we're* in a hurry. We'll have trucks down here for you in about a week at the latest; it takes a while to get a convoy organized. We'll also send a bus, since I think you'll find that about half your patients will want to follow you, once you've explained the proposition to them."

"That'll cost a lot of gasoline," Gottlieb said. He seemed embarrassed and disturbed.

Tucci waited a moment, and then said, very gently: "If you don't mind, Mr. Gottlieb, would you tell me why you reversed yourself? I'd about given up."

"It's my own fault," Gottlieb broke out, in a transport of anger. "I must have given that speech about the Hippocratic Oath two thousand times in the last year or so. I never took the Oath, that's a fact, and I don't believe in it. But . . . you said I'd be able to treat more patients, and treat them better, if I went to work for you. That's been on my mind all night. And I can't get away from it. It began to look to me as though a man can't be just half a doctor, whether that's all he wants or not. And I did go into this doctor business by my own choice."

He scuffed at the foot of the gate with one broganed toe, as though he might kick it if no one were watching him.

"So there I am. I have to go with you—and never mind that I'm giving up everything I've won so far—and a lot more that I hoped for. I may stop hating you five or ten years from now. But I could have spared myself, if I hadn't been so superior about Hippocrates all this time and just minded my own business."

"The oath that you don't take," Tucci agreed, resuming his goggles and helmet, "is often more binding than the one you do."

He stamped on the kick starter. Miraculously, the battered old Lambretta spat and began to snarl on the first try. Gottlieb stepped back, with a gesture of farewell. At the last moment, however, something else seemed to occur to him.

"Dr. Tucci!" he shouted above the noise of the one-lung engine.

"Yes? Better make it loud, Mr. Gottlieb—I'm almost deaf aboard this thing."

"It's not 'the forelock of time,' you know," Gottlieb said. He did not seem to be yelling, but Tucci could hear him quite plainly. "The word in the poem is 'fore-paws.' "

Tucci nodded gravely, glad that the helmet and goggles could be counted on to mask his expression, and put the scooter in gear. As he tooled off up the hill, his methodical mind began to chew slowly, gently, inexorably upon the question of who had been manipulating whom.

He knew that it would be a good many years before he had an answer.

How Beautiful with Banners

FEELING AS NAKED as a peppermint soldier in her transparent film wrap, Dr. Ulla Hillström watched a flying cloak swirl away towards the black horizon with a certain consequent irony. Although nearly transparent itself in the distant dim arc-light flame that was Titan's sun, the fluttering creature looked warmer than what she was wearing, for all that reason said it was at the same minus 316° F. as the thin methane it flew in. Despite the virus space-bubble's warranted and eerie efficiency, she found its vigilance—itsself probably as close to alive as the flying cloak was—rather difficult to believe in, let alone to trust.

The machine—as Ulla much preferred to think of it—was inarguably an improvement on the old-fashioned pressure suit. Fashioned (or more accurately, cultured) of a single colossal protein molecule, the van-

ishly thin sheet of life-stuff processed gases, maintained pressure, monitored radiation through almost the whole of the electromagnetic spectrum, and above all did not get in the way. Also, it could not be cut, punctured, or indeed sustain any damage short of total destruction; macroscopically, it was a single, primary unit, with all the physical integrity of a crystal of salt or steel.

If it did not actually think, Ulla was grateful; often it almost seemed to, which was sufficient. Its primary drawback for her was that much of the time it did not really seem to be there.

Still, it seemed to be functioning; otherwise, Ulla would in fact have been as solid as a stick of candy, toppled forever across the confectionery whiteness that frosted the knife-edge stones of this cruel moon, layer upon layer. Outside—only a perilous few inches from the lightly clothed warmth of her skin—the brief gust the cloak had been soaring on died, leaving behind a silence so cataleptic that she could hear the snow creaking in a mockery of motion. Impossible though it was to comprehend, it was getting still colder out there; Titan was swinging out across Saturn's orbit towards eclipse, and the apparently fixed sun was secretly going down, its descent sensed by the snows no matter what her Earthly eyes, accustomed to the nervousness of living skies, tried to tell her. In another two Earth days it would be gone, for an eternal week.

At the thought, Ulla turned to look back the way she had come that morning. The virus bubble flowed smoothly with the motion, and the stars became brighter as it compensated for the fact that the sun was now at her back. She still could not see the base camp, of course. She had come too far for that, and in any event it was wholly underground except for a few wiry palps, hollowed out of the bitter rock by the blunt-nosed ardour of prolapse drills; the repeated nannosecond birth and death of primordial ylem the drills had induced while that cavern was being imploded had seemed to convulse the whole demon womb of this world, but in the present silence the very memory of the noise seemed false.

Now there was no sound but the creaking of the

methane snow; and nothing to see but a blunt, faint spearhead of hazy light, deceptively like an Earthly aurora or the corona of the sun, pushing its way from below the edge of the cold into the indifferent company of the stars. Saturn's rings were rising, very slightly awayer in the dark-blue air, like the banners of a spectral army. The idiot face of the giant gas planet itself, faintly striped with meaningless storms as though trying to remember a childhood passion, would be glaring down at her before she could get home if she didn't get herself in motion soon. Obscurely disturbed, Dr. Hillström faced front and began to unlimber her sled.

The touch and clink of the instruments cheered her a little, even in this ultimate loneliness. She was efficient—many years, and a good many suppressed impulses had seen to that; it was too late for temblors, especially so far out from the sun that had warmed her Stockholm streets and her silly friendships. All those null-adventures were gone now like a sickness. The phantom embrace of the virus suit was perhaps less satisfying—only *perhaps*—but it was much more reliable. Much more reliable; she could depend on that.

Then, as she bent to thrust the spike of a thermocouple into the wedding-cake soil, the second flying cloak (or was it that same one?) hit her in the small of the back and tumbled her into nightmare.

II

With the sudden darkness there came a profound, ambiguous emotional blow—ambiguous, yet with something shockingly familiar about it. Instantly exhausted, she felt herself go flaccid and unstrung, and her mind, adrift in nowhere, blurred and spun downward too into the swamps of trance.

The long fall slowed just short of unconsciousness, lodged precariously upon a shelf of a dream, a mental buttress founded four years in the past—a long distance, when one recalls that in a four-dimensional plenum every second of time is one hundred eighty-six thousand miles of space—and eight hundred millions of miles away. The memory was curiously inconsequential

to have arrested her, let alone supported her: not of her home, of her few triumphs, or even of her aborted marriage, but of a sordid little encounter with a reporter that she had talked herself into at the Madrid genetics conference, when she herself had already been an associate professor, a Swedish Government delegate, a twenty-five-year-old divorcee, and altogether a woman who should have known better.

But better than what? The life of science even in those days had been almost by definition that life of the eternal campus exile; there was so much to learn—or, at least, to show competence in—that people who wanted to be involved in the ordinary, vivid concerns of human beings could not stay with it long, indeed often could not even be recruited; they turned aside from the prospect with a shudder, or even a snort of scorn. To prepare for the sciences had become a career in indefinitely protracted adolescence, from which one awakened fitfully to find one's self spending a one-night stand in the body of a stranger. It had given her no pride, no self-love, no defences of any sort; only a queer kind of virgin numbness, highly dependent upon familiar surroundings and valueless habits, and easily breached by any normally confident siege in print, in person anywhere—and remaining just as numb as before when the seizure of fashion, politics, or romanticism had swept by and left her stranded, too easy a recruit to have been allowed into the centre of things or even considered for it.

Curious—most curious—that in her present remote terror she should find even a moment's rest upon so wobbling a pivot. The Madrid incident had not been important; she had been through with it almost at once. Of course, as she had often told herself, she had never been promiscuous, and had often described the affair, defiantly, as that one (or at worst, second) test of the joys of impulse which any woman is entitled to have in her history. Nor had it really been that joyous: She could not now recall the boy's face, and remembered how he had felt primarily because he had been in so casual and contemptuous a hurry.

But now that she came to dream of it, she saw with a

bloodless, lightless eye that all her life, in this way and in that, she had been repeatedly seduced by the inconsequential. She had nothing else to remember even in this hour of her presumptive death. Acts have consequences, a thought told her, but not ours; we have done, but never felt. We are no more alone on Titan, you and I, than we have ever been. *Basta, per carita!*—so much for Ulla.

Awakening in this same darkness as before, Ulla felt the virus bubble snuggling closer to her blind skin, and recognized the shock that had so regressed her: a shock of recognition, but recognition of something she had never felt herself. Alone in a Titanic snowfield, she had eavesdropped on an . . .

No. Not possible. Sniffing, and still blind, she pushed the cozy bubble away from her breasts and tried to stand up. Light flushed briefly around her, as though the bubble had cleared just above her forehead and then clouded again. She was still alive, but everything else was utterly problematical. What had happened to her? She simply did not know.

Therefore, she thought, begin with ignorance. No one begins anywhere else . . . but I didn't know even that, once upon a time.

Hence:

III

Though the virus bubble ordinarily regulated itself, there was a control box on her hip—actually an ultrashort-range microwave transmitter—by which it could be modulated, against more special environments than the bubble itself could cope with alone. She had never had to use it before, but she tried it now.

The fogged bubble cleared patchily, but it would not stay cleared. Crazy moires and herringbone patterns swept over it, changing direction repeatedly, and outside the snowy landscape kept changing colour like a delirium. She found, however, that by continuously working the frequency knob on her box—at random, for the responses seemed to bear no relation to the Braille calibra-

tions on the dial—she could maintain outside vision of a sort in pulses of two or three seconds each.

This was enough to show her, finally, what had happened. There was a flying cloak around her. This in itself was unprecedented; the cloaks had never attacked a man before, or indeed paid any of them the least attention during their brief previous forays. On the other hand, this was the first time anyone had ventured more than five or ten minutes outdoors in a virus suit.

It occurred to her suddenly that in so far as anything was known about the nature of the cloaks, they were in some respects much like the bubbles. It was almost as though the one were a wild species of the other.

It was an alarming notion and possibly only a ~~trope~~, containing as little truth as most poetry. Annoyingly, she found herself wondering if, once she got out of this mess, the men at the base camp would take to referring to it as "the cloak and suit business."

The snowfield began to turn brighter; Saturn was rising. For a moment the drifts were a pale straw colour, the normal hue of Saturnlight through an atmosphere; then it turned a raving Kelly green. Muttering, Ulla twisted the potentiometer dial, and was rewarded with a brief flash of normal illumination which was promptly overridden by a torrent of crimson lake, as though she were seeing everything in terms of a series of lithographer's colour separations.

Since she could not help this, she clenched her teeth and ignored it. It was more important to find out what the flying cloak had done to her bubble, if she were to have any hope of shucking the thing.

There was no clear separation between the bubble and the Titanian creature. They seemed to have blended into a *mélange* which was neither one nor the other, but a sort of coarse burlesque of both. Yet the total surface area of the integument about her did not seem to be any greater—only more ill-fitting, less responsive to her own needs. Not *much* less; after all, she was still alive, and any really gross insensitivity to the demands and cues of her body would have been instantly fatal; but there was no way to guess how long the bubble would stay even that obedient. At the mo-

ment the wild thing that had enslaved it was perhaps most like a bear sark, dangerous to the wearer only if she panicked, but the change might well be progressive, pointed ultimately towards some Saturnine equivalent of the shirt of Nessus.

And that might be happening very rapidly. She might not be allowed the time to think her way out of this fix by herself. Little though she wanted any help from the men at the base camp, and useless though she was sure they would prove, she'd damn well better ask for it now, just in case.

But the bubble was not allowing any radio transmission through its roiling unicell wall today. The earphone was dead; not even the hiss of the stars came through it—only an occasional pop of noise that was born of entropy loss in the circuits themselves.

She was cut off. *Nun denn, allein!*

With the thought, the bubble cloak shifted again around her. A sudden pressure at her lower abdomen made her stumble forward over the crisp snow, four or five steps. Then it was motionless once more, except within itself.

That it should be able to do this was not surprising, for the cloaks had to be able to flex voluntarily at least a little in order to catch the thermals they rode, and the bubble had to be able to vary its dimensions and surface tension over a wide range to withstand pressure changes, outside and in, and do it automatically. No, of course the combination would be able to move by itself; what was disquieting was that it should want to.

Another stir of movement in the middle distance caught her eye: a free cloak, seemingly riding an up-draught over a fixed point. For a moment she wondered what on that ground could be warm enough to produce so localized a thermal. Then, abruptly, she realized that she was shaking with hatred, and fought furiously to drive the spasm down, her fingernails slicing into her naked palms.

A raster of jagged black lines, like a television interference pattern, broke across her view and brought her attention fully back to the minutely solipsistic confines of her dilemma. The wave of emotion, nevertheless,

would not quite go away, and she had a vague but persistent impression that it was being imposed from outside, at least in part—a cold passion she was interpreting as fury because its real nature, whatever it was, had no necessary relevance to her own imprisoned soul. For all that it was her own life and no other that was in peril, she felt guilty, as though she was eavesdropping, and as angry with herself as with what she was overhearing; yet burning as helplessly as the forbidden lamp in the bedchamber of Psyche and Eros.

Another trope—but was it, after all, so far-fetched? She was a mortal present at the mating of inhuman essences; mountainously far from home; borne here like the invisible lovers upon the arms of the wind; empalaced by a whole virgin-white world, over which flew the banners of a high god and a father of gods; and, equally appropriately, Venus was very far away from whatever love was being celebrated here.

What ancient and coincidental nonsense! Next she would be thinking herself degraded at the foot of some cross.

Yet the impression, of an eerie tempest going on just slightly outside any possibility of understanding what it was, would not pass away. Still worse, it seemed to mean something, to be important, to mock her with subtle clues to matters of great moment, of which her own present trap was only the first and not necessarily the most significant.

And suppose that all these impressions were in fact not extraneous or irrelevant, but did have some import—not just as an abstract puzzle, but to that morsel of displaced life that was Ulla Hillström? She was certainly no Freudian—that farrago of poetry and tosh had been passé for so long that it was now hard to understand how anybody, let alone a whole era, had been bemused by it—but it was too late now to rule out the repulsive possibility. No matter how frozen her present world, she could not escape the fact that, from the moment the cloak had captured her, she had been equally ridden by a Sabbath of specifically erotic memories, images, notions, analogies, myths, symbols, and frank physical sensations, all the more obtrusive because they

were both inappropriate and disconnected. It might well have to be faced that a season of love can fall due in the heaviest weather—and never mind the terrors that flow in with it, or what deep damnations. At the very least, it was possible that somewhere in all this was the clue that would help her to divorce herself at last even from this violent embrace.

But the concept was preposterous enough to defer consideration of it if there were any other avenues open, and at least one seemed to be: the source of the thermal. The virus bubble, like many of the Terrestrial micro-organisms to which it was analogous, could survive temperatures well above boiling, but it seemed reasonable to assume that the flying cloaks, evolved on a world where even words congealed, might be sensitive to a relatively slight amount of heat.

Now, could she move inside this shroud of her own volition? She tried a step. The sensation was tacky, as though she were ploughing in thin honey, but it did not impede her except for a slight imposed clumsiness which experience ought to obviate. She was able to mount the sled with no trouble.

The cogs bit into the snow with a dry, almost inaudible squeaking, and the sled inched forward. Ulla held it to as slow a crawl as possible, because of her interrupted vision.

The free cloak was still in sight, approximately where it had been before, in so far as she could judge against this featureless snowscape—which was fortunate, since it might well be her only flag for the source of the thermal, whatever it was.

A peculiar fluttering in her surroundings—a whisper of sound, of motion, of flickering in the light—distracted her. It was as though her compound sheath were trembling slightly. The impression grew slowly more pronounced as the sled continued to lurch forward. As usual, there seemed to be nothing she could do about it except, possibly, to retreat; but she could not do that either, now; she was committed. Outside, she began to hear the soft sighing of a steady wind.

The cause of the thermal, when she finally reached it, was almost bathetic: a pool of liquid. Placid and deep

blue, it lay inside a fissure in a low, heart-shaped hummock, rimmed with feathery snow. It looked like nothing more or less than a spring, though she did not for a moment suppose that the liquid could be water. She could not see the bottom of it; evidently, it was welling up from a fair depth. The spring analogy was probably completely false; the existence of anything in a liquid state on this world had to be thought of as a form of vulcanism. Certainly the column of heat rising from it was considerable; despite the thinness of the air, the wind here nearly howled. The free cloak floated up and down, about a hundred feet above her, like the last leaf of a long, cruel autumn. Nearer home, the bubble cloak shook with something comically like subdued fury.

Now, what to do? Should she push boldly into that cleft, hoping that the alien part of the bubble cloak would be unable to bear the heat? Close up, that course now seemed foolish, as long as she was ignorant of the real nature of the magma down there. And, besides, any effective immersion would probably have to surround at least half of the total surface area of the bubble, which wasn't practicable—the well wasn't big enough to accommodate it, even supposing that the compromised virus suit did not fight back, as in the pure state it had been obligated to do. On the whole, she was reluctantly glad that the experiment was impossible, for the mere notion of risking a new immolation in that problematical hole gave her the horrors.

Yet the time left for decision was obviously now very short, even supposing—as she had no right to do—that the environment-maintaining functions of the suit were still in perfect order. The quivering of the bubble was close to being explosive, and even were it to remain intact, it might shut her off from the outside world at any second.

The free cloak dipped lower, as if in curiosity. That only made the trembling worse. She wondered why.

Was it possible—was it possible that the thing embracing her companion was jealous?

IV

There was no time left to examine the notion, no time even to sneer at it. Act—act! Forcing her way off the sled, she stumbled to the mound and looked frantically for some way of stopping it up. If she could shut off the thermal, bring the free cloak still closer—but how?

Throw rocks. But were there any? Yes, there were two, not very big, but at least she could move them. She bent stiffly and tumbled them into the crater.

The liquid froze around them with soundless speed. In seconds, the snow rimming the pool had drawn completely over it, like lips closing, leaving behind only a faint dimpled streak of shadow on a white ground.

The wind moaned and died, and the free cloak, its hems outspread to the uttermost, sank down as if to wrap her in still another deadly swath. Shadow spread around her; the falling cloak, its colour deepening, blotted Saturn from the sky, and then was sprawling over the beautiful banners of the rings—

The virus bubble convulsed and turned black, throwing her to the frozen ground beside the hummock like a bead doll. A blast of wind squalled over her.

Terrified, she tried to curl into a ball. The suit puffed up around her.

Then at last, with a searing, invisible wrench at its contained kernel of space-time, which burned out the control box instantly, the single creature that was the bubble cloak tore itself free of Ulla and rose to join its incomplete fellow.

In the single second before she froze forever into the livid backdrop of Titan, she failed even to find time to regret what she had never felt; for she had never known it, and only died as she had lived, an artifact of successful calculation. She never saw the cloaks go flapping away downwind—nor could it ever have occurred to her that she had brought heterosexuality to Titan, thus beginning that long evolution the end of which, sixty millions of years away, no human being would see.

No; her last thought was for the virus bubble, and it was only three words long:

You goddam philanderer—

Almost on the horizon, the two cloaks, the two Titans, flailed and tore at each other, becoming smaller and smaller with distance. Bits and pieces of them flaked off and fell down the sky like ragged tears. Ungainly though the cloaks normally were, they courted even more clumsily.

Beside Ulla, the well was gone; it might never have existed. Overhead, the banners of the rings flew changelessly, as though they too had seen nothing—or perhaps, as though in the last six billion years they had seen everything, siftings upon siftings in oblivion; until nothing remained but the banners of their own mirrored beauty.

A Style in Treason

I

THE *Karas*, a fragile transship—she was really little more than a ferry, just barely meriting a name—came fluttering out of the interstitium into the Flos Campi system a day late in a ball of rainbows, trailing behind her two gaudy contrails of false photons, like a moth unable to free herself of her cocoon. The ship's calendar said it was Joni 23, 5914, which was probably wrong by at least ten years; however, nobody but a scholar of that style of dating could have been precise about the matter; the *Karas* was a day later than she should have been; just *what* day was at best only a local convention.

In the salon, Simon de Kuyl sighed and laid out the

tarots again. Boadacea, the biggish fourth planet of the Flos Campi array and Simon's present port of call, was yet a week ahead in urspace, and he was already tired. He had reasons. His fellow passengers had been dull beyond belief, with the possible—because wholly unknown—exception of the entity who had spent the entire voyage in his cabin, with a diplomatic seal spidered over the palm plate on its door; and Simon suspected that they would have bored him even had he not had to present himself to them as a disillusioned Sagittarian mystic, embittered at himself for ever having believed that the Mystery that lay (or didn't lie) at the galactic centre would someday emerge and set the rest of the universe to rights, and hence in too unpredictable a temper to be worth being polite to. Conceivably, indeed probably, some of the other passengers were trying to be as repellent to strangers as was Simon, but the probability did not make their surfaces any more diverting.

But of course none of these things—the ship, the delay, the passengers, the pose—was more than marginally to blame for his weariness. In these days of treason, politeness, easy travel, and indefinitely prolonged physical vigour, everyone was tired, just a little but all the time. After a while, it became difficult to remember who one was supposed to be—and to remember who one was, was virtually impossible. Even the Baptized, who had had their minds dipped and then rechannelled with only a century's worth of memories, betrayed to the experienced eye a vague, tortured puzzlement, as though still searching in the stilled waters for some salmon of ego they had been left no reason to suspect had ever been there. Suicide was unconcealedly common among the Baptized, and Simon did not think the reason (as the theoreticians and ministers insisted) was really only a minor imperfection in the process, to be worked out in time.

There was plenty of time; that was the trouble. People lived too damn long, that was all. Erasing the marks, on the face or in the mind, did not unwind the years; the arrow of entropy pointed forever in the same direction; virginity was a fact, not just a state of membrane or memory. Helen, reawakening in Aithra's

Egyptian bed flensed of her history, might bemuse Menelaus for a while, but there will always be another Paris, and that without delay—time past is eternally in time present, as Ezra-Tse had said.

The ten-thousand-year-old analogy came easily to him. He was supposed to be, and in fact was, a native of High Earth; and in his *persona* as a Sagittarian (lapsed) would be expected to be a student of such myths, the more time-dimmed the better—hence, in fact, his interminable shipboard not-quite-game of tarot solitaire. Staying quite automatically in character was in his nature, as well as being one of his chiefest skills.

And certainly he had never allowed himself to be Baptized, though his mind had been put through not a few lesser changes in the service of High Earth, and might yet be forced into a greater one if his mission on Boadacea went awry. Many of his memories were painful, and all of them were painfully crowded together; but they were his, and that above all was what gave them their worth. Some professional traitors were valuable because they had never had, and never could have, a crisis of identity. Simon knew without vanity—it was too late for that—that High Earth had no more distinguished a traitor than he, precisely because he had such crises as often as once a year, and hadn't lost one yet.

"Your indulgence, reverend sir," said a voice at his back. A white hand, well kept but almost aggressively masculine, came over his shoulder and moved the Fool onto the Falling Tower. "It is boorish of me to intervene, but it discomforts me to see an implication go abegging. I fear I am somewhat compulsive."

The voice was a new one: therefore, belonging to the person who had been sequestered in the diplomatic cabin up to now. Simon turned, ready to be surly.

His next impulse was to arise and run. The question of *who* the creature was evaporated in recognition of just *what* it was.

Superficially, he saw a man with a yellow page-boy coiffure, wearing pale-violet hose, short russet breeches, and a tabard of deeper violet, as well as a kangaroo-shiv, a weapon usually affected only by ladies. A duplicate of the spider on the doorseal was emblazoned in

gold on his left breast. Superficially; for Simon was fortunate—in no way he could explain—to be able to penetrate this seeming.

The "diplomat" was a vombis, or what in those same myths Simon had been thinking of earlier was called a Proteus: a creature which could imitate perfectly almost any life-form within its size range. Or nearly perfectly; for Simon, like one in perhaps five thousand of his colleagues, was sensitive to them, without ever being able to specify in what particular their imitations of humanity were deficient. Other people, even those of the sex opposite to the one the vombis had assumed, could find no flaw in them. In part because they did not revert when killed, no human had ever seen their "real" form—if they had one—though of course there were legends aplenty. The talent might have made them ideal double agents, had it been possible to trust them—but that was only an academic speculation, since the vombis were wholly creatures of the Green Exarch.

Simon's third impulse, like that of any other human being in like circumstances, was to kill this one instantly upon recognition, but that course had too many obvious drawbacks, of which the kangaroo-shiv was the least important. Instead, he said with only moderate ungraciousness: "No matter. I was blocked anyhow."

"You are most kind. May I be seated?"

"Since you're here."

"Thank you." The creature sat down gracefully, across the table from Simon. "Is this your first trip to Boadacea, reverend sir?"

Simon had not said he was going to Boadacea, but after all, it was written on the passenger list for anyone to see.

"Yes. And you?"

"Oh, that is not my destination; I am for deeper into the cluster. But you will find it an interesting world—especially the variations in the light; they make it seem quite dreamlike to a native of a planet with only a single, stable sun. And then, too, it is very old."

"What planet isn't?"

"I forget, you are from High Earth, to whom all other worlds must seem young indeed. Nevertheless,

Boadacea is quite old enough to have many curious nations, all fiercely independent, and a cultural pattern which overrides all local variations. To this all the Boadaceans are intensely loyal."

"I commend them," Simon said; and then added sourly, "it is well for a man to have a belief he can cling to."

"The point is well taken," said the vombis. "Yet the pride of Boadacea springs from disloyalty, in the last analysis. The people believe it was the first colony to break with Old Earth, back in the first days of the Imaginary Drive. It is a breach they mean to see remains unhealed."

"Why not?" Simon said, shrugging. "I'm told also that Boadacea is very wealthy."

"Oh, excessively; it was once a great temptation to raiders, but the nations banded together against them with great success. Yet surely wealth does not interest you, reverend sir?"

"Marginally, yes. I am seeking some quiet country in which to settle and study. Naturally, I should prefer to find myself a patron."

"Naturally. I would suggest, then, that you try the domain of the Rood-Prince. It is small and stable, the climate is said to be clement, and he has a famous library." The creature arose. "For your purposes I would avoid Druidsfall; life there, as in most large cities, might prove rather turbulent for a scholar. I wish you success, reverend sir."

Placing its hand formally upon the jewelled shiv, the creature bowed slightly and left. Simon remained staring down at his cards, thinking icily but at speed.

What had all that meant? First of all, that his cover had been broken? Simon doubted that, but in any event it mattered little, since he would go almost into the open directly after landing. Assuming that it had, then, what had the creature been trying to convey? Surely not simply that life in Druidsfall would be even more turbulent for a traitor than for a lapsed divine. Naturally, it would expect Simon to know that; after all, Druidsfall was the centre of the treason industry on Boadacea—that was why Simon was going there.

Or was it that Boadacea would be difficult for an ordinary traitor to buy, or was not for sale at all? But that might be said of any worthwhile planet, and no professional would let such a reputation pass without testing it, certainly not on the unsupported word of a stranger.

Besides, Simon was after all no ordinary traitor, nor even the usual kind of double agent. His task was to buy Boadacea while seeming to sell High Earth, but beyond that, there was a grander treason in the making for which the combined Traitors' Guilds of both planets might only barely be sufficient: the toppling of the Green Exarch, under whose subtle, nonhuman yoke half of humanity's worlds had not even the latter-day good sense to groan. For such a project, the wealth of Boadacea was a prerequisite, for the Green Exarch drew tithes from six fallen empires older than man—the wealth of Boadacea, and its reputation, which the vom-bis had invoked, as the first colony to have broken with Old Earth.

And such a project would necessarily be of prime interest to a creature of the Exarch. Yet security on it could not possibly have been broken. Simon knew well that men had died horribly for travelling under such assumptions in the past; nevertheless, he was sure of it. Then what—?

A steward walked slowly through the salon, beating a gong, and Simon put the problem aside for the moment and gathered up his cards.

"Druidsfall. One hour to Druidsfall. All passengers for the Flos Campi system please prepare for departure. Druidsfall in one hour; next port of call is Fleurety."

The Fool, he thought, had come to the Broken Tower. The next card to turn might well be the Hanged Man.

II

Boadacea proved indeed to be an interesting world, and despite all of Simon's preliminary reading and conditioning, quite as unsettling as the vom-bis had predicted.

Its sun, Flos Campi, was a ninety-minute microvariable, twinned at a distance of one light-year with a blue-white, Rigellike star which stood—or had stood throughout historical times—in high southern latitudes. This meant that every spot on the planet had a different cycle of day and night. Druidsfall, for example, had only four consecutive hours of quasi-darkness at a time, and even during this period the sky was indigo rather than black at its deepest—and more often than not flaring with auroras, thanks to the almost incessant solar storms.

Everything in the city, as everywhere on Boadacea, bespoke the crucial importance of fugitive light, and the fade-out-fade-in weather that went with it, all very strange after the desert glare of High Earth. The day after the *Karas* had fluttered down had dawned in mist, which cold gales had torn away into slowly pulsating sunlight; then had come clouds and needlelike rain which had turned to snow and then to sleet—more weather in a day than the minarets of Jiddah, Simon's registered home town, saw in a six-month. The fluctuating light and wetness was reflected most startlingly by its gardens, which sprang up when one's back was turned and did not need so much to be weeded as actually fought. They were constantly in motion to the ninety-minute solar cycle, battering their elaborate flowerheads against back walls which were everywhere crumbling after centuries of such soft, implacable impacts. Half the buildings in Druidsfall glistened with their leaves, which were scaled with so much soft gold that they stuck to anything they were blown against—the wealth of Boadacea was based anciently in the vast amounts of uranium and other power-metals in its soil, from which the plants extracted the inevitable associated gold as radiation shielding for their spuriously tender genes. Everyone one saw in the streets of Druidsfall, or any other such city, was a mutation of some sort—if he was not an outworlder—but after a few days in the winds they were all half yellow, for the gold scales smeared off the flying leaves like butter. Everyone was painted with meaningless riches—the very bedsheets glittered ineradicably with flakes of it; and bru-

nettes—especially among the elaborate hair styles of the men—were at a premium.

Druidsfall proper was the usual low jumble of decayed masonry, slightly less ancient slums, and blank-faced offices, but the fact that it was also the home city of the Guild—hence wholly convenient, if not congenial, for Simon—gave it character. The traitors had an architectural style of their own, characterized by structures put together mostly of fragmented statues and petrified bodies fitted to each other like puzzle pieces or maps. Traitors on Boadacea had belonged to an honoured social class for seven hundred years, and their edifices made it known.

So did their style of dealing. Simon attended upon the planet's Traitor-in-Chief with all due promptness, wearing the clasp which showed him to be a brother, though an outworlder, and made himself and his errand known with almost complete truthfulness—certainly much more than custom would have demanded. His opposite number, Valkol "the Polite," a portly, jowly man in a black abah decorated only with the clasp, with a kindly and humorous expression into which were set eyes like two bites of an iceberg, turned him out of the Guildhall with only as much courtesy as fraternal protocol strictly required—that is, twelve days to get off the planet.

Thus far, at least, the vombis had proven to be right about the Boadaceans, to the letter. The spirit remained to be tested.

Simon found an inn in which to lick his wounds and prepare for departure, as was permitted. Of course he had no intention of leaving; he was simply preparing to go to ground. Nevertheless, he had wounds to lick. After only four clockless days on Boadacea, he had already been driven into changing his residence, his methods, and his identity. It was a humiliating beginning.

III

Methods next. Listening automatically for the first sound of possible interruption, Simon emptied his little poisons into the catch basin in his new room, and ironi-

cally watched the wisps of wine-coloured smoke rise from the corroded maw of the drain. He was sorry to see them go; they were old, though venomous, friends; but a man's methods can be as telltale as a thumbprint, and now it would have to be assumed that Valkol had sent for, and would soon receive, some sort of dossier on Simon. The dossier would be wrong, but there was no predicting *wherein* it would be wrong; hence, out with the poisons, and all their cousins among Simon's apparatus. When assuming a new identity, the very first rule is: *Strip!*

The almost worn-away maker's legend on the catch basin read: *Julius, Boadacea*. Things made on this planet were usually labelled that generally, as though any place in the world were like any other, but this was both true and not true. Druidsfall was unmistakable Boadacean, but as the central city of the traitors it was also distinctively itself. Those buildings with their curtain walls of petrified corpses, for instance. . . .

Luckily, custom now allowed Simon to stay clear of those grim monuments, now that the first, disastrous formalities were over, and seek his own bed and breakfast. In the old, disinterestedly friendly inns of Druidsfall, the anonymous thumps and foreign outcries of the transients—in death, love, or trade—are said to make the regular lodgers start in their beds with their resident guilts. Of course all inns are like that, but nevertheless, that was why traitors liked to quarter there rather than in the Traitors' Halls run by the fraternity: it guaranteed them privacy, and at the same time helped them to feel alive. There is undoubtedly something inhibiting about trying to deal within walls pieced together of broken stone limbs, heads, and torsos, some of which had clearly been alive when the foundations were being dug and the scaffolding bolted together.

Thus, here in The Skopolamander, Simon could comfortably await his next contact, now that he had dumped his poisons. This—if there was to be one—would of course have to come about before the end of his immunity period. "Quarantine" was perhaps a more appropriate term.

No, the immunity was real, however limited, for as a

traitor to High Earth he had special status. High Earth, the Boadaceans thought, was not necessarily Old Earth—but not necessarily *not*, either. For the rest of his twelve days, Simon would not be killed out of sheer conservatism, at least, though nobody official would attempt to deal with him, either.

He had eight of those days still to run—a dull prospect, since he had already completed every possible preliminary to going to ground, and spiced only by the fact that he had yet to figure out how long a day might officially be. The rhythms of Flos Campi offered no reliable clues his Sol-tuned diurnalism could read. At the moment there was nothing lighting the window of the room but an aurora, looking like a curtain of orange and hazy blue fire licking upward along a bone trestle. Radio around here, and probably even electrical power, must be knocked out as much as half the time, with so much stray magnetism washing back and forth. That might prove useful; he filed the thought.

In the meantime, there went the last of the poisons. Simon poured water from an amphora into the catch basin, which promptly hissed like a dragon just out of the egg and blurted a mushroom of cold blue steam which made him cough. *Careful!* he thought; acid after water, never water after acid—I am forgetting the most elementary lessons. I should have used wine. Time for a drink, in Gro's name!

He caught up his cloak and went out, not bothering to lock the door. He had nothing worth stealing but his honour, which was in his right hip pocket. Oh, and of course, High Earth—that was in his left. Besides, Boadacea was rich: one could hardly turn around without knocking over some heap of treasures, artifacts of a millennium which nobody had sorted for a century, or even wanted to be bothered to sort. Nobody would think to steal from a poor traitor any object smaller than a king, or, preferably, a planet.

In the tavern below, Simon was joined at once by a playwoman.

"Are you buying tonight, excellence?"

"Why not?" And in fact he was glad to see her. She was blonde and ample, a relief from the sketchy women

of the Respectables, whom fashion made look as though they suffered from some nervous disease that robbed them of appetite. Besides, she would exempt him from the normal sort of Boadacean polite conversation, which consisted chiefly of elaborately involuted jokes at which it was considered gauche to laugh. The whole style of Boadacean conversation, for that matter, was intended to be ignored; gambits were a high art, but end games were a lost one. Simon sighed and signalled for beakers.

"You wear the traitors' clasp," she said, sitting across from him, "but not much tree gold. Have you come to sell us High Earth?"

Simon did not even blink; he knew the query to be a standard opening with any outworlder of his profession.

"Perhaps. But I'm not on business at the moment."

"Of course not," the girl said gravely, her fingers playing continuously with a sort of rosary tasselled with two silver phalluses. "Yet I hope you prosper. My half-brother is a traitor, but he can find only small secrets to sell—how to make bombs, and the like. It's a thin life; I prefer mine."

"Perhaps he should swear by another country."

"Oh, his country is well worth selling, but his custom is poor. Neither buyer nor seller trusts him very far—a matter of style, I suppose. He'll probably wind up betraying some colony for a thousand beans and a fish-ball."

"You dislike the man—or is it the trade?" Simon said. "It seems not unlike your own, after all: one sells something one never really owned, and yet one still has it when the transaction is over, as long as both parties keep silent."

"You dislike women," the girl said, tranquilly, as a simple observation, not a challenge. "But all things are loans—not just chastity and trust. Why be miserly? To 'possess' wealth is as illusory as to 'possess' honour or a woman, and much less gratifying. Spending is better than saving."

"But there are rank orders in all things, too," Simon said, lighting a kief stick. He was intrigued in spite of himself. Hedonism was the commonest of philosophies

in the civilized galaxy, but it was piquant to hear a playwoman trotting out the mouldy clichés with such fierce solemnity. "Otherwise we should never know the good from the bad, or care."

"Do you like boys?"

"No, that's not one of my tastes. Ah, you will say that I don't condemn boy-lovers, and that values are in the end only preferences? I think not. In morals, empathy enters in, eventually."

"So, you wouldn't corrupt children, and torture revolts you. But you were made that way. Some men are not so handicapped. I meet them now and then." The hand holding the looped beads made a small, unconscious gesture of revulsion.

"I think *they* are the handicapped, not *I*—most planets hang their moral imbeciles, sooner or later. But what about treason? You didn't answer that question."

"My throat was dry . . . thank you. Treason, well—it's an art; hence, again, a domain of taste or preference. Style is everything; that's why my half-brother is so inept. If taste changed he might prosper, as I might had I been born with blue hair."

"You could dye it."

"What, like the Respectables?" She laughed, briefly but unaffectedly. "I am what I am; disguises don't become me. Skills, yes—those are another matter. I'll show you, when you like. But no masks."

Skills can betray you too, Simon thought, remembering that moment at the Traitors' Guild when his proud sash of poison shells, offered in service, had lost him in an instant every inch of altitude over the local professionals that he had hoped to trade on. But he only said again, "Why not?" It would be as good a way as any to while away the time; and once his immunity had expired, he could never again trust a playwoman on Boadacea.

She proved, indeed, very skilful, and the time passed . . . but the irregular pseudo-days—the clock in the tavern was on a different time than the one in his room, and neither even faintly agreed with his High Earth-based chronometer and metabolism—betrayed him. He awoke one morning/noon/night to find the

girl turning slowly black beside him, in the last embrace of a fungal toxin he would have reserved for the Emperor of Canes Venatici, or the worst criminal in human history.

His immunity period was up, and war had been declared. He had been notified that if he still wanted to sell High Earth, he would first have to show his skill at staying alive against the whole cold malice of all the Traitors of Boadacea.

IV

How the Exarchy or the prehuman interstellar empires were held together is unknown, but in human history, at least, the bureaucratic problems of managing large stellar holdings from a single centre of government have proven to be insoluble. Neither the ultraphone nor the Imaginary Drive permitted the extension of human hegemony over a radius of more than ten light-years, a fact the colonies outside this sphere were not slow to appreciate and put to use. Luckily, a roughly uniform interstellar economy was maintained by tacit agreement after the political separations, since it was not widely recognized then—or now—that this much older invention can enforce a more thorough rule than can any personal or party autocracy.

In this connection, one often hears laymen ask, Why do the various worlds and nations employ professional traitors when it is known that they are traitors? Why would they confide to the traitors any secret valuable enough to be sold to a third party? The answer is the same, and the weapon is the same: money. The traitors act as brokers in a continuous interstellar bourse on which each planet seeks to gain a *financial* advantage over the other. Thus the novice should not imagine that any secret put into his hands is exactly what it is said to be, particularly when its primary value purports to be military. He should also be wary of the ruler who seeks to subvert him into personal loyalty, which tears the economic tissue and hence should be left in the domain of untrained per-

sons. For the professional, loyalty is a tool, not a value.

The typical layman's question cited above should of course never be answered.

—Lord Gro: *The Discourses*, Bk. I, Ch. LVII

Simon holed up quickly and drastically, beginning with a shot of transduction serum—an almost insanely dangerous expedient, for the stuff not only altered his appearance but his very heredity, leaving his head humming with false memories and false traces of character, derived from the unknowable donors of the serum, which conflicted not only with his purposes but even with his tastes and motives.

Under interrogation, he would break down into a babbling crowd of random voices, as bafflingly scrambled as his karyotypes, blood groups, and retina- and fingerprints. To the eye, his gross physical appearance would be a vague, characterless blur of many roles—some of them derived from the DNA of persons who had died a hundred years ago and at least that many parsecs away in space.

But unless he got the antiserum within fifteen High Earth days, he would forget his first mission, then his skills, and at last his very identity. Nevertheless, he judged that the risk had to be taken; for effete though some of the local traitors (always excepting Valkol the Polite) seemed to be, they were obviously quite capable of penetrating any lesser cover—and actually obviously, they meant business.

The next problem was how to complete the mission itself—it would not be enough just to stay alive. High Earth did not petrify failed traitors and mortar them into walls, but it had its own ways of showing displeasure. Moreover, Simon felt to High Earth a certain obligation—not loyalty, Gro forbid, but, well, call it professional pride—which would not let him be retired from the field by a backwater like Boadacea. Besides, finally, he had old reasons for hating the Exarchy; and hatred, unaccountably, Gro had forgotten to forbid.

No: It was not up to Simon to escape the Boadaceans.

He had come here to gull them, whatever they might currently think of such a project.

And therein lay the difficulty; for Boadacea, beyond all other colony worlds, had fallen into a kind of autumn cannibalism. In defiance of that saying of Ezra-Tse, the edge was attempting to eat the centre. It was this worship of independence, or rather, of autonomy, which had not only made treason respectable, but had come nigh on to ennobling it . . . and was now imperceptibly emasculating it, like the statues one saw everywhere in Druidsfall which had been defaced and sexually mutilated by the grey disease of time and the weather.

Today, though all the Boadaceans proper were colonials in ancestry, they were snobs about the planet's prehuman history, as though they had not nearly exterminated the aborigines themselves but were their inheritors. The few shambling Charioteers who still lived stumbled through the streets of Druidsfall loaded with ritual honours, carefully shorn of real power but ostentatiously deferred to on the slightest occasion which might be noticed by anyone from High Earth. In the meantime, the Boadaceans sold each other out with delicate enthusiasm, but against High Earth—which was not necessarily Old Earth, but not necessarily *not*, either—all gates were formally locked.

Formally only, Simon and High Earth were sure, for the hunger of treason, like lechery, tends to grow with what it feeds on, and to lose discrimination in the process. Boadacea, like all forbidden fruits, should be ripe for the plucking, for the man with the proper key to its neglected garden.

The key that Simon had brought with him, that enormous bribe which should have unlocked Valkol the Polite like a child's bank, was temporarily useless. He would have to forge another, with whatever crude tools could be made to fall to hand. The only one accessible to Simon at the moment was the dead playwoman's despised half-brother.

His name, Simon had found out from her easily enough, was currently Da-Ud tam Altair, and he was Court Traitor to a small religious principate on the

Gulf of the Rood, on the InContinent, half the world away from Druidsfall. Remembering what the vombis aboard the *Karas* had said about the library of the Rood-Prince, Simon again assumed the robes of a worn-out Sagittarian divine in search of a patron, confident that his face, voice, stance, and manner were otherwise utterly unlike his shipboard *persona*, and boarded the flyer to the InContinent prepared to enjoy the trip.

There was much to enjoy. Boadacea was a good-sized world, nearly ten thousand miles in diameter, and it was rich in more than money. Ages of weathering and vulcanism had broken it into many ecological enclaves, further diversified by the point-by-point uniqueness of climate contributed to each by the rhythmic inconstancies of Flos Campi and the fixity of Flos Campi's companion sun among the other fixed stars—and by the customs and colours of many waves of pioneers who had settled in those enclaves and sought to re-establish their private visions of the earthly paradise. It was an entirely beautiful world, could one but forget one's personal troubles long enough to really look at it; and the flyer flew low and slow, a procedure Simon approved despite the urgency the transduction serum was imposing upon the back of his mind.

Once landed by the Gulf, however, Simon again changed his plans and his outermost disguise; for inquiry revealed that one of the duties of the Court Traitor here was that of singing the Rood-Prince to sleep to the accompaniment of the sareh, a sort of gleeman's harp—actually a Charioteer instrument, ill-adapted to human fingers, which Da-Ud played worse than most of the Boadaceans who affected it. Simon therefore appeared at the vaguely bird-shaped palace of the Rood-Prince in the guise of a ballad merchant, and as such was enthusiastically received, and invited to catalogue the library; Da-Ud, the Rood-Prince said, would help him, at least with the music.

Simon was promptly able to sell Da-Ud twelve-and-a-tilly of ancient High Earth songs Simon had made up overnight—faking folk songs is not much of a talent—and had Da-Ud's confidence within an hour; it was as easy as giving Turkish Delight to a baby. He cinched

the matter by throwing in free lessons on the traditional way to sing them.

After the last mangled chord had died, Simon asked Da-Ud quietly:

"By the way . . . (well sung, excellence) . . . did you know that the Guild has murdered your half-sister?"

Da-Ud dropped the imitation Charioteer harp with a noise like a spring-driven toy coming unwound.

"Jillith? But she was only a playwoman! Why, in Gro's name—"

Then Da-Ud caught himself and stared at Simon with sudden, belated suspicion. Simon looked back, waiting.

"Who told you that? Damn you—are you a Torturer? I'm not—I've done nothing to merit—"

"I'm not a Torturer, and nobody told me," Simon said. "She died in my bed, as a warning to me."

He removed his clasp from under the shoulder of his cloak and clicked it. The little machine flowered briefly into a dazzling actinic glare, and then closed again. While Da-Ud was still covering his steaming eyes, Simon said softly:

"I am the Traitor-in-Chief of High Earth."

It was not the flash of the badge that was dazzling Da-Ud now. He lowered his hands. His whole narrow body was trembling with hate and eagerness.

"What—what do you want of me, excellence? I have nothing to sell but the Rood-Prince . . . and a poor stick he is. Surely you would not sell me High Earth; I am a poor stick myself."

"I would sell you High Earth for twenty riyals."

"You mock me!"

"No, Da-Ud. I came here to deal with the Guild, but they killed Jillith—and that, as far as I'm concerned, disqualified them from being treated as civilized professionals, or as human beings at all. She was pleasant and intelligent, and I was fond of her—and besides, while I'm perfectly willing to kill under some conditions, I don't hold with throwing away an innocent life for some footling dramatic gesture."

"I wholly agree," Da-Ud said. His indignation seemed to be at least half real. "But what will you do? What *can* you do?"

"I have to fulfill my mission, any way short of my own death—if I die, nobody will be left to get it done. But I'd most dearly love to cheat, dismay, disgrace the Guild in the process, if it could possibly be managed. I'll need your help. If we live through it, I'll see to it that you'll turn a profit, too; money isn't my first goal here, or even my second now."

"I'll tackle it," Da-Ud said at once, though he was obviously apprehensive, as was only sensible. "What, precisely, do you propose?"

"First of all, I'll supply you with papers indicating that I've sold you a part—not all—of the major thing I have to sell, which gives any man who holds it a lever in the State Ministry of High Earth. They show that High Earth has been conspiring against several major powers, all human, for purposes of gaining altitude with the Green Exarch. They won't tell you precisely which worlds, but there will be sufficient information there so that the Exarchy would pay a heavy purse for them—and High Earth, an even heavier one to get them back. It will be your understanding that the missing information is also for sale, but you haven't got the price."

"Suppose the Guild doesn't believe that?"

"They'll never believe—excuse me, I must be blunt—that you could have afforded the whole thing; they'll know I sold you *this* much of it only because I have a grudge, and you can tell them so—though I wouldn't expose the nature of the grudge, if I were you. Were you unknown to them, they might assume that you were me in disguise, but luckily they know you, and, ah, probably tend rather to underestimate you."

"Kindly put," Da-Ud said with a grin. "But that won't prevent them from assuming that I know your whereabouts, or have some way of reaching you. They'll interrogate for that, and of course I'll tell them. I know them, too; it would be impossible not to, and I prefer to save myself needless pain."

"Of course—don't risk interrogation at all, tell them you want to see me out, as well as the secret. That will make sense to them, and I think they must have rules

against interrogating a member who offers to sell; most Traitors' Guilds do."

"True, but they'll observe them only so long as they believe me; that's standard, too."

Simon shrugged. "Be convincing, then," he said. "I have already said that this project will be dangerous; presumably, you didn't become a traitor solely for sweet safety's sake."

"No, but not for suicide's, either. But I'll abide the course. Where are the documents?"

"Give me access to your Prince's toposcope-scriber and I'll produce them. But first—twenty riyals, please."

"Minus two riyals for the use of the Prince's property. Bribes, you know."

"Your sister was wrong. You do have style, in a myopic sort of way. All right, eighteen riyals—and then let's get on to real business. My time is not my own—not by a century."

"But how do I reach you thereafter?"

"That information," Simon said blandly, "will cost you those other two riyals, and cheap at the price."

V

The Rood-Prince's brain-dictation laboratory was very far from being up to Guild standards, let alone High Earth's, but Simon was satisfied that the documents he generated there would pass muster. They were utterly authentic, and every experienced traitor had a feeling for that quality, regardless of such technical deficiencies as blurry image registration or irrelevant emotional overtones.

That done, he set himself in earnest to the task he had already been playing at, that of cataloguing the Rood-Prince's library. He could hardly run out on this without compromising Da-Ud, as well as drawing unwanted attention to himself. Happily, the chore was pleasant enough; in addition to the usual pornography, the Prince owned a number of books Simon had long wanted to see, including the complete text of Vilar's *The Apples of Idun*, and all two hundred cantos of Mordecai Drover's *The Drum Major and the Mask*,

with the fabulous tipped-in Brock woodcuts, all hand-tinted. There were sculptures by Labuerre and Halvorsen; and among the music, there was the last sonata of Andrew Carr . . . all of this embedded, as was inevitable, in vast masses of junk; but of what library, large or small, might that *not* be said? Whether or not the Rood-Prince had taste, he certainly had money, and some of it, under some past librarian, had been well spent.

In the midst of all this, Simon had also to consider how he would meet Da-Ud when the game had that much furthered itself. The arrangement he had made with the playwoman's half-brother had of course been a blind, indeed a double blind; but it had to have the virtues of its imperfections—that is, to look as though it had been intended to work, and to work in fact up to a certain point—or nothing would be accomplished. And it would then have to be bailed out of its in-built fatalities. So—

But Simon was now beginning to find it hard to think. The transduction serum was increasingly taking hold, and there were treasons taking place inside his skull which had nothing at all to do with Da-Ud, the Rood-Prince, Druidsfall, Boadacea, the Green Exarch, or High Earth. Worse: They seemed to have nothing to do with Simon de Kuyl, either, but instead muttered away about silly little provincial intrigues nothing could have brought him to care about—yet which made him feel irritated, angry, even ill, like a man in the throes of jealousy towards some predecessor and unable to reason them away. Knowing their source, he fought them studiously, but he knew they would get steadily worse, however resolute he was; they were coming out of his genes and his blood-stream, not his once finely honed, now dimming consciousness.

Under the circumstances, he was not going to be able to trust himself to see through very many highly elaborate schemes, so that it would be best to eliminate all but the most necessary. Hence it seemed better, after all, to meet Da-Ud in the Principate as arranged, and save the double dealing for more urgent occasions.

On the other hand, it would be foolish to hang

around the Principate, waiting and risking some miscarriage—such as betrayal through a possible interrogation of Da-Ud—when there were things he might be accomplishing elsewhere. Besides, the unvarying foggy warmth and the fragmented, garish religiousness of the Principate both annoyed him and exercised pulls of conflicting enthusiasms and loyalties on several of his mask personalities, who had apparently been as unstable even when whole as their bits and pieces had now made him. He was particularly out of sympathy with the motto graven on the lintel of the Rood-Prince's palace: JUSTICE IS LOVE. The sentiment, obviously descended from some colonial Islamic sect, was excellent doctrine for a culture knit together by treason, for it allowed the prosecution of almost any kind of betrayal on the grounds that justice (disguised as that kind of love which says, "I'm doing this for your own good; it hurts me more than it does you") was being pursued. But Simon, whose dimly remembered parents had betrayed him often on just those grounds, found it entirely too pat. Besides, he was suspicious of all abstractions which took the form "A is B." In his opinion, neither justice nor mercy were very closely related to love, let alone being identical with it—otherwise, why have three words instead of one? A metaphor is not a tautology.

These bagatelles aside, it seemed likely to Simon that something might be gained by returning for a while to Druidsfall and haunting the vicinity of the Guildhall. At the worst, his address would then be unknown to Da-Ud, and his anonymity more complete in the larger city, the Guild less likely to identify him even were it to suspect him—as of course it would—of such boldness. At best, he might pick up some bit of useful information, particularly if Da-Ud's embassy were to create any unusual stir.

Very well. Presenting the Rood-Prince with a vast stack of punched aperture cards and a promise to return, Simon took the flyer to Druidsfall, where he was careful to stay many miles away from The Skopolamander.

For a while he saw nothing unusual, which was in itself fractionally reassuring. Either the Guild was not

alarmed by Da-Ud's clumsy proposals, or was not letting it show. On several days in succession, Simon saw the Boadacean Traitor-in-Chief enter and leave, sometimes with an entourage, more often with only a single slave. Everything seemed normal, although it gave Simon a small, ambiguous *frisson* which was all the more disturbing because he was unsure which of his *personae* he should assign it to. Certainly not to his fundamental self, for although Valkol was here the predestined enemy, he was no more formidable than others Simon had defeated (while, it was true, being in his whole and right mind).

Then Simon recognized the "slave"; and this time he did run. It was the vombis, the same one who had been traveling as a diplomat aboard the *Karas*. The creature had not even bothered to change its face to fit its new role.

This time he could have killed the creature easily from his point of vantage, and probably gotten away clean, but again, there were compelling reasons for not doing so. Just ridding the universe of one of the protean entities (if it did any good at all, for nobody knew how they reproduced) would be insufficient advantage for the hue and cry that would result. Besides, the presence of an agent of the Exarchy so close to the heart of this imbroglio was suggestive, and might be put to some use.

Of course, the vombis might be in Druidsfall on some other business entirely, or simply paying a courtesy call on its way back from "deeper into the cluster"; but Simon would be in no hurry to make so dangerous an assumption. No, it was altogether more likely that the Exarch, who could hardly have heard yet of Simon's arrival and disgrace, was simply aware in general of how crucial Boadacea would be to any scheme of High Earth's—he was above all an efficient tyrant—and had placed his creature here to keep an eye on things.

Yes, that situation might be used, if Simon could just keep his disquietingly percolating brains under control. Among his present advantages was the fact that his disguise was better than that of the vombis, a fact the creature had probably been made constitutionally incapable of suspecting by the whole thrust of its evolution.

With a grim chuckle which he hoped he would not later be forced to swallow, Simon flew back to the Gulf of the Rood.

VI

Da-Ud met Simon in the Singing Gardens, a huge formal maze not much frequented of late even by lovers, because the Rood-Prince in the throes of some new religious crotchet had let it run wild, so that one had constantly to be fending off the ardour of the flowers. At best, this made even simple conversations difficult, and it was rumoured that deep in the heart of the maze the floral attentions to visitors were of a more sinister sort.

Da-Ud was exultant, indeed almost manic in his enthusiasm, which did not advance comprehension either, but Simon listened patiently.

"They bought it like lambs," Da-Ud said, naming a sacrificial animal of High Earth so casually as to make one of Simon's *personae* shudder inside him. "I had a little difficulty with the underlings, but not as much as I'd expected, and I got it all the way up to Valkol himself."

"No sign of any outside interest?"

"No, nothing. I didn't let out any more than I had to until I reached His Politeness, and after that he put the blue seal on everything—wouldn't discuss anything but the weather while anyone else was around. Listen, Simon, I don't want to seem to be telling you your business, but I think I may know the Guild better than you do, and it seems to me that you're underplaying your hand. This thing is worth *money*."

"I said it was."

"Yes, but I don't think you've any conception how much. Old Valkol took my asking price without a murmur—in fact, so fast that I wish I'd asked for twice as much. Just to show you I'm convinced of all this, I'm going to give it all to you."

"Don't want it," Simon said. "Money is of no use to me unless I can complete the mission. All I need now is operating expenses, and I've got enough for that."

This clearly had been what Da-Ud had hoped he

would say, but Simon suspected that had matters gone otherwise, the younger man might indeed have given over as much as half the money. His enthusiasm mounted.

"All right, but that doesn't change the fact that we could be letting a fortune slip here."

"How much?"

"Oh, at least a couple of megariyals—and I mean *apiece*," Da-Ud said grandly. "I can't imagine an opportunity like that comes around very often, even in the circles you're used to."

"What would we have to do to earn it?" Simon said, with carefully calculated doubt.

"Play straight with the Guild. They want the material badly, and if we don't trick them we'll be protected by their own rules. And with that much money, there are a hundred places in the galaxy where you'd be safe from High Earth for the rest of your life."

"And what about your half-sister?"

"Well, I'd be sorry to lose that chance, but cheating the Guild wouldn't bring her back, would it? And in a way, wouldn't it be *aesthetically* more satisfying to pay them back for Jillith by being scrupulously fair with them? 'Justice is Love,' you know, and all that."

"I don't know," Simon said fretfully. "The difficulty lies in defining justice, I suppose—you know as well as I do that it can excuse the most complicated treasons. And 'What do you mean by love?' isn't easily answerable either. In the end, one has to shuck it off as a woman's question, too private to be meaningful in a man's world—let alone in matters of polity. Hmmm."

This maundering served no purpose but to suggest that Simon was still trying to make up his mind; actually, he had reached a decision several minutes ago. Da-Ud had broken; he would have to be disposed of.

Da-Ud listened with an expression of polite bafflement which did not quite completely conceal a gleam of incipient triumph. Ducking a trumpet vine which appeared to be trying to crown him with thorns, Simon added at last: "You may well be right—but we'll have to be mortally careful. There may, after all, be another

agent from High Earth here; in matters of this importance they wouldn't be likely to rest with only one charge in the chamber. That means you'll have to follow my instructions to the letter, or we'll never live to spend a riyal of the proceeds."

"You can count on me," Da-Ud said, tossing his hair out of his eyes. "I've handled everything well enough this time, haven't I? And, after all, it was my idea."

"Certainly. An expert production. Very well. What I want you to do now is go back to Valkol and tell him that I've betrayed you; and sold the other half of the secret to the Rood-Prince."

"Surely you wouldn't actually *do* such a thing!"

"Oh, but I *would*, and I *shall*—the deed will be done by the time you get back to Druidsfall, and for the same twenty riyals that you paid for your half."

"But the purpose——?"

"Simple. I cannot come to Druidsfall with my remaining half—if there's another Earthman there, I'd be shot before I got halfway up the steps of the Hall. I want the Guild to consolidate the two halves by what seems to be an unrelated act of aggression between local parties. You make this clear to them by telling them that I won't actually make the sale to the Rood-Prince until I hear from you that you have the rest of the money. To get the point across at once, when you tell His Politeness that I've betrayed you—wink."

"And how do I get word to you this time?"

"You wear this ring. It communicates with a receiver in my clasp. I'll take matters from there."

The ring—which was actually *only* a ring, which would never communicate anything to anybody—changed hands. Then Da-Ud saluted Simon with solemn glee, and went away to whatever niche in history—and in the walls of the Guildhall of Boadacea—is reserved for traitors without style; and Simon, breaking the stalk of a lyre bush which had sprung up between his feet, went off to hold his muttering, nattering skull and do nothing at all.

VII

Valkol the Polite—or the Exarch's agent, it hardly mattered which—did not waste any time. From a vantage point high up on the Principate's only suitable mountain, Simon watched their style of warfare with appreciation and some wonder.

Actually, in the manœuvring itself the hand of the Exarchy did not show, and did not need to; for the whole campaign would have seemed a token display like a tournament, had it not been for a few score of casualties which seemed inflicted almost inadvertently. Even among these there were not many deaths, as far as Simon could tell—at least, not by the standards of battle to which he was accustomed.

Clearly, nobody who mattered got killed, on either side. It all reminded Simon of medieval warfare, in which the nearly naked kerns and gallowglasses were thrust into the front ranks to slaughter one another, while the heavily armoured knights kept their valuable persons well to the rear—except that here there was a good deal more trumpet blowing than there was slaughter. The Rood-Prince, in an exhibition of bravado more garish than sensible, deployed on the plain before his city several thousand pennon-bearing mounted troopers who had nobody to fight but a rabble of foot soldiers which Druidsfall obviously—at least, to Simon's eye—did not intend to be taken seriously; whereupon, the city was taken from the Gulf side, by a squadron of flying submarines which broke from the surface of the sea on four buzzing wings like so many dragonflies. The effect was like a raid by the twenty-fifth century upon the thirteenth, as imagined by someone in the twentieth—a truly dreamlike sensation.

The submarines particularly interested Simon. Some Boadaceous genius, unknown to the rest of the known galaxy, had solved the ornithopter problem—though the wings of the devices were membranous rather than feathered. Hovering, the machines thrummed their wings through a phase shift of a full hundred and eighty degrees, but when they swooped,

the wings moved in a horizontal figure eight, lifting with a forward-and-down stroke, and propelling with the back stroke. A long, fish-like tail gave stability, and doubtless had other uses under water.

After the mock battle, the 'thopters landed and the troops withdrew; and then matters took a more sinister turn, manifested by thumping explosions and curls of smoke from inside the Rood palace. Evidently, a search was being made for the supposedly hidden documents Simon was thought to have sold, and it was not going well. The sounds of demolition, and the occasional public hangings, could only mean that a maximum interrogation of the Rood-Prince had failed to produce any papers, or any clues to them.

This Simon regretted, as he did the elimination of Da-Ud. He was not normally so ruthless—an outside expert would have called his workmanship in this affair perilously close to being sloppy—but the confusion caused by the transduction serum, now rapidly rising as it approached term, had prevented him from manipulating every factor as subtly as he had originally hoped to do. Only the grand design was still intact now: It would now be assumed that Boadacea had clumsily betrayed the Exarchy, leaving the Guild no way out but to capitulate utterly to Simon, with whatever additional humiliations he judged might not jeopardize the mission, for Jillith's sake—

Something abruptly cut off his view of the palace. He snatched his binoculars away from his eyes in alarm.

The object that had come between him and the Gulf was a mounted man—or rather, the idiot-headed apteryx the man was sitting on. Simon was surrounded by a ring of them, their lance points aimed at his chest, pennons trailing in the dusty viol grass. Someone of Simon's *personae* remembered that the function of a pennon is to prevent the lance from running all the way through the body, so that the weapon can be pulled out easily and used again, but Simon had more immediate terrors to engross him.

The pennons bore the device of the Rood-Prince; but every lancer in the force was a vombis.

Simon arose resignedly, with a token snarl intended

more for himself than for the impassive protean creatures and their fat birds. He wondered why it had never occurred to him before that the vombis might be as sensitive to him as he was to them.

But the answer to that no longer mattered. Sloppiness was about to win its long-postponed reward.

VIII

They put him naked into a wet cell: a narrow closet completely clad in yellowed alabaster, down the sides of which water oozed and beaded all day long, running out into gutters at the edges. He was able to judge when it was day, because there were clouded bull's-eye lenses in each of the four walls which waxed and waned at him with any outside light. By the pattern of its fluctuation he could have figured out to a nicety just where on Boadacea he was, had he been in the least doubt that he was in Druidsfall. The wet cell was a sort of inverted oubliette, thrust high up into Boadacea's air, probably a hypertrophied merlon on one of the towers of the Traitors' Hall. At night, a fifth lens, backed by a sodium vapour lamp, glared down from the ceiling, surrounded by a faint haze of steam where the dew tried to condense on it.

Escape was a useless fantasy. Erected into the sky as it was, the wet cell did not even partake of the usual character of the building's walls, except for one stain in the alabaster which might have been the underside of a child's footprint; otherwise, the veinings were mockingly meaningless. The only exit was down, an orifice through which they had inserted him as though he were being born, and now plugged like the bottom of a stopped toilet. Could he have broken through one of the lenses with his bare hands, he would have found himself naked and torn on the highest point in Druidsfall, with no place to go.

Naked he was. Not only had they pulled all his teeth in search of more poisons, but of course they had also taken his clasp. He hoped they would fool with the clasp—it would make a clean death for everybody—but doubtless they had better sense. As for the teeth, they

would regrow if he lived, that was one of the few positive advantages of the transduction serum, but in the meantime his bare jaws ached abominably.

They had missed the antidote, which was in a tiny gel capsule in his left earlobe, masquerading as a sebaceous cyst—left, because it is automatic to neglect that side of a man, as though it were only a mirror image of the examiner's right—and that was some comfort. In a few more days now, the gel would dissolve, he would lose his multiple disguise, and then he would have to confess, but in the meantime he could manage to be content despite the slimy, glaring cold of the cell.

And in the meantime, he practiced making virtues of deficiencies: in this instance, calling upon his only inner resources—the diverting mutterings of his other personalities—and trying to guess what they might once have meant.

Some said:

"But I mean, like, you know——"

"Wheah they goin'?"

"Yeah."

"Led's gehdahda heah—he-he-he!"

"Wheah?"

"So anyway, so uh."

Others:

"It's hard not to recognize a pigeon."

"But Mother's birthday is 20th July."

"So he knew that the inevitable might happen——"

"It made my scalp creak and my blood curl."

"Where do you get those crazy ideas?"

And others:

"Acquit Socrates."

"Back when she was sane she was married to a window washer."

"I don't know what you've got under your skirt, but it's wearing white socks."

"And then she made a noise like a spindizzy going sour."

And others:

"Pepe Satan, pepe Satan aleppe."

"Why, so might any man."

"EVACUATE MARS!"

"And then she sez to me, she sez——"

". . . if he would abandon his mind to it."

"With all of love."

And . . . but at that point the plug began to unscrew, and from the spargers above him which formerly had kept the dampness running, a heavy gas began to curl. They had tired of waiting for him to weary of himself, and the second phase of his questioning was about to begin.

IX

They questioned him, dressed in a hospital gown so worn that it was more starch than fabric, in the Traitor-in-Chief's private office to begin with—a deceptively bluff, hearty, leather-and-piperacks sort of room, which might have been reassuring to a novice. There were only two of them: Valkol in his usual abah, and the "slave," now dressed as a Charioteer of the high blood. It was a curious choice of costume, since Charioteers were supposed to be free, leaving it uncertain which was truly master and which slave; Simon did not think it could have been Valkol's idea. The vombis, he also noticed, still had not bothered to change its face from the one it had been wearing aboard the *Karas*, implying an utter confidence which Simon could only hope would prove to be unjustified.

Noting the direction of his glance, Valkol said, "I asked this gentleman to join me to assure you, should you be in any doubt, that this interview is serious. I presume you know who he is."

"I don't know who 'he' is," Simon said, with the faintest of emphasis. "But it must be representing the Green Exarch, since it's a vombis."

The Traitor-in-Chief's lips whitened slightly. Aha, then he hadn't known that! "Prove it," he said.

"My dear Valkol," the creature interposed. "Pray don't let him distract us over trifles. Such a thing could not be proved without the most elaborate of laboratory tests, as we all know. And the accusation shows what we wish to know, i.e., that he is aware of who I am—

otherwise, why try to make such an inflammatory charge?"

"Your master's voice," Simon said. "Let us by all means proceed—this gown is chilly."

"This gentleman," Valkol said, exactly as if he had not heard any of the four preceding speeches, "is Chag Sharanee of the Exarchy. Not from the Embassy, but directly from the Court—he is His Majesty's Deputy Fomentor."

"Appropriate," Simon murmured.

"We know you now style yourself 'Simon de Kuyl,' but what is more to the point, that you claim yourself the Traitor-in-Chief of High Earth. Documents now in my possession persuade me that if you are not in fact that officer, you are so close to being he as makes no difference. Possibly the man you replaced, the amateur with the absurd belt of poison shells, was actually he. In any event, you are the man we want."

"Flattering of you."

"Not at all," said Valkol the Polite. "We simply want the remainder of those documents, for which we paid. Where are they?"

"I sold them to the Rood-Prince."

"He had them not, nor could he be persuaded to remember any such transaction."

"Of course not," Simon said with a smile. "I sold them for twenty riyals; do you think the Rood-Prince would recall any such piddling exchange? I appeared as a book-seller, and sold them to his librarian. I suppose you burned the library—barbarians always do."

Valkol looked at the vombis. "The price agrees with the, uh, testimony of Da-Ud tam Altair. Do you think——?"

"It is possible. But we should take no chances; e.g., such a search would be time consuming."

The glitter in Valkol's eyes grew brighter and colder. "True. Perhaps the quickest course would be to give him over to the Sodality."

Simon snorted. The Sodality was a lay organization to which Guilds classically entrusted certain functions the Guild lacked time and manpower to undertake, chiefly crude physical torture.

"If I'm really who you think I am," he said, "such a course would win you nothing but an unattractive cadaver—not even suitable for masonry repair."

"True," Valkol said reluctantly. "I don't suppose you could be induced—politely—to deal fairly with us at this late date? After all, we did pay for the documents in question, and not any mere twenty riyals."

"I haven't the money yet."

"Naturally not, since the unfortunate Da-Ud was held here with it until we decided he no longer had any use for it. However, if upon the proper oaths—"

"High Earth is the oldest oath-breaker of them all," the Fomentor said. "We—viz., the Exarchy—have no more time for such trials. The question must be put."

"So it would seem. Though I hate to handle a colleague thus—"

"You fear High Earth," the vombis said. "My dear Valkol, may I remind you—"

"Yes, yes, the Exarch's guarantee—I know all that," Valkol snapped, to Simon's surprise. "Nevertheless—Mr. de Kuyl, are you *sure* we have no recourse but to send you to the Babble Room?"

"Why not?" Simon said. "I rather enjoy hearing myself think. In fact, that's what I was doing when your guards interrupted me."

X

Simon was, naturally, far from feeling all the bravado he had voiced, but he had no choice left but to trust to the transduction serum, which now had his mind on the shuddering, giddy verge of depriving all three of them of what they each most wanted. Only Simon, of course, could know this; and only he could also know something much worse—that in so far as his increasingly distorted time sense could calculate, the antidote was due to be released into his blood-stream at best in another six hours, at worst within only a few minutes. After that, the Exarchy's creature would be the only victor—and the only survivor.

And when he saw the Guild's toposcope laboratory, he wondered if even the serum would be enough to pro-

tect him. There was nothing in the least outmoded about it; Simon had never encountered its like even on High Earth. Exarchy equipment, all too probably.

Nor did the apparatus disappoint him. It drove directly down into his subconscious with the resistless unconcern of a spike penetrating a toy balloon. Immediately, a set of loudspeakers above his supine body burst into multi-voiced life:

"Is this some trick? No one but Berentz had a translation permit——"

"Now the overdrive my-other must woo and win me——"

"Wie schaffen Sie es, solche Entfernungen bei Unterlichtgeschwindigkeit zurueckzulegen?"

"REMEMBER THOR FIVE!"

"Pok. Pok. Pok."

"We're so tired of wading in blood, so tired of drinking blood, so tired of dreaming about blood——"

The last voice rose to a scream, and all the loudspeakers cut off abruptly. Valkol's face, baffled but not yet worried, hovered over Simon's, peering into his eyes.

"We're not going to get anything out of that," he told some invisible technician. "You must have gone too deep; those are the archetypes you're getting, obviously."

"Nonsense." The voice was the Fomentor's. "The archetypes sound nothing like that—for which you should be grateful. In any event, we have barely gone beneath the surface of the cortex; see for yourself."

Valkol's face withdrew. "Hmm. Well, *something's* wrong. Maybe your probe is too broad. Try it again."

The spike drove home, and the loudspeakers resumed their mixed chorus.

"Nausentampen. Eddettompic. Berobsilom. Aimkaksetchoc. Sanbetogmow——"

"Dites-lui que nous lui ordonnons de revenir, en vertu de la Loi du Grand Tout."

"Perhaps he should swear by another country."

"Can't Mommy ladder spaceship think for bye-bye-see-you two windy Daddy bottle seconds straight——"

"Nansima macamba yonso cakosilisa."

"Stars don't have points. They're round, like balls."

The sound clicked off again. Valkol said fretfully: "He can't be resisting. You've got to be doing something wrong, that's all."

Though the operative part of his statement was untrue, it was apparently also inarguable to the Fomentor. There was quite a long silence, broken only occasionally by small hums and clinks.

While he waited, Simon suddenly felt the beginnings of a slow sense of relief in his left earlobe, as though a tiny but unnatural pressure he had long learned to live with had decided to give way—precisely, in fact, like the opening of a cyst.

That was the end. Now he had but fifteen minutes more in which the toposcope would continue to vomit forth its confusion—its steadily diminishing confusion—and only an hour before even his physical appearance would reorganize, though that would no longer matter in the least.

It was time to exercise the last option—now, before the probe could bypass his cortex and again prevent him from speaking his own, fully conscious mind. He said:

"Never mind, Valkol. I'll give you what you want."

"What? By Gro, I'm not going to give you——"

"You don't have to give me anything; I'm not selling anything. You see for yourself that you can't get to the material with that machine. Nor with any other like it, I may add. But I exercise my option to turn my coat, under Guild laws; that gives me safe conduct, and that's sufficient."

"No," the Fomentor's voice said. "It is incredible—he is in no pain and has frustrated the machine; why should he yield? Besides, the secret of his resistance——"

"Hush," Valkol said. "I am moved to ask if you *are* a vombis; doubtless, the machine would tell us that much. Mr. de Kuyl, I respect the option, but I am not convinced yet. The motive, please?"

"High Earth is not enough," Simon said. "Remember Ezra-Tse? 'The last temptation is the final treason . . . to do the right thing for the wrong reason.' I would rather deal fairly with you, and then begin the long task

of becoming honest with myself. But with you only, Valkol—not the Exarchy. I sold the Green Exarch nothing.”

“I see. A most interesting arrangement, I agree. What will you require?”

“Perhaps three hours to get myself unscrambled from the effects of fighting your examination. Then I’ll dictate the missing material. At the moment it’s quite inaccessible.”

“I believe that, too,” Valkol said ruefully. “Very well——”

“It is not very well,” the vombis said, almost squalling. “The arrangement is a complete violation of——”

Valkol turned and looked at the creature so hard that it stopped talking of its own accord. Suddenly Simon was sure Valkol no longer needed tests to make up his mind what the Fomentor was.

“I would not expect you to understand it,” Valkol said in a very soft voice indeed. “It is a matter of style.”

XI

Simon was moved to a comfortable apartment and left alone, for well more than the three hours he had asked for. By that time, his bodily reorganization was complete, though it would take at least a day more for all the residual mental effects of the serum to vanish. When the Traitor-in-Chief finally admitted himself to the apartment, he made no attempt to disguise either his amazement or his admiration.

“The poison man! High Earth is still a world of miracles. Would it be fair to ask what you did with your, uh, overpopulated associate?”

“I disposed of him,” Simon said. “We have traitors enough already. There is your document; I wrote it out by hand, but you can have toposcope confirmation whenever you like now.”

“As soon as my technicians master the new equipment—we shot the monster, of course, though I don’t doubt the Exarch will resent it.”

“When you see the rest of the material, you may not care what the Exarch thinks,” Simon said. “You will

find that I've brought you a high alliance—though it was Gro's own horns getting it to you."

"I had begun to suspect as much. Mr. de Kuyl—I must assume you are still he, for sanity's sake—that act of surrender was the most elegant gesture I have ever seen. That alone convinced me that you were indeed the Traitor-in-Chief of High Earth, and no other."

"Why, so I was," Simon said. "But if you will excuse me now, I think I am about to become somebody else."

With a mixture of politeness and alarm, Valkol left him. It was none too soon. He had a bad taste in his mouth which had nothing to do with his ordeals . . . and, though nobody knew better than he how empty all vengeance is, an inexpungeable memory of Jillith.

Maybe, he thought, "Justice is Love," after all—not a matter of style but of spirit. He had expected all these questions to vanish when the antidote took full hold, wiped into the past with the personalities who had done what they had done, but they would not vanish; they were himself.

He had won, but obviously he would never be of use to High Earth again.

In a way, this suited him. A man did not need the transduction serum to be divided against himself; he still had many guilts to accept, and not much left of a lifetime to do it in.

While he was waiting, perhaps he could learn to play the sarch.

In Foundation 9, in expressing our deep regret over the death of James Blish, we hoped that it would be possible in a future issue to print a proper assessment of his work, as well as the critical article which he was working on for us at the time of his death. Now, two years later, the majority of the Feature Section is given over to such an assessment, by Brian Aldiss and Brian Stableford.

But Jim Blish himself, in his William Atheling Jr. persona, will have the first word. Long ago, in Foundation 4, Peter Nicholls expressed a wish that William Atheling Jr. would produce some overview of the whole sf landscape. Rising to the bait at the time when

we were first mooted Foundation Forum, Jim sent in a contribution taking a Spenglerian overview that is about as 'distanced' as can be imagined, aiming to set a (perfectly serious) cat loose among the sf pigeons. Illness prevented the expansion of some of the historical references, and a long editorial note has been inserted after due consultation of Spengler and some hefty encyclopaedias.

Probapossible Prolegomena to Ideareal History

William Atheling, Jr.

In this essay (which means "trial") I propose to do five things: (1) Define science fiction; (2) Show why it arose when it did; (3) Explain why it is becoming steadily more popular; (4) Demonstrate that just as it has thus far produced no towering literary masterworks, so no such work can be expected of it in the future; and (5) Place it as a familiar phenomenon in world history.

Nothing so much gratifies the critical temper as criticizing other critics, regardless of the subject-matter they are all ostensibly examining.¹ To put my readers at their ease, then, I shall begin in this enjoyable mode.

• ARCHAIC ZELOTYPYIA AND THE ODIUM TELEOLOGICUM

As others have noted, both historians and creators of science fiction are often unusually eager to claim for it respectable ancestors, working backward through Voltaire, Swift and Cyrano de Bergerac to Lucian of Samosata. Most recently, Peter Nicholls has carried this process probably as far as it can be made to go, by including in science fiction's family tree the epic of Gilgamesh which seems to have been composed a considerable time

before the Sumerians discovered that they could produce serviceable laundry lists by biting spoiled bricks. It should be noted, however, that Mr. Nicholls' ongoing critical history is a sophisticated one, so that his examples are not primarily ancestor worship or fake genealogy; among other things, he is instead out to show certain traits and states of mind findable throughout literary history which, put together like puzzle pieces, unite to form works we call science fiction. (If there is any real objection to his approach, it is that we most successfully define things by their centers, not their edges, in Dr. Jack Cohen's telling formulation.) The formidable Professor Darko Suvin, the only formalist critic of science fiction known to me, is not an ancestor hunter either; but his definition of science fiction as "the literature of cognitive estrangement" eliminates family trees by permitting the inclusion of more ancestors than all the others put together (including some not intended as fiction at all), like an international convention of everybody named Smith—Smythes, Psmiths, Blacksmiths and Blacks also welcome.

The critics in apparent opposition are equally numerous and cover as wide a spectrum. Among these we may safely pass by the group exemplified by Judith Merril, to whose members science fiction is simply the Now Thing and Where It's At. The central, general tenet of this school is that science fiction was impossible before, and coincided with, the advent and rise of science and technology. The position is attractive and has the merit of relatively hard edges; at the very least, it does not throw into despair the prospective student who cannot read medieval Latin or Linear B. Like its converse, it has its megalomaniac extremes: for instance, I subscribe to it; and the late John W. Campbell maintained that science fiction *is* the mainstream, of which all other kinds of fiction are only backwaters. A more reasonable representative is Heinlein's claim that science fiction is more difficult to write than contemporary or historical fiction, and superior to them both. I disagree with every word of this, but I can see no possible argument with his immediately preceding point that no fiction, written in a technology-dominated era, which

ignores technology can claim to be realistic. Kingsley Amis, throwing out of court any form of cultural aggrandizement, and admitting—as so few critics do—that a major function of science fiction is entertainment, sees it as an exclusively twentieth century form of social satire (though with the unavoidable and richly earned inclusion of H. G. Wells). This is perhaps *too* narrow, leaving out other *kinds* of science fiction, e.g. as thought-experiment, as early warning system, as generator of paradigms, and so on. Brian Aldiss' history casts its net far wider, but also holds that science fiction cannot sensibly be said to have existed before science; his earliest allowed starter is Mary Shelley, a consistent choice and admirably founded and defended.²

But these two schools, despite their apparently fundamental opposition, are simply two sides of the same balloon; take the best of the first school (Nicholls), turn him inside out, and you have the best of the second (Aldiss); topologically they remain identical. (In some of the lesser possible pairs you will have to let quite a bit of gas out first.) There is an important sense in which Gilgamesh, Grendel and co. indeed do belong in any history or theory of science fiction—though it is not a sense either advocated or rejected yet by either side. If I can establish this detail, the five theses in my opening paragraph will follow almost automatically.

PANOPTICAL PURVIEW OF POLITICAL PROGRESS AND THE FUTURE PRESENTATION OF THE PAST

Somewhere around ninety per cent of the central thesis of this essay—which I haven't stated yet—is not mine at all; I stole it from Oswald Spengler. This is something more than the usual acknowledgment of a debt, for the fact itself is a supporting datum for the thesis.

However, it also requires some definitions, since for the sake of brevity I shall use a few Spenglerian terms. Because these words are also in common use, considerable confusion would result without prior notice of the special senses Spengler attaches to them; hence I place a glossary here instead of in the usual place.

Culture: This world has no anthropological meaning in Spengler's hands (as, for instance, we might refer to the Navajo culture, the culture of the Trobriand Islands, etc.). Spengler's cultures span many centuries and many countries; for example, his Classical culture extends from pre-Homeric times to the fall of Rome. In this view, only Chinese, Indian and Egyptian histories lasted long enough to develop into independent cultures with definite geographical boundaries.

Civilization: There are essentially only two kinds of historical philosophy, the linear (or progressive) and the cyclical.³ Marxism and Christianity are familiar linear theories; both believe that events are marching (or zigzagging) toward some goal. The cyclical theorist believes that history repeats itself. (Toynbee tried to believe both at once, resulting in eight volumes of minutely documented bewilderment.) Spengler's theory is cyclical, on an enormous scale. For him, civilization is but one of the phases every culture must go through unless disrupted by outside forces—and not one of its best phases, either. Since we are now living in the garbage dump of just this phase of his Western culture, I shall have more to say about this later.

Contemporary: In the ordinary sense, I am contemporary with everyone who lived through a majority of the same years I did. Spengler means nothing so trivial. In his sense, one man is contemporary with another if each plays a similar role in the corresponding phases of their cultures. For example, Sargon (Babylonian), Justinian I (Classical) and Charles V (Western) are eternal contemporaries—"late springtime" figures whose careers are similar because they had to be; the choice for each was either to play this role at this time, or be nobody. Hence the fact that I am alive during most of the same decades as Richard M. Nixon is meaningless; his true contemporaries are Lui-ti⁴ and Caligula. My own, necessarily, are some Hellene one of whose lost 140 plays placed last in the Games in a bad year, and a sub-priest trying to make sense of the chaos Amenhotep IV's experiment in monotheism made of Egyptian religion.

I have drawn these examples of contemporaneity to illustrate as well another striking principle of Spen-

glerian history, which is that it is cyclical only at the intercultural level; history does *not* repeat itself on any smaller stage, let alone moment by moment in fine detail as in Nietzsche's "eternal recurrence."⁵ Hence it would be futile to seek parallels between, say King Arthur and Napoleon, though some can be forced; both were Westerners in sharply different phases of that culture.

It follows from this that Spenglerian history, since it is not rigidly deterministic, allows for considerable exercise of individual free will, within the role as appropriate to the cultural phase or season. In 1975 we live late in that era of civilization he calls Caesarism. In such a period he would not counsel a poet to try to become an army officer or courtier instead; but he might well say, "Now it is too late to attempt writing a secondary epic; in Milton the West has already had its Vergil." The incompleteness and overall structural failure of Pound's *Los Cantares* would have been predictable to him from the outset.⁶ On a broader scale, most of Spengler's predictions for the twentieth century after 1921 have come to pass, and in the order in which he predicted them, a good test of any theory. He did fail to foresee that they would happen so fast; but he set the date for the utter collapse of the West at around 2200, which is just about as much time left as the Club of Rome gives us, and for the same reason—insanely runaway technology.

GNOSIS OF PRECREATE DETERMINATION

It now remains to place science fiction within this scheme. This requires a further short discussion of the nature of our own times in general.

Spengler's view of history is organic rather than casual, and so is his imagery; as previously implied, he compares the four major periods of each culture with the four seasons. The onset of civilization is the beginning of autumn. At this point, the culture has lost its growth-drive, and its lifestyle is codified—most particularly in architecture, with the building of great cities or cosmopoloi which both express the culture's highest spirit and drain it away from the countryside. Here, too,

law is codified and history is written (*all* history is urban history); and the arts enter upon a period of attempted conformity to older, "standard" models, like the eighteenth century in Europe, when it became increasingly difficult to tell one composer or playwright from another.⁷ In the West, civilization began to set in about the time of Napoleon.

Civilization may last for centuries and be extremely eventful; Imperial Rome is a prime example. At first, too, great creative works remain possible; I have mentioned Vergil, and in the West we have had Milton, Goethe, Joyce, Mozart. Beethoven, Wagner, Einstein. (Spengler would unabashedly add himself to such a list, I think justifiably.) But autumn ends, and a civilization becomes a culture gone frozen in its brains and heart, and its finale is anything but grand. We are now far into what the Chinese called the period of contending states, and the collapse of Caesarism.

In such a period, politics becomes an arena of competing generals and plutocrats, under a dummy ruler chosen for low intelligence and complete moral plasticity, who amuses himself and keeps the masses distracted from their troubles with bread, circuses and brushfire wars. (This is the time of all times when a culture should unite—and the time when such a thing has become impossible.) Technology flourishes (the late Romans were first-class engineers) but science disintegrates into a welter of competing, grandiosely trivial hypotheses which supersede each other almost weekly and veer more and more markedly toward the occult. Among the masses there arises a "second religiousness" in which nobody actually believes;⁸ an attempt is made to buttress this by syncretism, the wrenching out of context of religious *forms* from other cultures, such as the Indian, without the faintest hope of knowing what they mean. This process, too, leads inevitably toward a revival of the occult, and here science and religion overlap, to the benefit of neither. Economic inequity, instability and wretchedness become endemic on a hitherto unprecedented scale; the highest buildings ever erected by the Classical culture were the tenements of the Imperial Roman slums, crammed to bursting point with freed

and runaway slaves, bankrupts, and deposed petty kings and other political refugees. The group name we give all this, being linearists by nature,⁹ is Progress.

Given all this, it is easy to deduce the state of the arts: a period of confused individual experimentation, in which traditions and even schools have ceased to exist, having been replaced by ephemeral fads. Hence the sole aim of all this experimentation is originality—a complete chimera, since the climate for the Great Idea is (in the West) fifty years dead; nor will nostalgia, simply an accompanying symptom, bring it back. This is not just winter now; it is the Fimbulwinter, the deep freeze which is the death of a culture.

We can now define science fiction; and against this background, see why it arose when it did, why it is becoming more popular, and why we can expect no masterpieces from it, *quod erat demonstrandum est*, in the simple act of definition.

AGNOSIS OF POSTCREATE DETERMINISM

Science fiction is the internal (intracultural) literary form taken by syncretism in the West. It adopts as its subject matter that occult area where a science in decay (elaborately decorated with technology) overlaps the second religiousness—hence, incidentally, its automatic receptivity from its emergence to such notions as time travel, ESP, dianetics, Dean Drives, faster-than-light travel, reincarnation and parallel universes. (I know of no other definition which accounts for our insistence that stories about such non-ideas be filed under the label.) It is fully contemporary with Meng-tse (372-289 B. C.), the Indian Nagarjun (A.D. 150), the Egyptian New Empire after Amenhotep IV, Byzantium in the time of Psellus (A.D. 1017-78), and the Magian Abbassid period¹⁰—we have lots of company, if it's ancestors we're looking for.

It is not a Utopian prospect—Utopia being, anyhow, only a pure example of linearism in a cyclical world—but neither need it be an occasion for despair, I repeat, we have free will within our role and era, as long as we know what it is and *when* we are. Even without any

background, or belief, in Spengler, many of us have already sensed this. When a candidate for the presidency of the Science Fiction Writers of America made "fighting drug abuse" part of his platform, most of us felt almost instinctively that he was making a fool of himself; and Harlan Ellison's call to turn science fiction into a "literature of the streets" met with dead silence. Nor has there been noticeable response to the challenges of Philip José Farmer, Michel Butor, George Hay of British Mensa to turn science fiction into fact (and the Stalinist-oriented Futurians who published exactly this challenge thirty-five years ago gathered no following, either). It was this situation which led me to say six years ago that if an artist insists on carrying placards, they should all be blank.

The last words must be Spengler's:

"... our direction, willed and obligatory at once, is set for us within narrow limits, and on any other terms life is not worth the living. We have not the freedom to reach to this or to that, but the freedom to do the necessary or to do nothing. And a task that historic necessity has set *will* be accomplished with the individual or against him.

"*Ducant Fata volentem, nolentem trahunt.*" (The Fates lead the willing, they drag the unwilling.)

NOTES

1. V. Nabokov vs. Wilson, superficially about Pushkin's *Eugene Onegin*.
2. In this summary I have made everybody sound as solemn as owls, but many of these critics are witty writers; see particularly Aldiss, Amis, de Camp and Nicholls.
3. I omit the accidental or meanwhile-back-at-the-coral accounts of most school and popular histories; since they see no pattern to events, they cannot be said to have a philosophy.
4. "Ti" is an honorific meaning, roughly, "the august"; and the first Chinese emperor to so style himself was, by no coincidence, contemporary in the Spenglerian sense with Caesar Augustus.
5. Nevertheless, Nietzsche was one of Spengler's two chief

influences, the other being Goethe. He acknowledges them both at the outset and refers to them frequently thereafter.

6. There is a grimly interesting real example of this in Spengler's own lifetime. Hitler was contemporary with Wu-ti (119-124 A.D.) and Trajan, but utterly failed to sense the spirit of the time — though some of his counsellors did, most notably Hjalmar Schacht. At the beginnings of the Nazi movement, Spengler in his only public lecture told the cream of the Hitlerjugend that they were doing the (historically) right thing at the right time, but that their leader had it all balled up and that it would end in disaster for the entire West. The leader of a national movement, he said with grisly humour, ought to be a hero, not an heroic tenor. In 1933 he expanded the speech into a 160-page book, *The Hour of Decision*. The Nazis banned the book three months after its publication (as well as forbidding all mention of his name in the press — luckily he was too famous to shoot, but by that time it had already sold 150,000 copies.
7. A charming work called the Jena Symphony was long attributed to early Beethoven because one of the orchestra parts had his name on it, though some musicologists suspected Haydn. It turned out to be by somebody no one ever heard of.
8. V. the Eisenhower religiosity: "Everyone should go to the church of his or her own choice, I don't care which it is."
9. The characteristic spirit of the West, which Spengler calls Faustian, is inherently linear.
10. (*Editor's note*) Meng-tse, the only Chinese philosopher besides Confucius to have his name latinized — as Mencius — emphasized the ruler's duty to the people, advocated social welfare, and amplified the Confucian concept of 'magnanimity.' Nagarjuna, philosopher-monk and convert to Mahāyānā (Greater Vehicle) Buddhism, founded the 'Middle Path' school whose clarification of the concept of 'emptiness' (sunyata) is seen as a peak of intellectual and spiritual achievement in Indian thought; and wrote several critical analyses on views of the nature of reality, the means of knowledge and the origin of existence. Amenhotep IV (better known as Akhenaton; his wife was Nefertiti) reigned from 1379-1362 B.C. and besides advocating new intellectual and artistic freedom of expression, was the first monotheist known to history. Abandoning the old gods of Egypt for a single god of love and switching capitals from Thebes to his new city,

Akhetaton, his neglect of practical politics prevented his reforms from surviving. Michael Psellus, philosopher and politician, headed the philosophy faculty at the new imperial university in Byzantium, initiating the renewal of classical scholarship by reversing the Aristotelian predominance in favour of Platonic thought and advocating a fusion of Platonic and Christian doctrine, thereby prefiguring the Italian Renaissance. The Abbassids were the second great dynasty of the Muslim Empire of the Caliphate (750-1258 A.D.), the Magian period being the mystical decadence of this. The *individuals* here aren't themselves villains of the piece; rather, it is the piece in which, and against which, they were historically forced to participate which is properly 'villainous' — as the following (abridged) quotation from Spengler indicates: "Contemporary with the 'positivist' Meng-tse there suddenly began a powerful movement towards alchemy, astrology, and occultism. It has long been a favourite topic of dispute whether this was something new or a recrudescence of old Chinese myth-feeling — but a glance at Hellenism supplies the answer. This syncretism appears 'simultaneously' in the Classical, in Indian and China, and in popular Islam. It starts always on rationalist doctrines — the Stoa, Lao-tse, Buddha — and carries these through with peasant and spring-time and exotic motives of every conceivable sort . . . The salvation-doctrine of Mahayana found its first great herald in the poet-scholar Asvagosha (c. 50 B.C.) and its fulfillment proper in Nagarjuna. But side by side with such teaching, the whole mass of proto-Indian mythology came back into circulation . . . We have the same spectacle in the Egyptian New Empire, where Amen of Thebes formed the centre of a vast syncretism, and again in the Arabian world of the Abbassids, where the folk-religion, with its images of Purgatory, Hell, Last Judgment, the heavenly Kaaba, Logos-Mohammed, fairies, saints and spooks drove pristine Islam entirely into the background. There are still in such times a few high intellects like Nero's tutor Seneca and his antitype Psellus the philosopher, royal tutor and politician of Byzantium's Caesarism-phase . . . like the Pharaoh Amenhotep IV (Akhenaton), whose deeply significant experiment was treated as heresy and brought to naught by the powerful Amen-priesthood . . ." Spengler, *The Decline of the West* (tr. C. F. Atkinson, London, Allen & Unwin, 1971), Vol. 2, pp. 312-313.



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