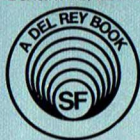


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CLASSIC SCIENCE FICTION
EDITED BY J.J. PIERCE

THE BEST OF RAYMOND Z. GALLUN



IRVIN VAN DONGE

NUMBER 774, OLD FAITHFUL

In forty days he would die.

The laws of Mars were strict and unquestioned, and no one had ever rebelled against them. Number 774 had lived the allotted span fixed by the Rulers, and his contribution to society was not valuable enough for him to be granted an extension. Of what use was his discovery and study of intelligent life on the third planet out from the sun.

Death held no terror for Number 774—but he could not die before he fulfilled his life's work. All he had to do was invent the concept of space flight and construct an interplanetary ship . . . within forty days!

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Raymond Z. Gallun

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A Del Rey Book

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For all old friends . . .
but especially for F. Orlin Tremaine . . .

A Del Rey Book
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Library of Congress Catalog Card Number: 78-62257

ISBN 0-345-25273-X

Manufactured in the United States of America

First Ballantine Books Edition: August 1978

Cover art by H. R. Van Dongen

ACKNOWLEDGMENTS

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Contents

<i>Introduction: Raymond Z. Gallun, the Quiet Revolutionary J. J. Pierce</i>	ix
Old Faithful	1
Derelict	42
Davey Jones' Ambassador	58
Godson of Almarlu	94
A Menace in Miniature	148
Seeds of the Dusk	167
Hotel Cosmos	198
Magician of Dream Valley	215
The Shadow of the Veil	231
The Lotus-Engine	244
Prodigal's Aura	263
The Restless Tide	291
Return of a Legend	309
<i>Afterword Raymond Z. Gallun</i>	326

Raymond Z. Gallun, the Quiet Revolutionary

LOST CLASSICS are rare in science fiction, and neglected authors still rarer. In some fields, it is hard to gain literary recognition; in sf, hard to escape it—for any author whose achievements are truly worthy of recognition.

Raymond Z. Gallun is at least a partial exception. One can't really say he has been forgotten—some of his stories have appeared in recent anthologies, and a few years ago Ballantine published his latest novel, *The Eden Cycle*.

But few today appreciate the importance of his role in the creation of modern science fiction. Few realize he was one of the three men—along with John W. Campbell and Stanley G. Weinbaum—who did most to set in motion the evolution of sf from crude pulp fiction to a form increasingly imaginative and literate.

Campbell, of course, achieved lasting fame for his moody stories of time and space like "Twilight," written under the pseudonym Don A. Stuart—and even greater fame as editor of *Astounding-Analog* for more than thirty years. Weinbaum won instant recognition for "A Martian Odyssey," and his early death after a brilliant fifteen-month career helped make him a legend. Both have been honored in previous "best" collections from Ballantine and in the Science Fiction Hall of Fame series.

Gallun was as much a "revolutionary" as either of them, and just as good a writer. Yet his lesser recognition is indicated by a mere four-inch entry in an authoritative encyclopedia of science fiction, and by scant mention of his stories in an informal history of *Astounding* that waxes nostalgic about the 1930s and 1940s.

Perhaps he had too much exposure in those early days—more than eighty of his stories were published then, far more than by Weinbaum and “Stuart” combined, and readers couldn’t always see him at his best. But those who did never forgot him, and they include such as Isaac Asimov, Lester del Rey, and Frederik Pohl.

Gallun was a quiet revolutionary. He never bothered with self-promotion. He never even tried very hard to make people pronounce his name right (it rhymes with “balloon,” being an old Dutch name, so don’t say “gal-lon”). He let his science fiction speak for itself.

His life has been a footloose one. Born in 1910 in rural Wisconsin, he grew up there and attended the University of Wisconsin—for one year. Then the wanderlust hit him, and he took to traveling around the world, writing his stories in Paris boardinghouses and aboard ship in the Pacific, while earning a living from a variety of odd jobs.

Along the way, he married once and left old flames in one country or another. But it wasn’t all fun and games, by any means: the outbreak of World War II, for example, found him in Paris working for relief of Jewish refugees. And wherever he traveled, he took a serious interest in the natives and their culture, an interest reflected in his cosmopolitan artistic tastes.

Gallun’s career in science fiction began in 1929, but attracted little attention at first. It was with “Old Faithful,” in 1934, that he won recognition. The story was so popular that readers demanded two sequels, and it has been anthologized at least twice in recent years.

“Old Faithful” shares the credit with “A Martian Odyssey” for driving the BEM (“Bug-eyed Monster”) from science fiction in favor of a sympathetic treatment of aliens and a sense of the brotherhood of intelligent life. Yet at the time, Gallun didn’t think of himself as making a revolution.

To him, it was a matter of plausibility. The monsters which had for years attacked innocent Earthmen (and, improbably, even carried off Earthwomen) in the pages of pulp magazines simply didn’t make any *sense*. Nor, however wish-fulfilling, did the Burroughsian vision of

Barsoom, with its half-clad princesses and Ruritanian swordplay.

Gallun was among the first to try to imagine what sort of intelligent life and civilization might *really* be supported by Mars, given the conditions believed to exist there at the time he wrote.

Although he enjoyed Weinbaum's stories, Gallun considered his approach to the portrayal of alien life and ecology quite different. He faulted "The Lotus Eaters," for example, arguing that Weinbaum didn't give any reason for intelligence to evolve in his passive vegetable being. Later, in "Seeds of the Dusk" (1938), a story honored in *Adventures in Time and Space*, the first major sf anthology, Gallun methodically worked out the details of what an intelligent plant might *really* be like and how it might *really* evolve.

"Davey Jones' Ambassador" (1935) was another revolutionary story, compared to previous tales of monsters from the Deep. But once again, Gallun's revolution lay in his method, in the plausibility he strove for: Could an advanced civilization develop *without* fire, and if so, what might it be like?

Yet there was more than method to Gallun's science fiction. Sensitivity and compassion were there too, elements we take for granted today in authors like Ursula LeGuin or James Tiptree, Jr., but rare and precious in a time when most writers stressed action to the near or total exclusion of emotion.

Number 774, the Martian who puts curiosity ahead of survival, is a *person* whom readers can care about as much as or more than the human protagonists of "Old Faithful." And the latter respect and admire him even when they pickle his remains—after all, one remarks, it would be an honor if she died on Mars and were treated the same way.

"Morally trivial," a blanket condemnation recently used against all science fiction of other-than-recent vintage, hardly applies to a story like "Seeds of the Dusk," in which the whole plot hinges on morality. Gallun's degenerate humans of the far future are doomed because they have lost the moral capacity and sense of empathy that alone could have saved them.

Even on social issues, Gallun seems far ahead of his time. In "Magician of Dream Valley" (1938), the extinction of unique life forms on the Moon is the result of "manufacture of radioactive rocket fuel at Imbrium City." Earth won't subject itself to the plant and its noxious wastes for reasons obvious to us today, but less apparent when the story appeared in 1938.

"Derelict" (1935) was one of the very first stories to treat a robot as something other than a clanking monstrosity bent on reenacting the revenge tragedy of *Frankenstein*. But Gallun's robot is something more, even, than the positronic robots of Asimov with their three laws to safeguard humanity: a being itself capable of responsibility and compassion.

On occasion, Gallun could make a moral twist part of the methodical logic he used to develop his stories. The human villain of "Shadow of the Veil" (1939) assumes he can exploit the natives with impunity—after all, he's safe in his orbital station and they're all on the surface. The native, knowing nothing of space and little of his world, seeks revenge anyway. And gets it. Here, at least, Nature is on his side.

Not that Gallun, a convinced agnostic, has ever considered Nature or God to be on the "side" of morality in that sense. His philosophy, developed at an early age, could be called a Darwinian existentialism, although he himself would balk at any such intellectual terminology.

Intelligence, in his view, is an accident: the product of chance conditions and the Darwinian struggle for existence. Intelligent beings, given no "meaning" for existence, must discover one for themselves. But they must discover it in a universe of order, not chaos; a cosmos governed by strict Law, albeit a Law made neither by nor for them. As much as the Law allows, they may create a milieu in which justice and mercy, love and compassion exist. But these are the things of life; always the universe remains indifferent to them, and its harsh Law may intrude upon them at any time. Only intelligence *cares*.

"Godson of Almarlu" (1936), the longest work in this collection, is one of Gallun's dramas of a caring intelligence against an uncaring universe. Human exis-

tence is threatened by what would now be called a neutron star, a body so dense and massive its mere approach can disrupt planets. Once before, it has done so—and those who then inhabited what was the fifth planet of our solar system have been dead for eons. But before they died, they laid plans to assure the survival of a human species yet unborn—for the brotherhood of intelligence had meaning for them even in their dying.

In "Godson of Almarlu," the Law shows no mercy to Earth or its inhabitants: few of humanity's billions can escape the fate of their planet, and life for those who do will be harsh indeed. Yet the story is one of the triumphs of intelligence over the Law, for those few survivors have received a gift only intelligence could give.

Gallun's philosophical imagination was the source of other themes in his stories. "The Lotus Engine" (1940) develops an idea uncommon at the time, and still powerful even today in novels like Herbert W. Franke's *The Orchid Cage*: the *ultimate* promise and threat of technology. If struggle and effort become unnecessary, can humans remain human or will they become virtual vegetables like the Ionians and (almost) the human explorers of the story? Gallun has been wrestling with this problem for more than thirty years now, and *The Eden Cycle* (1974) was his most recent word on the subject.

What is human nature? Does humanity even have a single nature? Do men and women really want challenge and adventure, or comfort and security? Do they long for utopia, or fear it? "The Restless Tide" (1951), one of Gallun's personal favorites, may still hold the best answers to these questions in science fiction: that humanity may *never* be satisfied with the fulfillment of what it imagines to be its dreams. But, given the need of a reason for living, eternal restlessness may not be such a bad thing after all.

Gallun has originated more ideas than he's usually given credit for, even when he's not being philosophical. "Iszt—Earthman" (1938) is a story that is not included here because of its length and because its plot is too similar to that of "Godson of Almarlu." But Gallun's description of how an alien race lives is worth quoting:

"Once this great, red star had mothered ten, huge, natural planets. But the eradication of the death of physical decay, combined with the prolific results of a method of extracorporeal reproduction, had long ago expanded Iszt's race to a point where the planets no longer provided adequate room. And so, during a million years of time, they had been broken up, their elements transmuted when necessary, and used to build the polyhedra."

The orbiting polyhedral homes of Iszt's people form what would today be called a Dyson Ring—after Freeman Dyson, a physicist who thought of the idea. But Dyson thought of it in the 1960s—and writers like Larry Niven, Bob Shaw, and Jack Williamson have elaborated on Dyson without even knowing that science fiction anticipated science!

"Hotel Cosmos" (1938), which deals with the problems of housing a variety of alien species in close quarters, in artificial environments, is remarkable for anticipating the format of James White's popular *Hospital Station* series.

Long before NASA worried about it (long before there was a NASA), Gallun took a good-natured look at the problems that might be created by spacemen bringing un-Earthly organisms back to our planet, in "Prodigal's Aura" (1951). And he was perhaps the first to notice that the problems wouldn't necessarily be that bad—what's "hardy" in one environment won't always be so in another.

Contrariwise, he was among the first to consider that men might or should adapt themselves to other worlds instead of their insisting on artificial aids, or adapting worlds to themselves. "Return of a Legend" (1952) is about the first humans to become *real* Martians. We may yet see such adaptation as part of the future of humanity, even if not on Mars.

Stories of worlds in miniature were common in early science fiction, but Gallun's "A Menace in Miniature" (1937) was the first story to work out the problems of miniaturization convincingly. And using tiny robots to build still tinier robots—didn't Robert A. Heinlein pick up that idea in "Waldo"?

Gallun's influence on science fiction has been enormous, if not obvious. It has gone beyond mere technical ideas—the benevolent intervention of aliens into human affairs of “Godson of Almarlu” and “Iszt—Earthman,” for example, anticipates Arthur C. Clarke's treatment of the theme in *2001*.

The impact of “Old Faithful,” already mentioned, went beyond revolutionizing science fiction's attitude toward aliens. Gallun's methodical development of alien life forms and alien worlds paved the way for classics like Hal Clement's *Mission of Gravity*. For many years now, it has not been enough just to introduce bizarre beings—they must be *logically* bizarre.

Though not as “Darwinian existentialism,” or by any other name, Gallun's philosophy has influenced a number of other writers directly or indirectly. The confrontation between human emotion and the cold Law of the universe recurs in such well-known classics as Tom Godwin's “The Cold Equations,” Lester del Rey's *The Eleventh Commandment*, and Algis Budrys's “Between the Dark and the Daylight” and *Rogue Moon*.

Not that readers should dwell overmuch on Lofty Thoughts and Significant Ideas—Gallun himself certainly doesn't. They should be more thankful that Gallun's stories can still create a kind of magic—there is, for example, the strange visitor in the opening of “Godson of Almarlu”:

“Its metal antennae groped over the slumbering child's forehead. The gentleness of its caress contrasted strikingly with its baroque form, glowing faintly phosphorescent in the gloom. Minute sparks like electrical discharges flickered about the ends of those fine, burnished filaments.”

Or the definition of humanity in “The Restless Tide”: “. . . crude but magnificent, and caught between rot and fire.”

Or the intelligent crow's reaction at the end of “Seeds of the Dusk”:

“Kaw screamed out his contentment in loud, lazy cries, as he circled in the clear air. He seldom thought of the past anymore. If the new masters were not truly

benignant, they were indifferent. They left him alone. Kaw, creature of Earth's dusk, was happy."

Or the unsettling message sent by the undersea Student to his human captive in "Davey Jones' Ambassador":

"I am far away, man, but I am coming. I wish to write with you. Do not die yet. Wait until I arrive."

Gallun has always been a man who takes thought with what he writes. But he also takes *care*.

John J. Pierce
Berkeley Heights, N.J.
July 25, 1977

Old Faithful

IF NUMBER 774 had been a human being, he might have cursed bitterly or he might have wept. Certainly he had reason to do so. But Number 774 was not a human being. His fragile form bore not the slightest resemblance to that of a man; he knew nothing of smiles or frowns or tears, and whatever emotions passed within his cool, keen mind were hidden even to members of his own race.

The two messengers who had come to his workshop that afternoon had not seen into his heart, and he received their message with the absolute outward calm that was characteristic of his kind—at the end of forty days Number 774 must die. He had lived the allotted span fixed by the Rulers.

With food and water as scarce as they were, no one had the right to live longer unless he had proved through the usefulness of his achievements that it was for the good of all that he be granted an extension. Otherwise the young and strong must always replace the old and weak.

In the opinion of the Rulers the work of Number 774 was not useful; it was without value and was even wasteful. An extension of life span could not be considered; Number 774 must die.

Having imparted this information the messengers had crept into the streamlined hull of their ornithopter. Silvery wings had flapped, and the weird craft had lifted lightly, circled the great isolated workshop once in parting salute, and then had sped off into the west toward a distant city.

In obedience to some impulse Number 774 had ascended to a high-placed window in the towering wall of

his domicile, to watch the ornithopter go. But long after the glinting metallic speck of its form had vanished into the sunset, Number 774 continued to stare out toward the west. Pools of purple shade swelled and broadened in the hollows between the dunes of the Martian desert that stretched in undulating flatness to the far horizon.

The sun sank out of sight, leaving only a faint reddish glow that quickly faded out at the rim of the world. The Martian sky, deep purple and shot with stars even during the day, became almost black, and the stars, veiled by an atmosphere only one-sixth as dense as that of Earth, gleamed with a steady and eerie brilliance that is never seen by terrestrial observers.

It was a strange, beautiful sight, and perhaps in other circumstances something fine and paradoxically human in Number 774's being might have appreciated its wild and lonely grandeur. But natural splendors could scarcely have interested him now, for his mind was too full of other things.

In the sky was a tiny gray-green streak which he knew marked the position of an approaching comet. For a long moment he stared at it; and then his gaze wandered up among the welter of stars and sought out a greenish-silver speck far brighter than any of its fellows.

For many minutes his attention clung unwavering to that brilliant point of light. He knew more about that planet than any other inhabitant of Mars. He had never heard its name, nor in fact did he have a vocal name of his own for it. To him it was just the world which held the third orbital position in order from the sun. And yet, for him, there was concentrated in it all the hopes and all the fascination of a lifetime of painstaking work and effort.

Gradually, by patient, methodical observation, he had wrested a few of its secrets from it. He had learned the composition of its atmosphere; he could describe its climates accurately; he even knew something about its soil. But beyond such superficial information, for a long time it seemed that he could never go.

And then one night when, with stoical resignation, he had all but laid aside his fondest dream, a sign had come. The third planet, Earth, was inhabited by think-

ing beings. It was not a spectacular sign; neither was his conclusion guesswork. Number 774's telescope had revealed, on the darkened side of Earth, between the limbs of its crescent, a barely discernible flicker of light flashes, evenly spaced, and repeated at perfectly regular intervals. Only a high order of intelligence could have produced such signals.

Dominated by a new zeal, Number 774 had constructed a gigantic apparatus and had duplicated the Earthian signals flash for flash. Immediately he had been answered. Then he had tried a new arrangement of flashes, and the unknown beings on Planet Three had seen, for they had repeated his signals perfectly.

For five Martian years, the equivalent of nearly ten passages of the Earth around the sun, he and the unimaginable entities on that other world, hardly ever less than thirty-five million miles away, had labored on the colossal problem of intelligent communication.

The results of their efforts had been small and discouraging; yet in ten or twenty years even that gigantic enigma might have yielded to persistence, ingenuity, and the indomitable will to do. But now no such thing could be. In forty days Number 774 would no longer exist. Nor would there be another to carry on his work.

Study of the third world could not produce more food or make water more plentiful. The Rulers would dismantle all the marvelous equipment that he had assembled to aid him in his quest for useless and impractical knowledge. The veil of mystery would remain drawn over Planet Three for many thousands of years, perhaps forever.

But it was the Rulers' privilege to command and to expect unquestioning obedience. Never once in a millennium had their authority been disputed; for the very existence of the dominant race of Mars, a world aged almost to the limit of its ability to support life, depended on absolute spartan loyalty and discipline. Revolt now was unheard of; it could not be.

Did Number 774 feel resentment over his fate? Or did he accept his sentence with the stoicism of a true child of Mars? There was no way of telling. His position was almost unduplicated in the annals of the Red

Planet, and, in consequence, his reactions may have been out of the ordinary. Almost never before had a creature of his kind wandered so far along the road of impractical knowledge, or had received the notice of the termination of life span so inopportunately.

And so Number 774 continued to gaze up at the green star that had been included in every dream and effort of his existence. Thoughts and feelings must have tumbled in riotous confusion inside his brain.

After a while Phobos, the nearer moon, mounted up over the western* horizon and began its rapid march among the stars. Its pallid radiance converted everything into a half-seen fairyland of tarnished silver and ebony, the dunes of the lonely desert extending mile on mile in every direction, the low, fortlike walls of Number 774's workshop, the great shining dome of metal that capped it. Nothing was clearly discernible, nothing seemed real.

The coming of Phobos aroused Number 774 from his lethargy. It may be that he realized that time was fleeting, and that an hour could ill be spared from the forty days of life that still remained to him. At a deft touch the crystal pane that glazed the window before him slipped aside, and a faint night breeze, arid and chilled far below zero, blew in upon him.

Edging his strange form forward, he leaned far out of the window and seemed intent upon creeping headlong down the rough stone wall. Long slender portions of his anatomy clutched the sill, and he hung inverted like a roosting bat of Earth. But otherwise there was not the remotest resemblance between Number 774 and a winged terrestrial mammal.

If, by means of some miraculous transition, an Earthman had suddenly found himself standing there on the desert and looking up at the wall of the workshop close

* Mars rotates on its axis in 24 hours, 37 minutes, 22.67 seconds. Phobos, the nearer Moon, which is only 3,700 miles distant from Mars, completes its orbit in only 7 hours, 39 minutes, thus circling its primary more than three times in every Martian day. Since Phobos follows its path in the same direction that the planet rotates, it is evident that to an observer on Mars, it would appear to rise in the west and set in the east.

above, he might not even have recognized Number 774 as a living creature in the shifting, uncertain moonlight. Amid the fantastic jumble of light and shade he would have seen only a blob of rusty brown color that might have been just the distorted shadow of one of the stone projections that jutted from the wall.

If he had looked closer he might have believed that the thing he saw was a small bundle of ancient and rotten rags dangling from the window ledge, with long, loose tatters stirring idly in the faint breeze. Still, the glint of bright metal from Number 774's equipment would have puzzled him, and perhaps his flesh would have tingled slightly at the suggestively gruesome aspect of this unknown and poorly illuminated object.

From his dangling position Number 774 sucked a great breath of cold air into his complex breathing organs. The frigid tang of the night refreshed him and seemed to endow him with new life. One last glance he cast toward the glory of the Martian heavens. At sight of Earth and the threadlike speck of the comet, his great eyes, dark and limpid and more nearly human than anything else about him, flashed briefly with a vague, slumberous suggestion of something pent up behind a barrier that was none too strong to hold it back. Then Number 774 drew himself up into the window.

Three jointed rods of metal unfolded themselves from the complicated arrangement of mechanisms that was fastened to his fragile body, and in a moment he was striding along on them like a man, down a green-lighted cylindrical passage that extended off into misty obscurity. A faint and regular clicking came from the device, but Number 774 did not hear it. He knew of sound only as a vibration detectable by his keen sense of touch, and as a phenomenon registered by his scientific instruments, for Number 774 had no organs of hearing.

His steps seemed hurried and feverish. Perhaps some un-Martian plan was already half formulated in his restless and troubled mind.

The tunnel debouched at last into a colossal chamber where gigantic flying buttresses swept up and up through a misty green glow to meet the sides of an enormous rotunda of white metal that roofed the room.

Enigmatic forms of weird apparatus crowded in bewildering complexity against the walls. Tipped at a steep angle at the center of the floor was a vast cylinder of webby girders. Piercing the dome, opposite the upper end of the cylinder, was a circular opening through which a portion of the starlit sky was visible; and at the base of the cylinder a great bowl rotated rapidly, like a huge wheel.

Here was the observatory of Number 774, housing his telescope, and here were the controlling mechanisms of his signaling apparatus. He hurried up a steep ramp, from the upper end of which he could look down into the interior of the great rotating bowl. His eyes glanced critically over the device, searching for any possible slight disorder in its function. But there was none.

To an Earthman acquainted with astronomical equipment, the purpose of the rotating bowl would have been at once apparent, and he would have marveled at the simple cleverness of this piece of Martian ingenuity.

The bowl contained mercury. As the container spun on its perfectly balanced axis, centrifugal force caused the mercury to spread in a thin, precisely distributed layer over the inside of the bowl, forming a concave surface that acted admirably as a mirror for Number 774's gigantic reflecting telescope. Its area, and its consequent light-collecting capacity, was many times greater than any rigid mirror that could have been constructed without flaws.

Satisfied with his inspection, Number 774 hoisted himself nimbly to a small platform, placed high among the spidery girders of the chamber. His movements were quick and catlike, yet coolly efficient, and he seemed bent upon making use of every moment of life that remained to him.

His eyes almost lambent with eagerness, he stared into the large crystal sphere which the platform supported. From a prismatic arrangement fixed to the telescope arrangement above, an invisible beam of light came down, impinging on the sphere and causing the picture which Number 774 was so intent upon to appear.

In the depths of the crystal was an image of the third

world, Earth. Since it was to sunward and nearing inferior conjunction with Mars, most of its surface that was turned to the Red Planet was in shadow and could not be seen. Only a thin curve of light fringed one hemisphere.

Visible in the crescent were mottled areas of gray and green and brown, which Number 774 knew were oceans, continents, deserts, and verdant countryside. The shifting blurs of clouds, the winding rivers, and the snow-capped mountain chains, he could recognize and understand, too; but there was so much that distance and the distorting effects of two atmospheres left hidden and seemingly unattainable—things about which he had longed so passionately to see and to know.

A delicate bundle of pink filaments that terminated one of Number 774's stalklike limbs rested on a tiny lever before him. The threadlike tentacles, marvelously adapted and trained for the finest and most accurate sort of work, moved the lever slightly to the right.

Immediately there was responding movement in the heavy parts of the huge telescope, and the image of Planet Three in the crystal globe began to grow. Mountains loomed larger; seas and continents swelled until the whole of the image of the terrestrial sphere could not occupy the globe, and all that could be seen was a small part of the illuminated crescent.

For a while, as the increase in magnification went on, details on Planet Three were brought more clearly into view, but presently, as the picture grew larger and larger, it began to tremble and to undulate, as if it were seen through a million atmospheric heat waves.

As the power of the telescope was increased still further, the flickering, jumping, shifting luminescence that appeared in the vision globe became totally incoherent and meaningless and bore no slight relationship to an Earthly scene. Number 774's huge optical instrument was failing before one of the same obstacles to magnification that terrestrial observers have noted in their telescopes.

The gaseous envelopes of Earth and Mars, with their countless irregular air currents and varying indices of refraction due to differences in temperature and humid-

ity, were distorting the image-bearing rays of light coming from Earth across fifty million miles of space and rendering magnification beyond a certain point useless. The telescope of Number 774 still had many Martian units of magnification in reserve, but for probing into the mysteries of Planet Three that reserve was of not the least value.

Still, Number 774 often gave his instrument full power in the vain hope, perhaps, that some day, by some trick of fate, the atmospheres of the two worlds would be quiet enough and clear enough to give him a momentary glimpse into the unknown. But the opportunity for such a glimpse had never come.

Cool and collected, Number 774 brought his telescope back to the limit of effective magnification. In response to the manipulation of some instrument, the image of Planet Three shifted so that no portion of the crescent was visible. The crystal globe was dark, but Number 774 knew that the third world was within the field of view.

Unerringly, guided by his instruments, he fixed his telescope on a certain spot on the dark side of Planet Three. He knew that shrouded in the shadows of the night hemisphere of that distant world there was a great continent extending broad and diversified, between two vast oceans. It had lofty ranges of snow-crowned mountains, extensive plains green with an unknown vegetation, great lakes, and winding rivers. In the southwestern portion of that continent was a desert, and near the edge of that desert was the Place of the Light—the light that was the voice of the friend he had never seen, and whose form was unimaginable to him, much though he might imagine and long to know.

The light was not there now; only the vague, white blurs of Earthly cities dotting the darkened continent, adding the mystery of their existence to the enigma of Planet Three. But Number 774 was not troubled by the absence of the light, for he had faith in it. When he had signaled, it had always appeared in answer; it would appear this time, too.

At his touch a vast mechanism in a room far beneath the chamber of the telescope began to function silently

and efficiently, building up power. Feeble and delicate and hideous though Number 774 was by Earthly standards, at a mere gesture he could evoke forces that were worthy of the gods.

Number 774 watched a Martian version of a potentiometer. It was not like a terrestrial potentiometer. It had no graduated scale, no nervous pointer. It was just a globe of something that looked like frosted glass, from which a soft luminescence proceeded.

First, Number 774 saw in its depths a slumberous glow of a beautiful shade, quite unknown and unseeable to human eyes. It was what is called infrared on Earth. The color, being invisible to men, was of course quite indescribable, but to Number 774 it was as common as blue or yellow, for his eyes, like the eyes of some of the lower forms of Earth, were constructed to see it.

In addition, like all Martians, he was able to distinguish the slightest difference between one shade of color and another.

It is upon this fact that Martians depend for the accurate reading of instruments which, among men, would ordinarily have pointers and graduated scales. In any Martian meter, infrared, and of course the various shades of infrared, in their order of appearance in the spectrum, means a low reading. Red, and the shades of red, advancing toward orange, constitute somewhat higher readings. Orange, yellow, green, blue, and violet are progressively higher; while the shade at the extreme outer end of the ultraviolet band, which Martian eyes can also see, represents the highest reading.

In short, light of various wavelengths is used in practically all Martian meters to designate readings. Low readings are represented by long wavelengths near the infrared end of the spectrum; while high readings are designated by short wavelengths near the ultraviolet end of the spectrum.

Number 774 waited until the changing kaleidoscope of ordinary colors had passed and the delicate hue of ultraviolet had reached its maximum in the globe of the potentiometer before he made any further move. Then his tense body swayed forward, closing a complicated switch.

The result was instantaneous. Through the circular opening in the rotunda, at which the muzzle of the telescope was pointed, a dazzling blaze of incandescence was visible in a sudden tremendous flash. The detonation that accompanied it was of a magnitude which one would have scarcely believed the rarefied atmosphere of old Mars capable of transmitting. The whole building, solidly constructed though it was, trembled with the concussion.

For a moment the Martian night, within a radius of twenty miles or more of Number 774's workshop, became brighter than midday, as an enormous store of energy, released from the outer surface of the metal dome which capped the observatory, poured suddenly into the atmosphere, thus forming above the workshop a vast canopy of cold light, far more intense than any aurora borealis of Earth.

But the sudden flare died out as quickly as it had come; the echoes of the crash faded, and the calm of lonely desert and stars reasserted itself. Some eerie monster, which had unwittingly buried itself in the sand too close to the lair of Number 774, scrambled out of its warm sleeping place amid a cloud of dust and on gauzy wings sped hurriedly away from the zone of the thunder that had terrified it. As it flew, its fantastic shadow bobbed crazily over the moonlit sand.

But Number 774 was quite oblivious of any fears his experiments might arouse in the creatures of Mars. As far as his mind was concerned, for the time being things Martian had almost ceased to exist for him. Earth, Planet Three, claimed all his attention, and there was room for nothing else. He had given his sign; now he would wait for the answer that was sure to come.

It would take approximately nine minutes for Earth to get signals back to him. For that was the time which light, traveling at a speed of 186,000 miles per second, required to bridge twice the fifty-million-mile void lying between the two planets.

Number 774's weird, fragile body hunched eagerly forward on the small mat on which he squatted. His great eyes burned with the same fire of fascination which they had held when, a little while ago, he had

gazed up at Earth and the approaching comet from the window in the wall of his workshop. Unwaveringly they were fixed on the spot in the darkened vision globe where the light would appear.

Sometimes that light was too dim for his trained and sensitive eyes to see; but arranged and hooded on a carefully shaded portion of the vision globe was a Martian photoelectric cell which would pick up the faintest of light signals and convert them into electrical impulses which would be amplified and relayed to an instrument close beside Number 774.

This instrument would reproduce the signals just as they came from Earth, but bright enough to be easily watched. Another device would record each flash for later study.

II

The body of Number 774 tensed suddenly. There was the first signal, flickering faint and feeble across the millions of miles of space; yet on the desert of Earth it doubtless represented flashes almost comparable with those which Number 774's powerful sending equipment produced.

Number 774 could barely see them in his vision globe, but the little glass bulb of the reproducing apparatus flickered them out plain and clear—long flashes, short flashes, representing the dots and dashes of the Morse code of Earth.

Flash—flash—flash—flash—

"Hello, Mars! Hello, Mars! Hello, Mars! Earth calling. Earth calling. Earth calling," the message spelled, and Number 774 was grimly in the midst of the colossal task he had set for himself.

Lurking in the back of his mind was the realization that his death was decreed and that soon, unless something unprecedented happened, all this work of his, and of his friend of the light, must end, unfinished, before the intelligences of two worlds could really meet and exchange ideas freely. But it did not divert him or make his attention to the task in hand less keen. In fact it

seemed to sharpen his wits and to add pressure to his determination.

Still, his mind seemed divided into two parts, one of which was cool and logical and scientific, the other in a turmoil, fighting with itself and its loyalty to time-honored traditions.

"Hello, Mars! Hello, Mars! Earth calling. Man of Mars is late—late—late—late— One, two, three, four, five, six, seven, eight, nine, ten. Four and five are nine. Two times three is six. Man of Mars is late—late late—late—"

How much of this queer jangle of light flashes, spelling out Earth words and numbers in the Morse code did Number 774 understand? How much *could* he understand?

Intelligent comprehension of anything new is almost always based on an understanding of similar things previously in the experience of the individual in question. The mind of Number 774 was brilliantly clever and methodical, but what can an Earthman and a Martian have in common? Many points of contact exist, it is true, but for two entities so far removed from one another in physical form, senses, environment, and modes of living, with not the vaguest conception of what the other upon the distant world is like, such similarities of experience are extremely hard to find.

In the first place, the messages that were coming to Number 774 were the code representations of alphabetical letters standing for various sounds which, when taken in groups, made up words of vocal speech.

As previously stated, Number 774 had no idea of sound except as an interesting phenomenon recorded by his scientific instruments, and as a vibration detectable by his touch sense in the same way that human beings can feel sound vibrations in solid objects. He had no ears; neither did he have well-developed vocal organs.

Strange as it may seem to us, prior to his experience with the light, he had not the faintest idea of what a word was, either a vocal word or a written word, or a word represented in the form of a group of signals. Because Martian methods of communicating with one another, and of recording knowledge, are so different

from ours that a word would have been as great a mystery to him as it would have been to a newborn kitten.

Describing sound to him, as we know it through our sense of hearing, would have been as hopeless a task as describing red to a man who has been stone-blind since birth. It simply could not be done. He might know that sound and vocal speech existed, but short of trading actual sensations with an Earthman, he could never fully comprehend. Neither could he have told us in any way how the color of ultraviolet or infrared looked, for such things are totally out of our experience.

In the face of these enormous handicaps, in spite of his intelligence and scientific knowledge, he had been like a little child, humbly and intensely eager to learn, yet bungling and quick to make mistakes which, from an Earthman's point of view, would often have seemed more than childish.

Once he had tried a method of his own of establishing communication. If Earth had been peopled by a race physically and psychologically similar to the Martians, quick success might have been expected; but his efforts had evoked only a, to him, meaningless jumble of flashes from the light. Realizing that his method was not suited to Earthmen, he had given up trying to be teacher and had assumed instead the role of conscientious pupil.

"Hello, Mars!" Those two groups of symbols had always been the beginning of every message flashed by the light, but except for seeing the unmistakable evidence of intelligence in the oft-repeated and unvarying signal, Number 774 had been quite unable at first to grasp in it any thread of meaning.

A greeting phrase was, if possible, even more incomprehensible to him than a word itself. Try as he might, he could not understand. On Mars, where speech is not the mode of communication, greeting phrases did not exist.

Then Earthly genius, doubtless assisted a great deal by chance, had come to his aid. Number 774 had no difficulty in separating the twenty-six alphabetical symbols of the Morse code. Nor when the Earth entities, controlling the flickerings of the light, had sent out code

symbols for numerals in a sequence of 0, 1, 2, 3, 4, 5, and so on, did he have any trouble in recognizing and cataloguing each separate signal, though their meanings were still entirely unfathomable to him.

It was when the counting proceeded above nine, and numbers of more than one digit appeared, that Number 774, after a long period of association with the riddle, had received his first faint glimmer of understanding. No; it was not really understanding yet; just a vague, intuitive intimation that something concrete and graspable was not far off.

He had noted that there were but ten separate signals in this strange system, which was apparently quite distinct from that other mysterious system of twenty-six symbols, for the two had never yet been mixed in one signal group or word; and that, as the flashing of the signals proceeded, each symbol seemed to bear a definite relationship to the others.

They always were in fixed sequence. 1 was followed by 2, 2 by 3, and so on through a sequence of ten. The first symbol of a two-digit number was always repeated ten times as the counting went on, while the second symbol changed according to the fixed rule which he had already noted.

Perhaps Number 774 already had a dim notion of the terrestrial numeral system, when his friend of the light conceived the plan of sending simple problems of arithmetic. Obviously, one plus one of anything is two on the planet Mars just as certainly as it is on Earth.

There was the real beginning. Number 774 had studied carefully the simple equations that had come to him, and at length he had been able to grasp what was meant. In a message like "3 and 3 are 6" he was presently able to see the relationship between the numeral signals. The last in the group was the sum of the preceding two.

Finally he understood. Here was some quaint terrestrial method of expressing the unit quantity of anything. The first point of contact between Earth and Mars had been established.

Flushed with success, Number 774 had made rapid progress for a while after he had learned about the ter-

restrial decimal system. If 3 and 3 are 6, and 2 and 5 are 7, then 4 and 5 are 9. Reproducing faithfully, though without clear comprehension, the intermediate letter groups of the Earthly equation he had invented, "a-n-d" and "a-r-e," he had flashed the equation to his friend of the light: "4 and 5 are 9."

And the answering flicker of the light seemed to dance with an eager exultation: "4 and 5 are 9. 4 and 5 are 9. Yes, yes, yes. 5 and 5 are 10. 8 and 4 are 12. 9 and 7 are? 9 and 7 are?"

Keyed to a high pitch, Number 774 had sensed immediately what was required of him. Answers were wanted. Though two-digit numbers were still something of a mystery to him, making his reply partly guesswork, he lit upon the correct representation of the sum: "9 and 7 are 16."

Through the succeeding months, during which the positions of the two planets were favorable for astronomical observation of each other, the work had gone on, various methods being employed. Sometimes Number 774 presented his own problems of addition, giving the answers. If his answer was correct, the light invariably flashed "Yes, yes, yes," exultantly, and repeated the equation.

On those rare occasions when the problems became more complex, Number 774 made mistakes, the answering message was "No, no, no," and the correction was made.

Thus Number 774 had gained his first knowledge of words, as represented by the twenty-six letter code alphabet. "Yes, yes, yes," meant that he was right, and "No, no, no," meant that he was wrong. It trickled into his mind that each group of alphabetical symbols represented, in its crude way, some definite idea. "And" and "are" in a simple addition problem, showed certain relationships between the numbers; and those relationships were different from the ones expressed by other words.

A mistake he had once made had clearly demonstrated this fact to him. It was in the transition from addition problems to problems of multiplication. 10 and 2 was different from 10 times 2. 10 and 2 made 12, while 10 times 2 made 20. "Times" represented a differ-

ent relationship between numbers than "and." One indicated that the sum was to be taken, while the other indicated that the two were to be multiplied together.

In a similar way he found out what "divided by," "plus," "minus," and other words meant by noting the relationship of the numbers of the equation to the final answer.

Once understanding simple division as it is done on Earth, Number 774 quickly grasped the decimal-position system of representing fractions. In an equation like $36 \div 5$ equals 7.2, he could substitute Martian methods of representing values and division and correlate them with terrestrial methods. In the Martian way he knew what $36 \div 5$ was, and of course his answer thus obtained might just as well be represented by the Earthly 7.2, for they were the same.

Number 774 had found in the number 3.1416, part of which was a decimal fraction, the relationship of the circumference of a circle to its diameter, and so the oft-repeated message of the light, "Diameter times 3.1416 equals the circumference of a circle," had a certain vague meaning for him that was not by any means completely understandable at once.

"Earth, Planet 3, Mars, Planet 4," was a message he was able to guess the meaning of correctly because in the Martian system numbers were used to designate planets in their order from the sun. Aided by the message, "Earth Planet 3, has 1 moon. Mars, Planet 4, has 2 moons," he had been half able to clinch his guess.

Stumblingly, yet reproducing the Earth words with the faithfulness of a good mimic, he had flashed: "Planet 1 has 0 moon. Planet 2 has 0 moon. Earth, Planet 3, has 1 moon. Mars, Planet 4, has 2—"

And an enthusiastic "Yes, yes, yes" had come from the light, and the dim flickering glow had gone on to tell that: "Mercury, Planet 1, has no moon. Venus, Planet 2, has no moon. Jupiter, Planet 5, has 9 moons. Saturn, Planet 6, has 10 moons—" And so on out to Pluto, Planet Nine, beyond Neptune.

Thus Number 774 had learned the names of the planets and the meaning of the words "moon" and

"planet." In the same way he received a dim idea of such simple verbs as "has."

And so the process of his Earthly education had gone on, slowly, depending to a large extent upon brilliant though not very certain guesswork, and demanding a degree of patience in instructor and pupil for which teaching a person to talk who has been deaf, blind, and dumb since birth is but a feeble and inadequate analogy.

Number 774 had certain knowledge of a few Earthly words and the privilege of guessing more or less accurately on a number of others. Words like "snow," "clouds," or "storm," he could perhaps gather the general sense of fairly well. For whenever a great atmospheric disturbance appeared over the continent of the light, disturbing observations, the light repeated these words over and over again.

He knew a little about the structure of the simplest of verbs and perhaps somewhat more about the forming of the plurals of nouns by the addition of an "s" symbol. "Hello!" in the phrase "Hello, Mars!" still was beyond him. He could answer it correctly with "Hello, Earth!" knowing that this was the Earthly way; but the human sentiment of the greeting eluded him completely. And of course he had no sound values to give to those Earthly words which he did understand.

Progress had been made, but the forms which the intelligences of Planet Three inhabited, their manner of living, their machines and their accomplishments, were still as much of an enigma as ever. Consummation of the great dream of intelligent communication still belonged to the future, and now there would be no future—only death and a mighty prophecy unfulfilled.

That prophecy had been, and still was, the essence of Number 774's life. In the face of defeat he still worked on the fulfillment of it now, as though a thousand years of usefulness still lay ahead of him. It was habit, perhaps; and meanwhile his mind smoldered with thoughts which we of Earth can only guess at.

"You are late, Man of Mars. Late, late, late," the dim flicker in the vision globe, and the brighter light in the

reproducer bulb beside him, spelled; and Number 774 bent to his task.

He understood sketchily most of the message. He knew that the light referred to him as "Man of Mars." He knew that "you are" should be followed by a group of signals describing him. Only "late," the essence of the sentence, the word which gave it sense, was new. What could "late" mean?

Intuition told him that some circumstances which existed only for the present had combined to make him "late," since he had never been called that before. What were those circumstances? He racked his brain over the question. Perhaps the light wished to indicate that he had been delayed in sending out his flash call-signal. But this was only a guess which could be right or wrong.

Still, perhaps it could be clinched. Some other day he might be purposely several minutes behind in sending out his call; then, by way of beginning he could admit that he was "late" and, if his surmise had been correct, the light would confirm it.

But the matter of this new combination of signals could wait now. Number 774 must watch for other, possibly intelligible, things which the light might flash.

"Comet coming. Comet coming. Comet coming," the flicker in the reproducer bulb spelled. "Comet coming toward sun, Mars, and Earth. Comet coming. Comet coming. Comet coming."

If Number 774 had been a man, he might have given a sudden start. And it was not the message itself that would have been responsible, even though he caught some of its meaning. "Comet" was not a word that was new in his experience; for on several occasions when one of those long-tailed wanderers had come back into the solar system, after taking its long dive out toward interstellar space, the light had flashed the information: "Comet coming."

Number 774 knew what "comet" meant, and he could differentiate vaguely between "Comet coming" and "Comet going," for one indicated that the celestial visitor was entering the solar system, and the other that it was leaving. For several evenings the light had been telling

him that a comet was arriving, and he had accepted the information as nothing particularly startling or new; he had been puzzled only at the significance of the other words of the message, "toward," for instance. So far he had not been quite able to grasp "toward."

No; it was not the message itself that was so startling to Number 774. Somehow, tonight, the flashing of the distant light on Earth, telling in its cryptic way of the arrival of the visitor, bridged a gap between two of Number 774's thoughts and furnished him with an inspiration—a colossal inspiration which only genius, backed up by a knowledge considerably in excess of that of mankind, and a wonder-deadening familiarity with marvelous scientific triumphs, would have dreamed possible of fulfillment.

In one timeless instant, all of Number 774's dreams and hopes became linked together with the comet. Might he not still be guilty of revolt against the age-honored conventions of old Mars?

III

Something almost electrical seemed suddenly to take possession of Number 774. His cold eyes, fixed on the reproducer bulb, glittered with impatience. The flickering message, which a moment before would have held the complete attention of his every deductive faculty, had little interest for him now. He translated the signals perfunctorily, gathering what little meaning he could from them and not bothering to puzzle over what was new. He waited with tense eagerness for the moment when the light would go out, and it would be his turn to speak. There was something which he *must* tell his friend of Planet Three, and he *must* tell it so that it would be understood. But how? How could he direct those strange, clumsy signals, of which he knew so very little, so that the information he wished to convey would be received and properly understood?

There! The closing phrase of the message from Planet Three was coming: "Earth standing by for Mars. Earth standing by—" The scarcely noticeable speck of light in the vision globe of the telescope disappeared;

the pulsating purple glow in the reproducer bulb faded out, and the darkness there seemed tense with expectancy and eager waiting. It seemed to fling an insurmountable challenge at the intellect and ingenuity of Number 774.

In their present relative positions, Earth and Mars were about fifty million miles, or four and a half light-minutes, apart. Thus any message depending on light would of course take four and a half minutes to travel from Earth to Mars, or vice versa.

To avoid confusion in exchanging their communications, Number 774 and his friend of Planet Three had worked out a system whereby each would send out his signals for two minutes, with an intervening pause of two minutes, during which the other could answer. This Earthly time interval Number 774 had learned to recognize and to interpret in terms of the Martian method of measuring time.

It was his turn now; and though he had something far more important to say than ever before, he hesitated, all his cleverness seemingly checkmated by the immensity of his problem. But the lagging, slipping moments lashed his mind, driving it by sheer tenseness of determination to a higher pitch of keenness, almost, than ever before. At least he could try. He could guess, and he could stumble, but he could try.

The little lever of the signaling mechanism trembled in his grasp, and in response to its feeble movements the signals thundered and flared from the outer surface of the dome overhead. For a full three minutes, violating the rule, Number 774 continued to send, repeating the same phrase over and over again, changing certain words each time, in the hope of hitting the right combination that would convey his meaning.

He did not wait for a reply. Earth had already sunk low in the west, and before a reply could come the flashes arriving from the feeble station on Earth would be rendered too dim and wavering and uncertain by the almost imperceptible haze of the Martian horizon to be properly recorded. Besides, he had so little time and so much to do.

Ponderously, under his guidance, the great telescope

tube swung into line with the comet, which still rode high up in the west. The circular opening in the dome shifted automatically with the telescope, keeping opposite to its muzzle.

The huge form of the comet's head filled the vision globe, spreading brilliant and silvery and tenuous around the more solid spot of the glowing central nucleus.

Delicate instruments came into play, recording and measuring speeds, distances, and densities. But this was no mere quest for abstract scientific knowledge. His eyes smoldered with a grimly definite purpose, in which the shadow of death was very near.

But toward death Number 774's reactions were hardly human. In the torrent of his thoughts one thing shone out clear—the comet would pass close to Mars, and it would also pass close to Earth. That fact offered a slender and stupendous possibility. But in ten days the comet would pass and his chance would be gone. Unless he could cram into that brief time more work than anything human or Martian had ever before been called upon to do, his opportunity would be gone forever.

He finished his measurements quickly and efficiently. Switches clicked, and great mechanisms, and incredibly delicate and sensitive instruments, ceased functioning. The circular opening in the rotunda closed, hiding the stars and the comet. The observatory was at rest, for its eerie, fragile master needed it no more.

Number 774 was hurrying down a passage, the stalky limbs of the machine that carried him making a regular, clicking sound.

He came to a great wall that tumbled away in a murky, green-lighted haze, far beneath. Without hesitation he leaped into it and, seemingly supported and retarded in his fall by the emerald substance of the glow from the metal walls, he floated downward as gently and securely as a feather in the heavy atmosphere of Earth.

At the bottom of the well another vast, low-ceilinged chamber spread out, its remote walls lost in the luminous emerald murk, through which the burnished forms of gigantic machines gleamed elfinly.

This was Number 774's workroom, and here, now,

he set to work, laboring with cool, unhurried efficiency, so characteristic of the children of dying Mars.

Many times before he had struggled with the same problem which now held his attention, and he had learned much concerning it, yet the technical difficulties he had encountered had convinced him that the solution of that problem still lay many years in the future.

But now something had happened. An unforeseen chance had come—a chance which might or might not be possible. It was all a gamble.

There was no time for further experiments. Perhaps with this new opportunity there was no need for further experiments, for Number 774 grasped the underlying principles. He must plan and build; above all he must be quick and sure.

He was thinking of a certain barren valley far out in the desert. In a thousand years, perhaps, no one had visited it except him. Aircraft hardly ever flew over that waterless sand pocket set amid the arid hills of Mars. There would be the ideal spot for the completion of his task, for here in his workshop he knew that he dared not stay.

Delicate electrical impulses transmitted his commands, and in response five giant shapes, paradoxically human travesties wrought in shining metal, rose from their resting places to do his bidding. Under his guidance they made preparation for the exodus, gathering instruments, tools, and other paraphernalia, and packing them in metal cases; binding long arms of metal into great sheafs that would be easy to carry. Meanwhile Number 774 busied himself with a complicated Martian calculating machine.

Thus the night passed. In the almost momentary twilight that preceded the dawn, the strange caravan set out. Number 774 had changed his identity; instead of being only a fragile lump of living protoplasm, he was now a giant of metal, like the five automatons that served him, for the powerful machine he rode was so versatile, and so quick and accurate in its responses to his every guiding gesture, that it was to all intents and purposes his body.

A pair of wings of metal fabric disengaged them-

selves from the intricacies of his machine and began to flap ponderously. Number 774 soared upward on them, over his servitors that plodded along on the ground, bearing their heavy burdens. His gaze darted back briefly toward the silvery dome of his workshop and at its dusty walls, matching the slightly ocher-tinged dun color of the desert.

But the fact that he had lived in that structure most of his life, and that he was now leaving it forever, aroused no sentiment in his mind. He had no time for sentiment now, for time was precious. Besides, he was looking forward to the trials and dangers that were certain to come soon and to the triumphs that might come with them.

He swung and turned in the air, scanning the terrain with wary watchfulness, on guard for any possible approaching aircraft. It would not be well if he were seen, and if a flier should appear he must take cover. But there was really little danger to face as far as his own people were concerned.

Avoidance of the death sentence imposed by the Rulers was practically without precedent. For thousands of years Martians had obeyed their Rulers' commands so implicitly that now prisons for the detention of the condemned were unknown. When the order came, the people of Mars went to their deaths willingly and without a guard. And so it was unlikely that anyone would suspect that Number 774 had intentions of escaping execution now.

It is hardly likely that Number 774 felt triumphant over his revolt against ancient law—possibly he even felt guilty—but his earnest eagerness to learn things that he did not know, and to give himself to the cause to which his life had been pledged, was an urge that surpassed and defied even age-old code and tradition.

The stars, and leisurely Deimos, the farther moon, shone on an ashen haze that obscured the horizon in every direction. A mounting breeze, keen and cutting for all its thinness, blew out of the west. When the sun rose, it changed the haze of the dust-laden air to a tumultuous, fiery murk that flung long, ominous streamers of orange and red across the sky. Number 774 knew

what was coming and knew the hazards that it brought.

The wind became more and more violent, increasing by puffs and gusts, and at last settling down to a steady powerful blast of the proportions of a terrestrial hurricane. If human ears had been there to hear, they would have detected the mounting whisper and rustle of millions of flying sand particles, rubbing and sliding over each other, making a blurred and soothing purr of sound.

As the streaming, flame-hued trains of sand thickened and mounted higher in the atmosphere, the sun dimmed to a red bubble floating in the murk, and only a bloody reminder of its normal brilliance reached the ground.

Number 774 had descended to join his robots in their march on the ground. He had seen many of these fierce dust storms of Mars, and he accepted them as a matter of course, just as an experienced old mariner of Earth accepts tempests at sea. He himself was safely encased in an airtight glass cage atop the machine he rode; he was breathing pure filtered air.

The chief dangers were that the filtering equipment which fed oxygen to the engines of his automatons would become clogged, or that he would accidentally be engulfed in some newly formed bed of quicksand, hidden beneath the clouds of dust that swirled about him. But these were unavoidable dangers which must be faced.

Under the pressure of necessity, Number 774 urged his robots to the fastest pace they could attain in the shifting desert soil. The metal giants' long, webby limbs swung on and on steadily, into the east, breasting sand and wind, and climbing several steep rocky ridges they encountered with agile ease, in spite of their great bulk and the weight of the burdens they carried.

Twice they crossed deep, twenty-mile-wide artificial gorges, which on Earth have earned the not entirely correct name of "canals." Now and then during each crossing, the dry and lifeless stalks of some weird Martian vegetation would loom dimly through the storm like grotesque totem poles. The canals were as desolate as the desert itself, for it was very early in the spring, and

the water from the melting polar snowcaps had not yet come down through the network of conduits and perforated pipettes buried beneath the canal bed.

When the water did appear, vegetation would spring up in rapid growth along the bottoms of the hundreds of straight scars that had been dredged across the barren desert ages before. But as yet there was no sign of the great Martian planting machines, for it was still too early in the season even for them.

Number 774's wariness in crossing seemed completely unnecessary, for his eyes caught no sign of his own kind, or, in fact, of any living creature. He was as completely alone in the flat expanses of the canals as he was in the desert proper.

Late in the afternoon he arrived at his destination. By sunset the wind had subsided and the air was clearing. The work was already underway. Two of the robots, equipped now with great scooplike claws, had excavated a vast hole in the sand. Feverishly active, the other two were assisting Number 774 with other tasks. Rods were being arranged around the pit. Something of a strange, dark substance was taking form. A stream of molten metal was pouring from a broad, squat mechanism. A thin trickle of white vapor trailed up in the quiet air.

At dusk Number 774 paused to look up, over the rounded hills that ringed the valley, at Planet Three that hung in the western sky, gleaming regally amid its retinue of stars. The light on that distant world would flicker in vain tonight, calling eagerly to the Man of Mars. There would be no answer. Higher up, fainter and less conspicuous, was the silvery dart of the comet.

Perhaps Number 774 was trying to imagine what his unknown friend of the light would think when no replying flicker appeared on the disk of Mars. Perhaps he was trying to imagine, as he had done so often before, what his friend of the light was like. Maybe he was wondering whether he should soon know.

His pause was only momentary. There was much to do, for in effect he was racing with the comet. Martians need very little sleep, and it was certain that Number 774 would get no sleep this night, nor the next, nor the next.

IV

Young Jack Cantrill cast a brief glance at the big diesel engine he had been inspecting, and then, with an air of finality, wiped his grease-blackened hands on a fistful of cotton waste. The outfit was functioning perfectly. Ordinarily he might have paused for a moment to admire the easy strength and motion of the machinery to which he played nursemaid, but, lover of machines though he certainly was, he had no time now.

His eyes did not linger on the reflection of the glowing electric light bulbs mirrored on the polished circumference of the spinning flywheel, as they usually did; nor did his attention wander to the sparks that purred blue and steady on the brushes of the gigantic dynamo attached to the engine.

He had something far more interesting to occupy his mind, and besides, a rather astounding idea had just occurred to him. Old Doc Waters and Yvonne might laugh at the notion; and then again they might be struck by it just as he had been. He'd have to try it out on them right away.

He tossed the handful of waste carelessly into a metal box, then made a perfunctory reading of the meters and instruments banked close and bewilderingly on the switchboard. He adjusted a small rheostat and jotted something down on a chart on the wall with a red crayon. Then, heedless of his light clothing and his perspiring condition, he hurried out into the frosty desert night.

The breeze, cold and untainted by the smell of burning fuel oil, chilled his damp body uncomfortably, but he did not heed it. The steady thud of the exhaust of the high-compression motor in the iron shack receded rapidly behind him as he ran up a path which led to the summit of a low hill.

On the crest of a neighboring knoll, a broad patch of dazzling light winked on and off regularly, where scores of huge searchlights poured their billions of candle-power toward the twinkling stars, in systematically arranged long and short spurts. Jack Cantrill's glance to-

ward them was brief but intense. His lips moved as though he were counting to himself.

The door of the domed observatory building at the top of the hill opened at his touch. He passed through a small lean-to and entered the brick-lined circular chamber that housed the telescope. Here a single shaded lamp cast a subdued glow over a big desk on which various opened notebooks and papers were scattered. Amid the litter an astronomer's chronometer ticked loudly in shadowed stillness. The gloom was eerie and soft and strange.

Jack Cantrill made his way quietly to the low platform under the eyepiece of the telescope, where the other two occupants of the room stood.

The girl was pretty in a blond, elfin sort of way. She smiled briefly at Jack's approach.

"Any luck, folks?" he inquired.

He was trying to make his voice sound calm and casual, but a tense and excited huskiness crept into his words and spoiled his bluff.

Professor Waters looked up from the eyepiece of the big instrument. The glow coming from the nearby lamp accentuated the tired lines of his face, making him look almost haggard. He grinned wearily.

"Not yet, boy," he said. "It seems as though Old Faithful has deserted us completely. It's funny, too, when you remember that when conditions were at all favorable for observation, he hasn't failed me once in nine years. And yet this is the second night that he hasn't given us a sign. The shaded side of Mars hasn't shown a single flicker that you can see, and even the photoelectric cell doesn't detect anything."

The young man glanced uncertainly at the girl and then back at her father. The fingers of one of his hands crept slowly through his curly red hair. With the air of a small schoolboy about to make his first public address, he was fumbling with a soiled sheet of paper he had taken from his pocket. He felt rather sheepish about that idea he had thought of.

"Yvonne— Doc—" he said almost plaintively, in an awkward attempt to get their undivided attention centered on what he was going to say. "I'm not much of a

scientist, and maybe I'm a darned fool; but—well, this message—the final one we received the night before last—we thought it was just a jumble but, when you read it, it almost has meaning. Here, listen to it once."

Clearing his throat he proceeded to read from the sheet of paper: "Comet coming. Yes. Comet coming. Yes. Comet coming of Man of Mars. Comet Man of Mars coming toward Earth. Comet coming Man of Mars. Man of Mars. Comet. Man of Mars. Comet. Man of Mars. Comet. Yet, yes, yes. Man of Earth. Yes, yes, yes. Signing off. Signing off."

Jack Cantrill's thin cheeks were flushed when he stopped reading.

"Get it?" he asked in a husky whisper. "Get any sense out of that?"

Yvonne Waters' pretty face had paled slightly. "You mean, Jack—you mean that he wanted to say that he was coming *here*, across fifty million miles of emptiness? He can't do that! He can't! It's too far and too impossible!"

Her concerned manner bolstered up the youth's confidence in his idea. "You caught on to exactly what I thought of," he said.

Professor Waters did not betray any outward excitement. His manner was musing, and he rubbed his cheek reflectively. "I thought of that, too," he admitted after a moment. "But it seemed too wild for serious consideration. Still there's a chance—that you are right."

The thought put into words seemed suddenly to startle the old man. "Gad, boy!" he exploded suddenly. "Supposing it *is* the truth! Old Faithful signaled about the comet. If there's anything to this at all, the comet must be tied up with his coming. And for all we know the comet might help. It passes close to both Earth and Mars. If in some way he could fall into its gravitation field, it would drag him almost all the way. That's it! It would save an enormous energy. It would put his trip, otherwise still impossible, into the realm of possibility!"

"You get me at last, Doc," Jack said quickly. "And when you say, 'Supposing it's the truth,' think of what it means! The navigation of interplanetary space, maybe! Commerce between Earth and Mars! A new and won-

derful era, with the minds of one world exchanging ideas with the minds of another."

Unconsciously Jack Cantrill had taken Yvonne Waters' hand. Her eyes were starry.

"If it did happen we'd all be heroes, Jack," she said. "Dad and you and I. We'd be the ones to get the credit."

"We would, Yvonne," Jack admitted with a chuckle.

It was the professor's turn to smile. "You two have got the whole business nicely ready-made, haven't you?" he chided. Then his face sobered as he went on: "The gap is pretty wide between Earthman and Martian; and in consequence your hope may be very far off, even if that guess of ours about the message is right.

"We don't know that Martians are human beings. The chances are a million to one that they aren't. It is very unlikely that evolution, operating on so different a planet, could produce a being even remotely resembling a man. We don't even know that the people of Mars use speech as we use it. Old Faithful certainly is very intelligent, yet the way he has fumbled blunderingly with our code seems to indicate that even a faint conception of vocal speech is something new and strange to him.

"Those are some of the gaps, but there may be sinister similarities between Earthmen and Martians.

"Who knows but that something darker lies behind what we think is friendly interest in us? Sometimes conquest is more satisfying than commerce. We can't tell." Professor Waters paused.

"Making it extra strong, aren't you, Doc?" Jack put in.

"I guess I am, and now I think I'll do a little news-spreading." The professor strode to the desk.

"Human or not, I hope the Martians are handsome," Yvonne confided impishly to Jack.

"And I hope they're not, darling," he replied, putting his arm affectionately about her waist. He was about to add something more when what the girl's father was saying into the telephone riveted their attention.

"Long distance? I'm calling Washington. I want to speak directly to Mr. Grayson, the Secretary of War. Strange call? Perhaps. But put it through."

Before dawn all the observatories of Earth had begun their watch.

V

Far away on the Red Planet, the work of Number 774 went steadily forward. Then came the night when all was ready except for one thing. A powerful urge, the roots of which are deeply implanted in the dominant forms of life on both Earth and Mars, and perhaps the whole universe, was calling him to a city at the joining place of four canals, far to the east. In that urge there was a pathetic something, perfectly understandable by human standards.

The bright stars reeled dizzily before Number 774 as he swooped out over the desert on the wings of the ornithopter that bore him and sped eastward. He must be cautious, but above all he must hurry.

An hour or so slipped by. The Martian's big eyes, keen and catlike, picked out in the broad cleft of a canal a gigantic angular shape, looming dim and uncertain in the gloom. Inconspicuous as a drifting shadow, he settled toward it. The talons of his automaton found a metal panel that slipped aside at a touch. The green glow of the immense well thus revealed dropped away into deserted obscurity. In a moment he was floating down it, past myriads of openings, from which radiated the labyrinthine tunnels of the buried Martian city.

He entered one of these passages and followed it for perhaps a mile, until he came to a vast chamber, pervaded by a moist, humid heat. The floor was covered with thousands of boxes of clear crystal; and in each box was a purple gob of something feeble and jellylike and alive.

Aided perhaps by some Martian numeral system, Number 774 found his way to the box he sought. At his touch the lid opened. He had dismounted from his automaton, and now, creeping forward, he thrust a slender appendage into the crystal case.

A score of nerve filaments, fine, almost, as human hair, darted out from the chitinous shell that protected them and roved caressingly over the lump of proto-

plasm. Immediately it responded to the gentle touch of the strange creature that had sired it. Its delicate integument quivered, and a thin pseudopod oozed up from its jellylike form and enveloped the nerve filaments of Number 774. For minutes the two remained thus, perfectly motionless.

It was a bizarre travesty of a touching and perfectly human situation; yet its utter strangeness by Earthly standards robbed it of some of its pathos. No words were spoken, no sign of affection that a terrestrial being could interpret was given; and yet perhaps the exchange of feeling and thought and emotion between parent and offspring was far more complete than anything of the kind possible on Earth.

Number 774 did not forget caution. Perhaps it was intuition that informed him that someone was coming. Quickly, yet without haste, he regained his automaton, replaced the lid on the crystal box, and slipped quietly away into the luminescent obscurity of the tunnel. In a few minutes he had safely reached the open of the canal bed. Broad wings flapped, and the starlit night swallowed him up.

As he hurried back toward his hidden valley, he saw the silvery green speck of Earth dip beneath the western horizon. The sight of it must have aroused a turmoil of forebodings within him; for absently, as if he were already facing unknown horrors in mortal combat, he moved a small switch, and in response a jagged flash of flame leaped from an apparatus carried on a long arm of his flying automaton. Where the bolt struck, the desert sand turned molten.

Above, the comet glowed, pallid and frosty and swollen. It was very near to Mars now.

Having reached his valley, Number 774 descended into the pit. A silvery thing that was illy defined in the uncertain light loomed over him. A door opened and closed, and Number 774 was alone and busy amid a bewildering array of machinery.

There came a blinding flash of incandescence, and a roar that sounded like the collision of two worlds; then a shrill, tortured, crackling whistle. The pit glowed white-hot, and the silvery thing was gone. Above the

pit, towering many miles into the sky, was an immense jetted plume of vapor, shining rosy with heat. It would be many minutes before that huge gaseous cloud would cool sufficiently to be invisible.

The body of Number 774 was battered and torn and broken; the terrific acceleration was crushing him; consciousness was slipping, even though he was exerting a tremendous effort of will to cling to it. In a few minutes it would not matter if he did go out, but now there were controls to watch and to handle. If they were not manipulated properly everything he had done was for naught.

But the blackness of oblivion was closing in. He struggled valiantly to master himself and to fight through the gathering gloom that was misting his vision and clouding his mind. Though his whole being cried out for a cessation of torturing effort, still he kept fiercely at his task. There was too much at stake. That little globe there—it was glowing red when it should glow violet. It must be attended to. The craft was wobbling, and it must not wobble. A trifling adjustment of delicate stabilizers would fix that, if he could only somehow make the adjustment.

A dribble of sticky, oozy fluid welled from a wound in Number 774's side. His limbs, some of them broken, fumbled awkwardly and inefficiently with the complicated controls. He was gasping, and all the while his glazing eyes remained fixed grimly on the form of the comet, toward which he and the strange craft he had built were hurtling. Could he reach it? He must!

VI

On Earth, Professor Waters, his daughter, and his young engineer watched and waited. It was a tense, grueling task, heavy-laden with monotony, a thousand weird imaginings, and a horde of questions, none of which could be answered with any certainty.

They were uncertain whether to be fearful of the unknown thing whose approach they sensed, or to be exultant. They did not even know whether their vigil was

just a huge nerve-racking practical joke which their fancies had played upon them.

Time dragged with torturing slowness. Tardy seconds became minutes, tedious minutes were built up into hours, and hours became days that seemed like centuries. And over the rest of the world, the vigil was much the same.

On the ninth day after the last flickering message had come from Mars, Professor Waters had seen through his telescope, on the surface of the Red Planet, a fine dot of white light that, after its sudden appearance, faded quickly to red, and then, after a few minutes, disappeared altogether. A few hours later he thought he detected a slight and momentary ripple in the gaseous substance of the comet's head, which then had just passed Mars on its sunward journey.

Newspaper reporters who had come many miles to this lonely spot in the desert were constantly seeking interviews. The three watchers supplied them with all the information they knew; and at last, tiring of the additional strain of being constantly hounded by these persistent seekers after sensational news, they refused even to grant them admittance into the barbed-wire stockade of the camp.

At last the comet reached its point of closest approach to the Earth. Faint and ashy though it was, low down in the sunlit afternoon heavens, still it was an awesome, impressive object, with its colossal, fan-shaped head and the vast curved sweep of its gigantic ghost-silver tail.

When the desert dusk settled, the visiting wanderer increased a score of times in brilliance and glory. It had now passed the line and was hurtling away. And as yet nothing that would satisfy the eager hopes and fears of the watchers had happened.

The three were standing on the veranda of the little adobe house they inhabited. All of a sudden Dr. Waters' haggard face relaxed. He sighed heavily.

"I guess that it has been proved that we are all of us fools," he said wearily. "There hasn't been much of anything to reward us for our pains." His glance toward

Jack Cantrill was slightly apologetic. "I think I'll go to bed," he added abruptly.

Jack's rather good-looking face twisted into a rueful smile. "Bed isn't at all a bad idea," he admitted. "I feel as though I could snooze a week straight without waking up. Well, anyway, if we're fools, I'm the biggest one, because I started all this." He looked at the old man and then at the girl. "Forgive me, Yvonne?" he queried good-humoredly.

"No," she replied with mock seriousness. "Making me lose so much of my beauty sleep like this! You ought to be ashamed of yourself." Her little speech was terminated by a faintly amused chuckle, and she pinched his cheek impishly.

It was some hours after they had retired that a faint soughing noise began from somewhere, apparently at a great distance. It was like the sound of a suddenly stiffening night breeze, sweeping through a grove of pine trees. Something that glowed rosy with the heat of atmospheric friction swept in hurtling flight across the sky. A mile or so beyond the camp, broad thin flanges of metal shot out from it, and it made a feeble attempt to steady itself and check its almost meteoric speed. It wobbled, then fluttered down weakly. A cloud of dust and sand rose where it smashed into the ground. But there was no human eye to see. For an hour or more it gave no further sign of life or motion.

Yvonne Waters was a light sleeper. Unusual night noises ordinarily aroused her. The momentary soughing rustle caused her to stir, but she did not awaken. Then, toward four in the morning, another disturbance came. It was a faint stretching, creaking, straining sound, that nevertheless held a suggestion of powerful forces acting stealthily.

Instantly Yvonne was wide awake. She sat up in bed, listening. What she heard produced quick and accurate associations in her nimble and cool young mind. A barbed-wire fence would make a creaking, straining noise like that, if something big and powerful were seeking tentatively to force an entrance. The stockade!

Yes; she was right. Presently there came the sharp

snap and snarl that told of the sudden parting of a taut wire. Four times the sound was repeated.

Yvonne Waters had bounded out of her bunk and had rushed to a window. It was still very dark, but outlined against the stars she saw a vague shape that swayed and moved. The girl's hand groped quickly into the drawer of a small stand beside her and drew out a heavy automatic pistol. Then she hurried to the door and across the hallway.

"Dad! Jack!" she called in a husky whisper. "I've seen something big. It's coming toward the house!"

The young man responded quickly, his unshod feet thudding across the floor. His eyes narrowed when he leaned out of the window. There the thing stood, statue-squely now, not fifty paces away. It was not clearly defined in the darkness, but Jack Cantrill knew at once that it was something completely out of his experience. It seemed to have an upright, cylindrical body that rose perhaps fifteen feet above the ground. Leverlike limbs projected grotesquely from the upper end of this torso, and at the lower end there were shadowy suggestions of other limbs, long and spidery. An angular object surmounted the cylinder, and in its present position it was an outlandish travesty of the head of a man, cocked to one side, listening.

A minute passed. Obeying what must have been an automatic impulse, Yvonne Waters drew on her boots. About the camp she always dressed like the men, and during the last few nights, anticipating sudden developments, they had all slept in their clothing.

Jack Cantrill, crouching by the window, felt the short hairs at the nape of his neck stiffen. Dr. Waters' hand was on the young man's shoulder. The fingers were trembling slightly.

It was Jack who first put into words what they were all sure was the truth: "Old Faithful, I think," he whispered, without any apparent excitement.

He paused for a moment, during which neither of his companions made any comment, for even a slight sound, as far as they knew, might be heard, with disastrous consequences.

The young man was thinking fast. Something had to

be done and done quickly, and it was perhaps very easy to do the wrong thing.

"Flashlight!" he whispered presently, taking command of the situation, and the girl, responding quickly to his leadership, slipped her big electric torch into his hand.

"Now out into the open—all of us," he ordered. "Armed?"

Each carried a pistol. They slipped around to the side of the house, with Cantrill in the lead. The weird giant stood as before, rigid and perfectly still.

Jack raised the flashlight. Working the flash button with his thumb, he proceeded to signal out in the Morse code, a familiar message: "Hello, Man of Mars! Hello, Man of Mars! Hello, Man of Mars!"

And the answer came immediately, flickering from a small spot of green light on the angular "head" of the automation: "Hello, Man of Earth! Hello, Man of Earth! Comet. Comet. Comet. Comet." The message was clear enough, but there was an unusual halting, stumbling hesitancy in the way it was given. Old Faithful had always been precise and quick in the message he had flashed from Mars.

As the three watchers stood spellbound, the great quasi-human machine started forward toward the house. Its movements were powerful, but drunken and unsteady. It seemed to be little more than an insensate mechanism running amok. The intelligence that was guiding it was losing its hold. Nothing could avert an accident.

The robot struck the side of the house with a heavy thud, lurched forward, stumbled, and fell with a clatter and clang of metal across the low roof that collapsed under its weight and the force of its overthrow. Prostrate though it was, its lower limbs continued to simulate the movements of walking.

Its arms sprawled wide, and from a metal knob at the tip of one a torrent of blue sparks began to pour into the earth, causing the patch of sand it struck to turn molten and boil away in a cloud of incandescent vapor. A minute must have passed before the sparks burned

out and the appendages of the machine ceased their ponderous thrashing.

Meanwhile the three watchers had been staring at the weird and inspiring sight, not knowing just what to do. But now, when quiet was restored, they edged cautiously toward the fallen machine. Jack Cantrill's flashlight beam played over the wreckage and halted upon the flattened "head" of the robot. It was pyramidal in form and had been supported by a flexible pillar of pointed metal. There was an opening in one side, and from it something had tumbled. A shadow veiled it, so that the watchers could not immediately see what it was. Then Jack leaped to a different position and poured the beam of the flashlight full upon it.

The effect of its strangeness did not come upon them right away, for they did not at once realize its true nature. It seemed at first only a sprawling mass of drab gray, as large, perhaps, as the open top of an ordinary umbrella. It might have been nothing more than a large lump of wet mud, flattened out by being dropped.

Then, after a moment, the three took note of the ragged tendrils that radiated out from the oblate form somewhat in the manner of the arms of a starfish. The ends of some of those tendrils were slender and stalklike and were terminated by incredibly fine filaments of coral pink. Those filaments were twitching convulsively.

Yvonne Waters was the first to find her voice. It was choking and tremulous: "The thing's alive!" she cried. "Dad! Jack! It's alive!"

Obscure primal instincts had taken possession of them. Like wary alley curs they inched their way forward, craning their necks to look closer at the creature, in which, for them, both fascination and fear were combined.

It was then they saw that the central lump of the thing was contracting in painful, jerky spasms. It was breathing, or gasping, rather. Feathery pink palps around a cone-shaped orifice that resembled the inside of a funnel coiled in agony. They could hear the monster's breath whistle through the opening in long, rasping sighs.

But the creature's eyes, fixed to the ends of two ten-

tacular appendages that protruded from beneath the outer folds of its flattened body, regarded them with what seemed to be an interest which could not be dimmed by physical pain and suffering. They were very large eyes, three inches across, and there was in their alien, brooding intensity, slightly veiled now by the film of approaching death, a suggestion of an intelligence in this monstrous, inhuman body that was more than human.

Yvonne Waters had taken note of these things almost in the space of a moment. She saw the hideous festering gashes of wounds that must have been several days old on the body of the visiting being, and she saw that several of its limbs were shattered. Some of them seemed to be partly knit, but others were evidently recent injuries. From the fresh wounds bright red blood oozed, giving evidence of a very high hemoglobin content, which would be necessary for a creature accustomed to breathing an atmosphere much more rarefied than that of Earth.

Maybe it was because Yvonne Waters was a woman that she bridged the gap between Earthman and Martian more quickly than her companions.

"He's hurt!" she gasped suddenly. "We've got to help him somehow! We ought to—ought to—get a doctor." She halted a little in expressing this last idea. It seemed so totally wild and fantastic.

"A doctor for that horror?" Jack Cantrill asked, a trifle dazed.

"Yes! Well, maybe no," the girl amended. "But still we must do something. We've got to! He's human, Jack—human in everything but form. He has brains; he can feel pain like any human being. Besides, he has courage of the same kind that we all worship. Think of the pluck it took to make the first plunge across fifty million miles of cold, airless void! That's something to bow down to, isn't it? And, besides, this is our friend, Old Faithful!"

"By the gods, Yvonne, you're right!" the young man exploded with sudden realization. "And here I am, wasting time like a dumb fool!"

He dropped to his knees beside the injured Martian,

his big hands poised, ready and willing, but still uncertain how to help this bizarre entity of another world.

Dr. Waters had by this time shaken the fog of sleep from his older and less agile faculties, and he was now able to grasp the situation. With a brief and crisp, "I'll get the first-aid kit!" he hurried into the partially wrecked house, across the roof of which sprawled Old Faithful's automaton.

Conquering her natural revulsion, Yvonne brought herself to touch the dry, cold flesh of the Martian, and to try as best she might to ease its suffering. Presently the three of them were working over their weird patient, disinfecting and bandaging its wounds. But there was small hope that their efforts would be of any avail.

At their first touch, Old Faithful had started convulsively, as though in fear and repugnance of these, to him, horrid monsters; and a low, thick cry came from the opening in his body. But he must have realized that their intentions were harmless, for he had relaxed immediately. His breath, however, was rapidly growing weaker and more convulsive, and his eyes were glazing.

"We're dumb!" Jack stated with sudden vehemence. "He's badly hurt, but that's not all. This atmosphere is six times too dense for him. He's smothering in it—drowning! We've got to get him somewhere where the pressure won't be crushing him!"

"We'll rig up a vacuum tank down in the engine shed," said Dr. Waters. "It won't take but a minute."

It was done. However, when they were lifting Old Faithful onto the litter they had improvised, his body stiffened, shuddered, and grew suddenly limp. They knew that Old Faithful—Number 774—was gone. Still, to aid the remote possibility that he would revive, they placed him in the vacuum tank and exhausted most of the air so that the pressure inside duplicated that of the rarefied Martian atmosphere. Fresh air was admitted slowly through the pet cock. But within an hour Old Faithful's flesh had become stiff with *rigor mortis*. He was dead.

Much must have passed through the devious channels of his Martian mind during those brief hours on Planet Three. He must have felt satisfied that his eagerness to

penetrate the unknown was partly rewarded, his ambition partly fulfilled. He had learned what lay back of, and what had guided, the flickerings of the light. He had seen the people of Planet Three. Perhaps, at the last, he had thought of Mars, his home, and the sorry plight of his race.

Maybe he thought of his growing offspring in that buried nursery chamber, fifty million miles away. Maybe the possibilities of Earth, as a means of aiding dying Mars, occurred to him, if it had not come into his mind before, and it is quite likely that his ideas in that direction were not altogether altruistic toward mankind.

Certainly he hoped that his friend of the light would find his space car and what it contained, out there in the desert, and that they would study and understand.

Dawn came, with the eastern sky sprinkled with a few pink feathery clouds that the bright sun would soon dissipate.

In one of the various corrugated iron sheds of the camp, Yvonne, Jack, and the doctor were bending over the body of Old Faithful, which lay stiff and lifeless on a long table.

"Kind of heartless to be preparing this intelligent being for immersion in a preservative spirit bath so that a lot of curious museumgoers can have a thrill, don't you think, folks?" Jack was complaining with make-believe gruffness. "How would you like it if the situation was reversed—if we were stiff with the curious of Mars looking at us?"

"I wouldn't mind if I was dead." The girl laughed. "It would be an honor. Oh, look, Jack—the funny little mark on Old Faithful's skin—it's tattooed with red ink. What do you suppose it means?"

Jack had already seen the mark. It was a circle with a bar through the center and was, as the girl had said, an artificial decoration or symbol. Jack shrugged. "Search me, honey!" He chuckled. "Say, Doc, do you suppose that space car is around here somewhere?"

The doctor nodded. "It must be."

"Well, come on! Let's look for it, then! This can wait."

After a very hasty and sketchy breakfast, they made

their way on horseback out into the desert, following the tracks the Martian robot had made.

At the summit of a rocky ridge they found what they sought—a long cylinder of metal deeply imbedded in sand that seemed literally to have splashed like soft mud around it. The long fins of the space car were crumpled and broken and covered with the blue-gray ash of oxidation. Here and there a fragment had peeled away, revealing bright metal beneath.

The nose of the shell had become unscrewed, exposing burnished threads that glistened in the sun. Into the shadowed interior they made their way, rummaging gingerly among the bewildering maze of Martian instruments. The place reeked with a scorched, pungent odor.

At the rear of the cylindrical compartment they found a great round drum of metal, fitting snugly into the interior of the shell. Sleepily they wondered what was in it and made several weary attempts to move it. At nine o'clock the police guard that Dr. Waters had sent for arrived.

"Tell those damned reporters who are trying to crash in on us to go to hell," Jack Cantrill told the lieutenant in charge, as he and his two companions were starting wearily back toward camp. "We've got to snooze."

Several weeks had passed. In a hotel room in Phoenix, Arizona, Dr. Waters was speaking to Mr. and Mrs. Cantrill, who had just arrived.

"I'm turning the camp and the signaling apparatus over to Radeau and his associates," he was saying. "No more signals from Mars, somehow, and I don't feel very much like continuing there anyway. There are a lot more interesting things on the horizon.

"That drum which Old Faithful brought us—it contained models and many charts and sheets of parchment with drawings on them. I'm beginning to see light through the mystery at last. There are suggestions there for constructing a spaceship. I'm going to work on that problem as long as I live.

"Maybe I'll succeed with the help of Old Faithful. Human ingenuity will have to be called on, too, of course. I don't think that the Martians have the prob-

lem completely solved themselves. Old Faithful used the comet, you know."

The doctor's smile broadened as he went on: "Children, how would you like to go to Mars with me someday?"

"Don't ask silly questions, Dad," said Yvonne. "We'd go in a minute!"

The young man nodded seriously. "What a honeymoon that would make, if we could have it now!" he enthused.

"A million times better than going to Seattle," the girl agreed.

The doctor grinned faintly. "Even if you were treated like poor Old Faithful—pickled and put in a museum?"

"Even if!"

Jack Cantrill's eyes narrowed and seemed to stare far away into nothing. His lips and his gaunt sunburned cheeks were stern. Perhaps he was looking into the future toward adventures that might or might not come.

Something of the same rugged spirit seemed suddenly to have infused itself into the strong, bronzed beauty of the girl at his side. They both loved adventure; they both knew life in the rough.

At the door Yvonne kissed her father good-bye. "Just a little run up to Seattle, Dad," she explained cheerily, "two or three weeks, maybe. Then both of us back with you—to work."

Derelict

IT DRIFTED THERE in space, to the right of the Sun, its spherical hull half illumined and half in shadow. No native of the solar system could have guessed either its age or its origin. Battered, lifeless, desolate and forlorn, it betrayed a kinship both with the remote past and with the distant stars against the sharp pinpoints of which its bulk was limned.

Jan Van Tyren should have felt a surge of enthusiasm over his discovery of this derelict vessel of the void. Yet he did not. Within him there was room for little but the gnawing ache of grief. Listlessly preoccupied, he stood before the periscope screen of his own trim craft, watching with only a shadow of interest the spheroid pictured in it.

His big, loose body seemed to droop without animation before his instruments. A tuft of yellow hair protruded, cynical and slovenly, from beneath his leather helmet. All the strength had been drained out of him. His blue eyes were clouded, as if he gazed less at reality than at some horror of memory.

He had seen blood often during his years with the Jupiter company. He'd seen death and revolt. Such things were incidental to colonization, to progress. But Greta and little Jan—they had been safe. That anyone, even the horrid Loathi of the Jovian moon, Ganymede, might harm them, had seemed inconceivable. His young wife, his baby—murdered. The torturing vision of what had happened had been with him for days now. Three? Four? He didn't want to recall anything related to that vision.

He didn't want to forget it either. Nor was it possible to forget. He kept hearing the weird screams of the Loathi echoing inside him; he kept seeing their long, keen beaks, and their batlike bodies swooping crazily out of the Ganymedean night. Here, where no one could observe, he allowed himself the relief of a silent snarl. The look on his gaunt, weather-beaten face was not an expression of hatred. He was past hatred. He was numb and lost, like an engine without a governor.

That was why he was out here in the void, with the cold stars around him. He was trying to escape from—he wasn't completely sure what. He was going back to Earth to paint pictures, and to seek in its mellow atmosphere of peace something that was lacking in the cruel environment of Joraanin, the outpost of which he had been master. He was quitting cold—returning home to heal his soul.

Small wonder then that even a spaceship which had floated without aim across the light-years, perhaps from

another galaxy, could not awaken in him a spark of real enthusiasm. Mystery and the promise of adventure no longer had any direct appeal.

Yet Jan Van Tyren was still a creature of habit. Though his mind was caught up in a maelstrom of pain, still the automatic part of him continued to function with some semblance of normalcy. He was an artist; so, almost unconsciously, the channels which his hobby had established in his brain began their intended work—taking note of form and color.

He saw the contrasts of light and shade playing their bizarre tricks with the details of the great globular hull. He saw the deep grooves that stray meteors had scored in a crisscross pattern on the lusterless gray shell of the derelict.

He took note of the slender rods projecting like the prongs of a bur from the vessel's form, and of the rows of windows that met his gaze blankly, as if they were eyes that wondered in an uncomprehending way what he and his flier might be. All this could have been a picture that a man might paint, starkly beautiful against the black background of the universe.

Then, too, Jan Van Tyren was an engineer by profession; and though he wished to leave such matters buried in the past, once more the habit of long experience had its way. Something deep in Jan's being, detached from his other thoughts, wondered what marvels of invention and science a survey of the derelict might reveal.

These combined forces gave to him that small thread of interest. Life had no strong purpose anymore, and he was in no hurry to continue the two months of continuous flying that would bring him across the etheric desert to his native planet.

Van Tyren's hands flashed over controls with careless ease, as if they moved without the guidance of his brain. The space boat turned, beginning the graceful curve that would bring it alongside the spheroid. Across the periscope screen stars reeled; then Jupiter appeared, a tiny belted bead millions of miles away. Around it were the specks of radiance that were its moons.

Finally the derelict came back into view, gigantic and near. It appeared to be some three hundred feet in di-

ameter. The feeble light of the distant Sun shone on it, revealing in its lower hemisphere a ragged rent whose depths were shrouded in shadow.

Jan steered his flier into a position from which he could get a better glimpse of the interior of the spheroid, beyond the torn opening in its shell. Spear points of light pierced the thick shadows there, revealing crumpled masses of metal. But there was sufficient room for his purpose.

Without considering the possible danger of the move, and in fact quite indifferent now to such danger, Jan worked the guide levers and throttle of his craft. There were sharp bursts of incandescence from its rocket vents. It turned, swaying; then glided into the hole in the side of the derelict and came to rest amid the wreckage.

With what might have been a fragment of his old active spirit, Jan Van Tyren donned space armor. But his memories were still with him. He cursed once. No, it was not really a curse; the fury was lacking. There was only anguish in it. It was like the whimper of a big dog with a thorn in its foot.

He climbed through the air lock, and for a minute stood quietly, viewing his surroundings. Somewhere gravity plates continued to function in this ancient wreck, for he had weight here—perhaps one-third Earth-normal. Junk was everywhere in the cavernous interior, distorted and crumpled grotesquely. Yet the metal was bright and new.

Whatever colossal weapon had ripped the globular vessel open like this might have done so within the hour or a billion years ago, as far as anyone could tell from visual inspection. There was no air; oxides didn't form; nothing moved, nothing changed. There was no sound in Jan's ears save the rustle of his own pulse. It was as if time had stopped in this minute speck of the universe. Only the derelict's aura of desertion, and the memory of the countless meteor scorings on its outer shell, suggested to Van Tyren its vast age.

Meteors are too rare to constitute a menace in the traveled lanes of the solar system, and in the interstellar

void they are rare indeed. Lifetimes might go by before one of those minor collisions took place; and they were numbered in thousands.

Rearing from the debris was a stairway. Jan learned later to think of it by that term, though it was not a stairway such as men would find convenient to use. It was a pillar, fluted spirally after the fashion of the threads of a screw. At regular intervals pegs were set along these threads, to provide a grip for some kind of prehensile member.

The pillar swept upward to meet a broad roof. Sunlight, stabbing in from space, awoke an opalescent gleam on the metal surfaces of this queer means of ascent to whatever lay in the bulk of the derelict overhead.

Jan took hold of the pegs on the fluted column, and with easy surges hoisted his loose, muscular frame toward the top. Beside the place where the pillar joined the ceiling was a trapdoor. He fumbled with the lever that latched it. It slid aside, allowing him to pass through into a tiny square compartment which appeared to have the function of an air lock—for there was another similar trapdoor in its roof.

The lower entrance had closed beneath him, and now he unfastened the valve over his head and climbed into the chamber above.

Dust and silence and motionless mechanical grandeur reminiscent of the tomb of a dead Cyclops—that in brief was a description of the place. It was much larger than the room below. Through windows along one wall the Sun shone, gilding inert engines whose monstrous forms seemed capable of generating sufficient power to tear a planet from its orbit. Huge cylinders of opalescent metal reared upward. Flywheels which on Earth would have weighed hundreds of tons, rested in their pivot sockets. Cables, wires, and pipettes ran between colossal, generatorlike contrivances. Crystal tubes stood in webby tripods, or were supported in framework attached to the ceiling; but no energy flowed in the delicate filaments that formed their vitals, and there was no

way for a man to tell what purposes they were intended to fulfill.

Between the windows massive rods were mounted, pointing through the external wall of the sphere, as the weapons of a battleship would do. Whatever the race that had been responsible for this outlay, it was certain that it had been a race of fighters.

Jan Van Tyren, browsing listlessly among these wonders of another solar system, obtained his first direct hint of what the owners of the ship had been like. Sinuous patches of gray ash, contorted so as to still portray the agonies of death, sprawled here and there on the floor. Brown flakes, resembling bits of parchment, were mixed with the ash—the remnant, probably, of chitinous exoskeletons.

The crew of the derelict had been slain. The pitted plating of the floor around the remains of each of their bodies, showed that clearly. Something hot and corrosive had blasted them out of existence. They had battled valiantly, but they had been overcome.

Jan saw a silvery object lying beside one of the areas of ash. He picked it up. A mummified fragment of flesh, suggestive of the foot of a bird, clung to it, its three prehensile toes curved fiercely around the grip and trigger button of the small weapon.

Yes, those unknowns had fought as men would do; but they had failed. Van Tyren's set face exhibited a fleeting sneer as he hurled the object aside.

He went on with his explorations. The dust of remote mortality swirled up in the path of his careless feet, filling the sunbeams from the windows with eddying motes. There was air here to support the motes; but whether it was breathable after the passage of ages seemed hardly probable.

Jan paused before a switchboard. His gauntleted hand fumbled hesitantly over a dial at its center. He turned the dial to the right. A faint vibration was transmitted to his fingers. He turned the dial more, not knowing that his act was perhaps altering a detail in the normal course of destiny. The vibration increased. He stood back, waiting.

Beneath the framework mounting of the switchboard

was a cabinet of smooth, tawny material. The front of it opened now, revealing a darkened interior. From the opening a slender head was thrust, swaying with rhythmic cadence from side to side. It had a single eye, as expressionless as the lens of a camera, which in truth the orb seemed to be.

There was no mouth in evidence, nor any need of one; for this thing, though it presented characteristics commonly associated with living creatures, yet was marked with the unmistakable stamp of the machine. The triangular head had the purple gloss of the other metallic objects in the room. The intricate appendages which projected around its throat, forming a sort of frilled collar, were of the same substance. Beneath them the slender length of the thing was revealed as it crept in serpentine fashion from the cabinet. Its body was composed of thousands of glistening segments, as minutely tooled as the parts of a watch.

The monster was in full view now, its head raised to the level of Jan's eyes. Instinctively he had backed away, though somehow the idea of danger did not occur to him. Perhaps he had left normal caution behind him on Ganymede.

For a time, nothing more happened. The triangular head continued to sway from side to side, but that was all. Van Tyren stood statuesquely, his feet spread wide apart in bullish defiance directed not so much against this amazing fabrication as against his own aching memories. Even the tangible truth of this fantastic episode could not wholly smother the agony of the recent past.

Presently the serpentine robot turned and glided off among the surrounding maze of machines. With a grace that was at once beautiful and abhorrent it writhed its way to an apparatus at the center of the room. Its glittering appendages touched controls skillfully.

A blast of air surged from vents high up on the walls. Jan felt the thrust of it against his armor, and saw the ashes of the derelict's dead crew go swirling away into other vents along with the lifeless vapor that had been sealed for so many eons in this tomb of space.

In response to some further manipulation of dials and

switches on the part of the robot, a light, restful blue began to burn in a crystal tube above Jan's head. He looked up at it and it seemed to exert a soothing, hypnotic influence upon him. He did not even protest when the unknown that he had freed returned to his side and made a gentle attempt to remove his space armor. His own fingers closed on the fastenings and helped those delicate metallic members to complete the task.

Free of the cumbersome attire, he stood eagerly in those cool, blue rays. They appeared to probe to every corner of his being, drawing all the ache and tension out of his tortured nerves.

The grief in his mind blurred to a diffused sweetness. At first he was almost terrified. It was sacrilege to let the thought of his wife and son fade away from him so. Then, no longer wishing to think, he surrendered completely to the healing, Lethean influence of the rays.

The air around him now was cold and refreshing. He sucked in great lungfuls of it. He flexed his muscles indolently, and at last his rugged face broke into a smile. Somewhere music whispered—exotic music out of a time and region too distant to fathom.

The automaton was gliding here and there with no sound except a soft, slithering jingle. It was putting things in order, inspecting and readjusting this device and that. Jan wondered how many thousands of millennia had gone by since any of those machines had been called upon to function. He wondered too at the unfathomable kindness of his queer host, and whether it had read his mind, learning of the pain that had crushed him.

But the rays made him inclined rather to accept than to question, and for a while he did not pursue his ideas further. He was in no hurry. He had not a care or responsibility in the universe. There was plenty of time for everything.

After perhaps an hour under the tube of the blue light, Jan Van Tyren realized that he was hungry. Little food had passed his lips since the quick departure from Ganymede. He put on his spacesuit again, descended through the air lock by which he had entered this chamber and shinned down the spirally fluted pillar. Before

he had reached the bottom the robot was descending above him, its flexible, snakelike body sliding easily in the spiral grooves. The thing had deserted its tasks to follow him.

Jan proceeded to gather certain food articles from the store of concentrated rations aboard his space boat. But before he had collected what he wanted, the automaton was beside him, trying to help. Jan attempted to shove those gleaming claws away, but they were persistent; and finally, in a mood to accept the gentle suggestion, he capitulated, allowing the robot to take several containers from him.

"I think I know what you are." Jan chuckled inside his oxygen helmet. "You were made to take care of the various small wants of the people who manned this ship. Now that there isn't anyone else to play servant to, you've picked me as your boss."

He collected a few other articles—the sleeping bag of his flier, several astronomical instruments and the case containing his artist's equipment—and thrust them into the waiting arms of the robot.

"Might as well take this stuff along too," he said, "so I won't have to climb down again and get it."

He paused to see what the friendly mechanism would do next. The result was just faintly amusing. After a moment of uncertainty it approached him. A stubby member which was part of the frill of appendages around its throat elongated itself like a telescope, coiled its metal length around his waist and hoisted him easily off his feet. Then the serpentine monster made its weaving way to the stair and commenced to ascend with its new master and the bulky equipment.

"Hey!" Van Tyren protested. "This is making a good thing too good! I'm not a cripple!"

But even though the automaton may have possessed a means of divining the telepathic waves of the thoughts behind Jan's words, still it had its way with him.

The man, hardened and self-reliant though he had always been, accepted the mild, emasculating yoke of a monster of which he really knew nothing, quite as trustingly as a child accepts the love of its mother. The blue

ray was not penetrating his body here, but its care-effacing power still persisted. And he had no thought of the possibly dangerous consequences of the spell.

He remembered the Mercurian who had valeted one of the friends of his student days. Khambee was the Mercurian's name—a curious elf whose unobtrusive yet insistent indulgence was much the same as that of this mechanical slave.

“Khambee the second,” Van Tyren pronounced good-naturedly, bestowing the nomen on the automaton that bore him. “It fits you.”

In the chamber of wonders beyond the air lock, Jan set out his meal and ate, while Khambee watched with his camera eye, as if to learn the intricacies of the task.

Then he crept through an opening in the wall and returned with a bowl containing cubes of a golden, translucent compound that emitted a pleasant odor. He set the bowl beside the man.

Van Tyren took one of the cubes, tasted it, and devoured it without considering that, to his Earthly system, the substance might be poisonous. But he experienced no ill effects. The food was slightly fibrous, but sweet and tasty. He consumed more of it with relish.

The blue rays from the tube on the ceiling poured their lulling effulgence over him. The whisper of music, thin and threadlike and soothing, worked its magic upon his senses. Jan crouched on the floor, his head nodding against his knees.

So he remained for a long time, neither awake nor quite asleep, his brain and nerves pervaded by a deliciously restful quasi-consciousness. Khambee had disappeared, perhaps to attend to some obscure matter in another part of the vessel.

Such was the beginning of Jan Van Tyren's adventure on the derelict. As yet he gave the future no attention, living each careless moment as it came; thinking, but not too deeply. Never before had the instinct of the empire builder in him been so completely submerged.

Just to amuse himself he set up his astronomical instruments and took minute observations of both Jupiter and the stars at intervals of an hour, to discover what

sort of path the derelict was following. The angular change in the positions of those celestial landmarks told the story.

The vessel was a moon of the planet Jupiter, swinging around it slowly in an immense orbit many millions of miles across. Probably it had been doing so for eons before men had considered seriously the problem of traffic between worlds.

The fact that it had never been discovered until he had stumbled upon it was easy to explain. Without guidance it would be simpler to find an individual grain of sand on a beach, than to locate so small a satellite in the vastness of the etheric desert.

Now, however, with distances and velocities measured perfectly, there would be no trouble in estimating where the vessel would be at a given second. Jan fumbled with the paper on which he had made his calculations, and then carelessly tossed it aside.

Like the good servant he was, Khambee, who happened to be present, picked it up and placed it in a little case fastened at his throat.

Looking at the stars gleaming so gloriously in the ebon firmament had given Jan Van Tyren an inspiration.

"Men are fools," he confided to Khambee. "Trouble and misfortune are all the reward they get for their struggles. It was the same with the serpent folk who made you. Those of them who formed the crew of this vessel were killed—murdered.

"Why can't we escape from all that sort of nonsense, Khambee? Why can't we fix up this ship so that it can travel out to the stars? What an adventure that would be! Vagabonding from one planet to another without any responsibilities, and without ever returning to the solar system! That would be something worthwhile, Khambee."

Jan was only talking for companionship's sake, attempting to give an idle dream a semblance of reality. He did not believe that what he spoke of was possible. There was the matter of food, water, and energy. It seemed unlikely that this decrepit derelict's supply of each was sufficient for such a venture.

However, Khambee had greater powers at his command than Van Tyren could guess. And there had been built into the inorganic frame of him an astute understanding that penetrated the very motives and purposes animating flesh, bone, nerves and brain tissue.

He appeared to listen attentively to the rustling thought waves of his human master. Then, impelled by the complex urges which the genius of his creators had stamped indelibly into the metal and crystal intricacies of his being, he returned to the tasks which he was meant to do.

And Jan Van Tyren, who had established and bossed Joraanin, the Ganymede colony, continued with his idle play. He slept, he ate exotic foods, he wandered about the ship, he dreamed; but most of all he painted, setting up his easel wherever whim might suggest. And the marvels around him seemed, by their very aura of strangeness, to direct and control his skillful fingers.

He painted great engines with shafts of sunlight twinkling on them; he studied the highlights that shifted elusively in the hollow grooves of the pillars which the sinuous folk of long ago had used as stairways, and he transferred the forms of those stairways to canvas.

He painted Khambee at work with a flaming welding tool, slim, efficient, and almost noiseless. He even painted scenes and subjects of Earth and Ganymede—pleasant reminiscences, for all that was unpleasant had been shoved far into the background of his mind.

A white collie of his childhood. A jagged mountain jutting out of the red desert of Ganymede. Greta, blond and pretty and smiling. Little Jan with his stiff, yellow curls. Such were the subjects of his pictures. He thought of his wife and child, but only of the happy incidents of their lives together.

The horror was blurred and distant. The blue rays saw to that. And so a will not his own, and perhaps not even Khambee's, but belonging to a serpentine monster dead for ages, controlled Jan Van Tyren.

At odd moments he watched space, and felt the yearning pull of the stars. Thus many days must have gone by. He did not bother to keep track.

The time came when he was aroused from slumber by a throbbing sound, soft, but eloquent of titanic forces at work. He crept out of his sleeping bag and stared at the source of the disturbance. Huge flywheels were spinning. He felt a powerful thrust as the ship's propulsive equipment took hold for a fraction of a second.

Then Khambee, worming his slender shape like a weaving shuttle here and there among the machinery, broke the contacts of massive switches. The activity died to silence once more. But the test had been made and Jan sensed that it had been successful.

He hurried forward. "We've got enough power then?" he demanded huskily. "Have we?"

For an answer the robot opened the side of a cylindrical arrangement, and with the clawed tip of an appendage, pointed to the maze of coils and crystal that glowed with heat inside.

Jan studied the apparatus intently for several minutes. Much of it was beyond his grasp; but there were places where tangible fact corresponded with human theory. Energy from the cosmic ray which exists everywhere in space. Limitless, inexhaustible energy! The engines of the vessel were worked by it.

"I see," Van Tyren commented quietly. "The power problem is solved. Have we enough food, air, and water?"

Khambee led him through the labyrinths of the ship to a place where he had never been before—a hall lined with vast, transparent tanks, most of them filled with a clear liquid that had been sealed up for ages. There was water enough here to make the ship's little world independent of outside sources, since none could escape from the sealed hull.

Farther down the corridor were other tanks filled with preserved food supplies, and beyond them were extensive chambers where odd, bulbous things were growing under the intense light of great globes.

Were those growths plants of some kind, or artificial cultures to be classified somewhere between the organic and the inorganic? Their color was deep green. Was it chlorophyll, or a substance analogous in function to the chlorophyll of green plants? Perhaps it did not matter.

Here food was being produced under the action of the intense light.

Carbon dioxide, piped to these chambers from all parts of the craft, was being split up by those queer growths, and the oxygen in it was being freed to refresh the atmosphere of the ship. Khambee had started a process that had been dead for uncounted millennia; now it could go on indefinitely.

Nourishment, water, and oxygen—everything essential to life had been taken care of.

"Speed?" Jan questioned. "Can we build up sufficient speed to travel between the stars without making the trip endless?"

It was an important query. No man-built ship could have reached the outer galaxies in a lifetime, though there were experiments in progress which in a decade or so might produce promising results.

In a gesture of confidence, Khambee's tactile appendages swung toward a huge power-distributor tube nearby.

Jan was satisfied. "Then we're going," he said. "There's not much left for me here in the solar system."

His voice was steady, but the thrill of adventures to come made his heart pound and sent tingling prickles through his scalp muscles.

Khambee the unfathomable offered no protest, yet his actions indicated that there was work still to be done.

He clutched his master's arm and drew him along gloomy passages to a storeroom filled with various machinery parts and other supplies. Here he selected a great sheaf of metal plates, and bore it back to the air lock which opened into the wrecked compartment where Jan's space boat was housed. The silvery length of him passed through it, lugging the heavy load.

Jan Van Tyren donned his airtight armor and followed.

For several hours he watched the slave robot patch the great rent. During that time the effects of the blue ray must have worn off; for presently, of his own volition, he tried to help, holding the massive plates steady while his snakelike henchman welded them into place

with a flame tool. Khambee accepted the assistance without protest.

Jan was more his own self now—cool, dominant, purposeful, making ready for a venture which no man had yet attempted.

At last the job was finished. The wreckage of an ancient battle was neatly cleared away, the jagged hole was covered, and only an oval door was left, through which the flier might pass when necessary.

The eye lens of the robot met Jan's gaze briefly. "All is prepared," it seemed to say.

Van Tyren nodded, his weather-beaten face grim, hard, smiling. "Good!" he commented.

He shinned up the spiral pillar. Khambee was close behind, but he did not offer to help.

Nor did he go immediately to the controls of the engines. Instead he drew the man to a broad, white screen, which was part of a complex apparatus nearby. He snapped switches and twirled dials expertly.

Pictures appeared in the screen—bleak, rolling desert and tortured gorges. Then an oasis where there was water, and where the radioactive ores underground provided enough heat to permit the growth of vegetation. At its center was a little rough city under a crystal dome. Joraanin, the Ganymede colony!

Around it men and loyal Loathi were entrenched, fighting off hordes of rebel Loathi that circled on bat-like wings above, their long beaks gleaming. The revolt was still in progress. A strong hand was needed there to end this chaos and death. Yes, needed. The Bensonium mines—

Jan Van Tyren stood with the oxygen helmet in his hands, his mouth puckering pensively. A thousand thoughts swarmed in his brain; problems which he was sure he'd thrashed out before. Impressions of courage, of fear, of loyalty and of love. The Loathi. Greta. Little Jan. Revenge. No, not revenge—constructive cooperation. That was his policy. But he didn't have a policy anymore, did he? An empire builder. But he'd given up empire building. Or had he?

Jan's eyes roved the gleaming, segmented form of Khambee beside him. All at once truth came out of the

muddle. He saw one of the robot's purposes clearly at last. Khambee had been the slave of a fighting race. A worker, and when the occasion demanded—a healer. He, Jan Van Tyren, had been healed and freshened. His sense of responsibilities to come had returned, and he was ready for them now.

"I suppose I could still choose to leave the solar system, and you would obey me," he said. "But you probably knew all along what my final choice would be. Return to your cabinet, Khambee. I'm going back to Joraanin—alone. It's my job."

Khambee helped him gather his various possessions together, and to carry them down to the space boat. The exit door of the compartment rolled aside. Sunlight stabbed inward, causing the automaton's body to reflect a thousand shifting, iridescent colors.

Just as Van Tyren was entering the flier, Khambee thrust a paper into his hands. It was the paper on which Jan had recorded his astronomical measurements and had calculated the orbit and velocity of the derelict.

He felt more than ever that Khambee could read his innermost thoughts. There was a bit of tightness in his throat then.

"Thanks, Khambee," he said very seriously. "This might be useful. I may want to come back some time. I may need to come back."

The flier was in space. Jan Van Tyren hummed a tune that was lost in the growl of the rockets. Ahead lay Jupiter and its satellites. Beyond them the bright stars seemed to smile.

Davey Jones' Ambassador

IT DIDN'T LOOK like a jet of water at all. It seemed too rigid, like a rod of glass; and it spattered over the instruments with a brittle, jingling sound, for such was the effect of the pressure behind it: more than four thousand pounds per square inch—the weight of nearly two and a half miles of black ocean.

Cliff Rodney, hunched in the pilot seat, stared at the widening stream. It made him see how good a thing life was, and how empty and drab the alternative was going to be. Cliff Rodney was young; he did not wish to die.

A few seconds ago all had been normal aboard the bathyspheric submarine. The velvet darkness of the depths, visible beyond the massive ports of the craft, had inspired awe in him, as it always would in human hearts; but to Cliff it had become familiar. The same was true of the schools of phosphorescent fish shining foggily through the gloom, and of the swarms of nether-world horrors that had darted in the bright golden path of the search beam.

Clifford Rodney, during his explorations, had grown accustomed to these elements of the deep-sea environment, until they had assumed an aspect that was almost friendly.

But the illusion that it was safe here had been abruptly broken. Sinuous, rusty shadows which bore a suggestion of menace that was new to him had surged toward the submarine from out of the surrounding murk and ooze.

Attenuated, spidery crustaceans with long feelers had burrowed into the shelter of the mud beneath them. Little fish, some of them equipped with lamplike organs, some blind and lightless, all of them at once dreadful

and comic with their needle-fanged jaws and grotesque heads, had scattered in terror.

Bulbous medusae, contracting and expanding their umbrella-shaped bodies, had swum hurriedly away. Even the pallid anemones had displayed defensive attitudes in the guarded contraction of their flowerlike crowns.

With canny craft the unknowns had avoided the search beam. Cliff had glimpsed only the swift motion of monstrous, armored limbs, and the baneful glitter of great eyes. Then the blow had fallen, like that of a battering ram. It had struck the forward observation port with a grinding concussion.

A crack, looking like a twisted ribbon of silver, had appeared in the thick, vitreous substance of the pane. From it, water had begun to spurt in a slender, un-stanchable shaft that grew ominously as the sea spread the edges of the crevice wider and wider apart.

Automatically Cliff had done what he could. He had set the vertical screws of his craft churning at top speed to raise it toward the surface. But, in a moment, the blades had met with fierce resistance, as though clutched and held. The motors had refused to turn. The submarine had sunk back into the muck of the Atlantic's bed. An S.O.S. was the last resort.

Cliff had sent it out quickly, knowing that though it would be picked up by the *Etruria*, the surface ship that served as his base of operations, nothing could be done to help him. He had reached the end of his resources.

Now there was a breathless pause. The blackness without was inky. Cliff continued to gaze impotently at that slim cylinder of water. Ricocheting bits of it struck him, stinging fiercely, but he did not heed. It fascinated him, making him forget, almost, how it had all happened. His mind was blurred so that it conceived odd notions.

Pretty, the way that jet of water broke apart when it hit the bright metal of the instruments. You wouldn't think that it was dangerous. Flying droplets scattered here and there like jewels, each of them glinting in the shaded glow of the light bulbs. And the sounds they made resembled the chucklings of elves and fairies.

A small creature of the depths, sucked through the breach, burst with a dull plop as the pressure of its normal habitat was removed.

He and that creature had much in common, Rodney thought. Both were pawns which chance had elected to annihilate. Only he was a man; men boasted of their control over natural forces. And he himself was a blatant and ironic symbol of that boast: They had sent him here in the belief that even the bed of the Atlantic might soon yield to human dominance!

The submarine gave a gentle lurch. The youth's eyes sharpened to a keener focus. A yard beyond the fractured port a pair of orbs hung suspended. Beneath them was a fleshy beak that opened and closed as the creature sucked water through its gills. Black, whiplike tentacles swarmed around it like the hairs of a Gorgon beard. And the flesh of the monster was transparent. Cliff could see the throbbing outlines of its vital organs.

Nothing unusual here—just another devil of the depths. So Cliff Rodney would have thought had it not been for certain suggestive impressions that touched lightly on his blurred faculties. That beaked mouth was vacuously empty of expression, but the great limpid orbs were keen. The tentacles clutched a little rod, pointed at one end as a goad would be. The impression was fleeting. With a ripple of finny members the horror disappeared from view.

"That rod," Cliff muttered aloud. "I wonder if that thing made it!"

He felt a cold twinge, which was an expression of many emotions, ripple over his flesh. He moved quickly, his booted feet sloshing in the water that was now six inches deep within the stout hull of the submarine. He turned a switch; the lights winked out. It was best to be concealed in darkness.

Once more the bathyspheric submarine rocked. Then it was whirled completely over. Cliff Rodney tumbled from the pilot chair. Icy fluid cascaded around him as his body struck the hard steel of the craft's interior.

He managed to protect his head with his arms, but contact with the metal sent a numbing, aching shock through his flesh. Electricity; it could not have been

anything else. He tried to curse, but the result was only a ragged gasp. Clinging desperately to the sunset edge of oblivion, he fell back among his instruments.

Impressions were very dim after that. The submarine was being towed somewhere by something. Water continued to pour into the hull, making a confused babble of sound. Rodney lay in the growing pool, the briny stuff bitter on his lips. Too near stunned to master his limbs, he rolled about the inundated floor.

With each eccentric motion of the craft, churning water slapped viciously against his face. He choked and coughed. If only he could keep his nose above the flood and breathe!

In some foggy recess of his mind he wondered why he was fighting for life, when the broken port alone was enough to doom him. Was instinct, or some deeper, more reasoned urge responsible? Cliff did not know, but for a fleeting instant the blank look of pain on his face was punctuated by a grim smile.

He was not the mythical iron man; he was a median of strengths and weaknesses as are most humans. And, among humans, courage is almost as cheap as it is glorious.

Cliff could still hear the swish of great flippers shearing the sea beyond the eighteen-inch shell of the submarine. Harsh to his submerged ears, it was the last impression he received when consciousness faded out.

II

Reawakening was slow agony. He had been half drowned. When his brain was clear enough for him to take stock of his surroundings he did not immediately note any remarkable change.

He was still within the stout little undersea boat that had brought him to the depths. The vessel was nearly two-thirds full of brine, but by luck his body had been thrown over a metal brace, and for part of the time his head had been supported above the flood.

No more water was entering the hull through the eroded crevice in the window. In fact there was no mo-

tion at all, and, except for a distant, pulsating hiss, the stillness was tomblike.

The air was heavy and oppressive. It reeked with a fetid stench that was almost unbearable. Mingled with the odor was a faint pungence of chlorine, doubtless brought about by the electrolysis of sea water where it had penetrated some minor fault in the insulation of the submarine's electrical equipment. A gray luminescence seeped through the ports, lighting up the interior of the vessel dimly.

Soaked, dazed, battered, and chilled to the bone, Cliff struggled to the fractured window. There was air beyond it, not water. He had not extinguished the searchlight, and it still burned, for the storage cells that supplied current had been well protected against mishap.

There was no need to waste power to produce light here. A faint but adequate radiance seemed to come from the curving walls of the chamber in which the submarine had been docked. Cliff switched off the beam.

Groping down under the water, he found a lever and tugged at it. A valve opened, and the brine began to drain out of the submarine. The gurgling sound it made was harsh to his ears. Evidently the atmospheric pressure here was far above normal.

Next, he unfastened the hatch above his head and hoisted its ponderous weight. Wearily he clambered through the opening and dropped down beside his craft.

The room was elliptical, domed, and bare of any furnishings. Its largest diameter was perhaps thirty-five feet, twice the length of the submarine. Puddles dotted the floor, and the walls were beaded with moisture which showed plainly that the place had been flooded recently. At opposite points there had been circular openings in the walls, one much larger than the other. Both were blocked now by great plugs of a translucent, amorphous material.

Cliff had two immediate urges: One was to get a better idea of where he was; the other was to find, if possible, a means of allaying his discomfort.

He started his investigations with the larger of the two plugs. It was held in place by a tough, glutinous cement, still sticky to the touch. From beyond it came a distant murmur of the sea. This, then, was the way by which the submarine had entered the chamber.

After the entrance had been sealed the water had been drawn off by some means through the several drains in the floor. The stream from the valve in the side of the submarine still gurgled into them, pumped away, perhaps, by some hidden mechanism. So much was clear.

Cliff's attention wandered to the walls, in quest of some explanation of the phosphorescence that came from them. Their surface was hard and smooth like that of glass, but the substance that composed them was not glass. It had a peculiar, milky opalescent sheen, like mother-of-pearl. Squinting, he tried to peer through the cloudy, semitransparent material.

At a depth of a few inches little specks of fire flitted. They were tiny, self-luminous marine animals. Beyond the swarming myriads of them was another shell, white and opaque. He understood. The chamber was double-walled. There was water between the walls, and in it those minute light-giving organisms were imprisoned for the purpose of supplying illumination.

It was a simple bit of inventive ingenuity, but not one which men would be likely to make use of. In fact there was nothing about his new surroundings that was not at least subtly different from any similar thing that human beings would produce.

The glass of the domed chamber was not glass. It seemed to be nearer to the substance that composes the inner portion of a mollusk's shell, and yet it had apparently been made in one piece, for there was no visible evidence of joints where separate parts of the dome might have been fastened together. The blocks that sealed the openings in the walls were almost equally strange. Among men they would surely have been made of metal.

Clifford Rodney became more and more aware of the fact that he had come in contact with a civilization and

science more fantastic than that of Mars or Venus could ever be. Those planets were worlds of air, as was the Earth he knew, while this was a world of water. Environment here presented handicaps and possibly offered advantages which might well have turned the sea folk's path of advancement in a direction utterly different from that followed by mankind.

Continuing his investigations, Cliff discovered that the air under the dome was admitted through four pipe-like tubes which penetrated the double walls of his prison; but, of course, he could not discover where they originated. The air came through those tubes in rhythmic, hissing puffs, and escaped, he supposed, down the drains through which the water had been drawn, since there was no other outlet in evidence.

He wondered how the rancid stuff had been produced, and how his hosts had even known that he needed gaseous oxygen to breathe. He wondered whether they could have any conception of the place whence he had come. To them a land of sunshine must be as ungraspable as a region of the fourth dimension!

He remembered the electric shock that had almost stunned him at the time of his capture. Electricity was produced here then. But how? As yet he had not so much as glimpsed a scrap of metal in his new surroundings.

Cliff shuddered, nor was the dank, bitter cold alone responsible. He could realize clearer than before that beyond the barriers that protected him was a realm of pressure and darkness and water with which his own normal environment had few things in common.

Belatedly it occurred to him that he was being watched by the curious of Submarinia. Standing now in the center of the slippery floor, he scanned the dome above him for evidence that his logic was correct. It was. Spaced evenly around the arching roof, more than halfway toward its central axis, was a ring of circular areas more transparent than the surrounding texture of the double walls.

Though not easily discernible at a casual glance, they were plain enough to him now. Through each, a pair of

huge, glowing eyes and a Gorgon mass of black tentacles were visible. The ovoid bodies of the creatures were silhouetted against a nebulous luminescence originating from some unknown source beyond them.

The gaze of those monsters seemed cool and interested and intense, though Clifford Rodney felt that one could never be sure of what emotions, if any, their vacuous, beaked lips and limpid eyes betrayed. It would be difficult indeed to forget that they were completely inhuman.

Cliff's reaction was a kind of terror; though the only outward evidences of it were the strained hollows that came suddenly into his cheeks; still, the realization of his position thudded with ghastly weight into his mind. To those sea beings he was doubtless like a simple amoeba beneath a microscope, a specimen to be observed and studied!

Then his sense of humor rescued him. He chuckled half-heartedly through chattering teeth. At least no man had ever before been in a situation quite as novel as this. It was one which a scientist, eager to learn new things, should appreciate. Besides, perhaps now he could bring the adventure to a head.

He waved his arms toward the pairs of eyes that gazed steadily at him. "Hello!" he shouted. "What in the name of good manners are you trying to do to me? Get me out of here!"

They couldn't understand him, but anyway they could see by his gestures that he had discovered them, and that he was insisting on some sort of attention. Cliff Rodney was cold, and half-choked by the rancid air.

Things had to happen soon, or his stamina would be worn down and he would no longer be in a position to see them happen. The dank, frigid chill was the worst. The air would not have been so bad if it had not been for the retch-provoking stench that impregnated it. If only he had a dry cigarette and a match, it would help a lot.

That was a funny thought—a cigarette and a match! Had he expected these ovoid beings to supply him with such luxuries?

However, since there was no one else to whom he might appeal for help, he continued to shout epithets and pleas and to flail his arms until he was nearly spent with the effort.

Yet, the sea people gave no evidence of special response. The vital organs throbbed within their transparent bodies, tympanic membranes beneath their beaked mouths vibrated, perhaps transmitting to the water around them signals of a kind of vocal speech, inaudible to him, of course; and their tentacles scurried over the outer surfaces of the spy windows, producing a noise such as a mouse scampering inside a box might make, but Cliff saw no promise in their evident interest.

Every few moments, one pair of eyes would turn away from a window, and another pair would take its place. The ovoids were managing the scrutiny of him just as humans would manage a show featuring a freak. He could imagine them out there waiting in line for a chance to see him. It was funny, but it was ghastly too.

Exhausted, he gave up. Probably they couldn't help him anyway. If he only had something dry to keep the chill away from his shivering flesh!

Hopefully he scrambled up the side of the submarine and lowered himself through the hatch. There was a little electric heater there, but a brief examination of it confirmed his well-founded suspicions. Soaked with brine, its coils were shorted and it refused to work. He had no means of drying it out sufficiently, and so he turned on the search beam. If he crouched against the lamp, he might capture a little heat.

He climbed out of the dripping, disordered interior. Before dropping to the floor of the domed chamber he stood on tiptoe on the curved back of the submarine and attempted to peer through one of the spy windows in the rotunda over his head.

Even now the mystery of what lay beyond the glowing walls of the room beneath the sea could fascinate him. But his vantage point was not quite high enough, nor was there any means to make it higher. He saw only a flicker of soft, greenish light beyond the motionless, ovoid shape that occupied the window.

He slid weakly off the submarine and pressed his body against the lens of the searchlight. The rays warmed him a little—a very little—enough to tantalize him with the thought that such a thing as warmth really existed.

He thought of exercise as a means to start his sluggish blood circulating faster; he even made an effort to put the thought into execution by shaking his arms and stamping his feet. But he felt too far gone to keep up the exertion. His head slumped against the mounting of the searchlight.

Some minutes later, a throbbing radiance caused him to look up. At one of the spy windows was a creature different from the sea people. Its body was flat, and as pallid as a mushroom.

It was shaped curiously like an oak leaf with curled edges. Its mouth was a slit at the anterior extremity of its queer form. On either side of it were pulsing gill openings, and above were beady eyes supported on stalky members. From the thin edges of the creature's body, long, slender filaments projected, glinting like new-drawn copper wire. And the flesh of the thing glowed intermittently like a firefly.

After several seconds this phenomenon ceased, and another far more startling one took its place. The creature turned its dorsal surface toward the window.

Then it was as though some invisible hand and brush were printing a message in letters of fire on the pallid hide of the monster. They were old, familiar letters spelling out English words. One by one they appeared, traced with swift and practiced accuracy until the message was complete:

I am far away, man; but I am coming. I wish to write with you. Do not die yet. Wait until I arrive.

The Student

If Clifford Rodney had been himself, his consternation at this odd note and the outlandish means of its transmission would have been greater, and his analysis

of the phenomena involved would have been more keen. As matters were, he was still able to discern the shadows of the causes underlying the enigma.

This was the subsea version of wireless. He was too tired to construct a theory of its principle; he only glanced at the fine filaments projecting from the body of the creature that had served as an agent of the miracle, and dismissed the vague germ of an idea that had oozed unbidden into his sluggish mind.

Even though this was a science completely inhuman, still it was self-evident that there were logical explanations. At present Cliff didn't care particularly whether he ever learned them. Nor did he ponder for long the riddle of how this distant spokesman of the ovoids was able to write English. Somewhere there must be a simple answer.

However, the wording of the message, strikingly demonstrating the broad physical and psychological differences between his kind and the unknowns, won somewhat more attention from him. It was "I wish to write with you," instead of "I wish to speak with you." The ovoid tympanums, vibrating in water, could not produce or convey to him the sounds of human speech.

"Do not die yet. Wait until I arrive." Did those two simple commands express naive brutality or— Cliff scarcely knew how to think the thought. No human being would have expressed an idea of that sort with such guileless frankness. The meaning, of course, was perfectly clear; and Cliff knew that he had been afforded a glimpse into a mind differing radically from those of men.

"The Student." That at least had a familiar aspect. Because of the way the message was signed, the anger and depression which it aroused in him subsided.

The lettering vanished from the flat back of the creature which had been the means of conveying to Cliff Rodney the first expression of subsea thought. Another fire-traced message appeared, letter by letter:

We have waited long for the arrival of one of you, man. We must learn more about your kind before

you die. All in our power has been done for you. If you require more, perhaps it is beyond the small sealed exit. Unseal it. Live until I come.

The Student

Rodney cursed and shook his fist feebly at the messenger. Nevertheless, hope gave him fresh energy. He proceeded to obey the suggestion. Returning to the submarine he procured a heavy knife, extinguished the search beam for economy, and came forth again to attack the smaller door.

The cement here was thoroughly hard, glassy; but tough and elastic rather than brittle. Cliff worked at it fiercely, digging out the gummy stuff with the point of his knife. For a time it seemed that the stubborn block would never yield; but at length, when his expiring energies were all but burned up, and little specks of blackness flitted before his vision, success came.

The plug of amorphous material toppled from the opening and thudded resoundingly to the floor. For a minute young Rodney lay exhausted beside it, a rustle in his ears that he knew was not the distant whisper of the ocean.

Then, rested a bit, he crept through the opening. He was too dazed to be very conscious of the things around him. The character of the chamber was much the same as that of the one he had just quitted, except that it was larger, and the floor was a much more elongated oval. It had the same kind of pearly, phosphorescent dome equipped with spy windows.

Even now the windows were being occupied by the grotesque forms of the sea people, eager to observe the fresh reactions of their strange captive. The air, though, was drier, for the place had not recently been flooded, and it was musty with the odor of ancient decay, like that of a tomb.

The floor was piled high with a numerous assortment of things—every one of them of human origin. Cliff let his eyes wander over the array. There was a generator, part of a ship's turbine, several life preservers, a fire extinguisher, books, tattered and pulped by sea water

and pressure, rugs, and so forth. There were even two human figures.

They were propped on a dilapidated divan, and were fully clothed. Whoever had placed them there had apparently made some attempt to arrange them naturally.

Cliff Rodney came closer to examine them. One had been a man, the other a woman. Their flesh was gone, their faces only skeleton masks. The woman's dress had once been white and beautiful, but now it was just a mottled, gray rag. Yet, the diamond pendant at her throat still gleamed as brightly as ever. The pair clutched each other with a fierceness that was still apparent. Perhaps they had died in each other's arms like that long ago. A grim tragedy of the Atlantic—

Rodney's reactions were not quite normal. He felt sick. "Damn museum!" he grumbled in a sort of inane disgust. "Damn stinky museum of Davey Jones!" He choked and sneezed.

The haze of his numbed faculties was not so dense that it obscured the animal urge to seek comfort, however. He picked up a heavy rug which, though rotted and odorous, was fairly dry.

He stripped off his soaked garments and wrapped himself in the rug. Tearing up a book and heaping the fragments into a pile with the intention of making a fire was quite natural and automatic. So was locating his cigarette lighter and attempting to make it work. Here, though, he struck a snag. Sparks flew, but the wick was too wet to burn.

Out of his angry chagrin an inspiration was born. He unscrewed the cap from the fuel container, poured a few drops of benzine onto the paper, and applied the sparks direct. The tinder flared up merrily, and grotesque shadows leaped about the walls of the eerie chamber. Delighted, Cliff huddled down beside the blaze, absorbing its welcome heat.

Only once did he glance at the ovoids watching him. He could not have guessed what wonder his activities provoked in the minds of those strange people of the depths.

"Go to hell!" he called to them in dismissal.

The air didn't smell so bad with the smoke in it. As

the embers began to die, Clifford Rodney drew the carpet tighter about him and sprawled on the pavement. Worn out, he was quickly asleep.

III

Through the gloom of the bottoms, seven slim shapes were speeding. They were neither crustaceans nor sharklike elasmobranchs; they bore some of the characteristics of both.

Their bodies were protected by horny armor and were tapered in such a manner as to suggest the lines of a torpedo, a comparison that was heightened by the waspish air of concentrated power about them. Rows of flippers along their flanks churned the dark water, sending them swiftly on their way. Folded carefully against their bellies were pairs of huge claws resembling the pincers of a crawfish, though much larger. Projecting like swollen cheeks on either side of their heads were protuberances of modified muscle—their most effective weapons.

These monstrous creations were not entirely the product of nature. The knowledge of a gifted people working on their kind for ages had achieved a miracle, making of them efficient, dependable fighting machines.

They swam in a military formation. The largest individual of the group formed its center. Above, below, ahead, behind, and on either side—one in each position—the others swam. There was a reason. Every now and then schools of small, devil-fanged fish would glide out of the darkness to attack the cavalcade. The nearest members of the escort would leap to meet them.

For an instant, many fierce little teeth would try to penetrate the tough shells of the fighters. Then the latter would strike back, invisibly, except for a momentary flicker of lavender sparks around their snouts. The attacking fish would stiffen and go drifting limply into the darkness again, dead or stunned.

The fighters were protecting their master, he who had named himself "The Student." He rode the central

individual of the formation, suckerlike cups on the ventral surface of his body, clinging to its back. He had flattened himself against his mount to minimize the surge of water that swept past him. His eyes peered ahead with an expectant glitter.

He changed position only to trace queer symbols, with a goad of glassy material, on the flesh of the fragile messenger that clung beside him, and to scan the phosphorescent replies to his queries that came in return. But within him, dread and eagerness were mingled. He had received the call that he had both hoped for and feared. And he was responding.

Out of the murk and ooze that blanketed the sea floor ahead, an emerald glow arose like some infernal dawn. The cavalcade continued to speed on its way, and the radiance brightened.

A broad depression in the bottoms emerged from the fog of suspended mud, gray like tarnished silver. Above it swarmed myriads of minute luminous animals, forming an immense canopy of green light, limned against the blackness of the depths. That canopy looked as though it had been placed there for a purpose.

To paint the scene beneath would have challenged the genius of Gustave Doré. It was as abhorrent as the visions of a mad demon; still it possessed elements of majesty and beauty.

A city was there in the hollow—a city or a colony. The seven fighters were moving close above it now. The valley was pitted by countless small openings, arranged edge to edge after the fashion of the cells of a honeycomb. Into them and from them, ovoids swam, going about whatever business was theirs. Here and there, queer structures of a pearly translucent material reared twisted spires that seemed to wriggle with the motion of the water.

Monsters were everywhere, vague in the shifting shadows. Scores of types were represented, each type seemingly stranger than its associates. All of the monsters were busy, guided in their activities by alert ovoids that hung in the water, goads poised, flippers stirring idly.

Some of the monsters wallowed in the muck, digging

with broad, spatulate members. Wormlike in form, pallid and smooth, one knew that their purpose in life was to dig, and nothing else.

Others kneaded their bloated, shapeless bodies, forming elfin creations around them, seemingly from their own substance. Some fanned the water with long, flattened limbs, perhaps performing a function akin to ventilation. Others—they were fighters like The Student's escort—guarded the colony, swimming steadily back and forth.

And so it went. Each of the horrors followed the vocation for which it was intended. Each was a robot, a machine of living flesh, capable of some special function.

A man would have been held spellbound by this teeming, alien activity; but The Student scarcely noticed it at all. Everything—the lights, the motion, the whispering, slithering sounds that found their way to his auditory organs—held the familiarity of life-long experience, of home.

His gaze, though, wandered intently across the valley to the place where the gutted hull of an ocean liner sprawled half over on its side, its form almost obscured by the dusty murk of the depths.

Slim ribbons that had the appearance of vegetation streamed up from it, waving like banners. They were not vegetation, though they were alive. There were no plants here, away from the sunshine; and the fauna of this world was dependent for its sustenance upon organic debris settling from above, where there was sunlight, where chlorophyll could act, and where both fauna and flora could exist.

Always the wrecks of upper-world ships had interested The Student, as something from another planet would interest us. He had rummaged through their slimy interiors, examining and exploring this and that.

Of all their wondrous contents, books had fascinated him the most. With a zeal and care and love that an archeologist would understand, he had made copies of those fragile, water-soaked storehouses of knowledge, tracing the still legible parts of them on a parchment that could withstand the action of the sea.

He had studied the queer symbol groups they bore; he had discovered the value of the dictionary. And as the Rosetta Stone had been the key to Egyptian hieroglyphics, so the dictionary had been his means of solving the riddle of mankind's literature.

There was another thing that won a brief glance from The Student, as he guided his mount and escort toward the concourse of ovoids that had collected around the structures which housed the reason for his coming.

On a low rise a circular vat, filled with living protoplasm, squatted. Above it two crudely hammered bars of iron converged. Between their adjacent ends blue sparks purred. The apparatus was a recent development which would have startled the wise inventors who had contributed so much to another culture.

With a thrusting motion The Student hurled himself from the back of the fighter. The flippers along his sides took hold of the water with powerful sweeps. The crowd made a lane for him as he approached. Tympanic voices buzzed around him, questioning, demanding; yet, he paid no heed.

IV

The Student reached a spy window in the dome, looked down. The man was there, sprawled motionless amid the relics of his civilization. A piece of ragged fabric wrapped his pallid body.

Revulsion, fear, hope, and anxiety were not beyond The Student's understanding, and he felt them all now.

Was the prisoner dead? Was all that had been promised to end in disappointment? Paradoxically The Student would have been more at ease if such were the case. There is no harm in an enemy whose vital functions have stopped. Yet The Student himself did not live for peace and security alone. The boom of existence has many meanings.

He moved to a window in the smaller dome and surveyed the bathyspheric submarine, marveling at the smooth metal hull and the precise perfection of each detail. No ovoid could fabricate such wonders.

Patiently he waited until the buzzing tympanic voice

of the throng about him impinged on his sense organs, telling him that the time had arrived.

Coolly The Student returned to the window of the museum chamber. The man was awake. He stood unsteadily in the center of the floor, the rug still wrapped around him and his eyes turned upward.

Two peoples, two cultures, two backgrounds, two histories, and two points of view were face to face at last, ready for whatever might come of the meeting. The bizarre stood versus the bizarre from opposite angles. Between them the abyss was wide. Was there—could there be—any sympathy to bridge it?

It was up to The Student to open negotiations, and he did not hesitate, for he had planned well. From a pouch that was a natural part of him he removed a stylus of chalky material. Then, concentrating on what he had learned during his years of study, he printed a command on the pane of the window: "You made fire, man. Make it again."

He traced the letters in reverse, so that they would appear normally to the being inside the dome.

The prisoner seemed uncertain for a brief spell; then he obeyed. Paper, a daub of liquid from what appeared to be a tiny black box, a swift movement, sparks, and finally—flame! The man held up the blazing paper for his visitor to see.

The Student watched the phenomenon of rapid oxidation, drinking in the marvel of it until the flame was burned out. The water had washed the chalky letters from the window. He traced another message: "Fire gives you metals, machines, power—everything you have?"

If, before it had happened, Clifford Rodney had had an opportunity to construct a mental picture of what this meeting would be like, he would no doubt have expected to be amazed. But he could not have conceived beforehand an adequate idea of his own wonder. Tangible truth was so much more startling than a bare thought could be.

Here was a thing which bore many of the outward characteristics of the marine animals with which he was acquainted—pulsing gills, stirring flippers—organs used

in a medium which must ever be foreign to those forms of life that live in air and sunshine.

There was even in the visage of the thing—if visage it might be called—a deceptive look of vacuity which only the cool glitter of the great eyes denied. And yet, clutched in the being's tentacles was a crayon, with which it was writing in English, words that displayed a considerable knowledge of human attainments!

Cliff almost forgot that he himself was a delver after hidden facts. Then his own calm purpose conquered. His sleep had refreshed him; and though he felt stiff, sore, and uncomfortable, he could still respond to the appeal of an enigma.

He looked about for some means to answer. His attention was drawn to a small area of unencumbered floor, on which a thin layer of sea sand had been deposited. With a finger he traced words in it: "Yes. Fire brought us out of the Stone Age and has kept us going since. You got it right, friend. How?"

And the swift-moving tentacles traced a reply: "I have translated books—men's books. I have read of fire. But we have never produced fire. We might produce fire from electric sparks—soon."

Rodney looked with quizzical awe at the gleaming orbs of the ovoid. Behind them, he knew, was a brilliant brain, whose brilliance had perhaps been augmented by the very handicaps which it had faced and overcome. The truth concealed behind this intriguing statement was already dimly formulated in his mind. Now he might clear up the matter completely.

He smoothed out the sand and printed another message: "You have electricity, glass, and a kind of wireless—still, no fire. It is too wet here for fire; but how did you do it all? And you write like a man—how?"

The Student chose to answer the last question first. "I mimic the writing of men," he printed. "I must—so men understand. Glass, electricity, wireless, and other things, come from animals. Nearly everything comes from animals. We have made the animals so. We have developed the useful characteristics of the animals—great care, selection, breeding, crossbreeding—a long time—ages."

It was a confirmation of the vague theory that Cliff had

formulated. Handicapped by the impossibility of fire in their normal environment, the sea folk's advancement had followed another path. Controlled evolution was what it amounted to.

Cliff remembered what miracles men such as Luther Burbank had achieved with plants—changing them, improving them. And to a lesser extent, similar marvels had been achieved with animals. Here in the depths of the Atlantic the same science had been used for ages!

Without visible excitement Cliff traced another note in the sand: "Electricity from living flesh, from modified muscle as in the electric eel or the torpedo? Glass from— Tell me!"

And on the spy window the answer appeared: "Yes. Glass from animal—from mollusk—deposited and grown as a mollusk's shell is deposited and grown. And it is formed as we wish. Electricity from modified muscle, as in the electric eel or the torpedo. I have read of them. We have animals like them—but larger. The animals fight for us, kill with electricity. And we have—electric batteries—metal from the ships. Rods—protoplasm—"

The Student's black tentacles switched and hesitated uncertainly as he groped for words that would express his thoughts to this strange monstrosity of another realm.

But Clifford Rodney had captured enough of his meaning to make a guess. "You mean," he wrote, "that you have developed a way of producing a steady current of electricity from a form of living protoplasm? A sort of isolated electric organ with metal details and grids to draw off the power?"

"Yes."

Cliff thought it over, briefly but intensely. Such protoplasm would need only food to keep it active, and it could probably obtain food from the organic dust in the sea water around it.

"Splendid!" he printed. "And the wireless, the radio beast—tell me about it!"

The Student concentrated all his powers on the task of formulating an adequate response. Slowly, hesitantly, now, he began to trace it out; for he was thinking al-

most in an alien plane, working with words and ideas subtly different from his own. To make the man understand, he had to choose phrases and expressions from the books he had read.

"It is the same," he inscribed. "A characteristic developed to usefulness. Long ago we studied these animals. We discovered that they could—communicate—through—over great distances. We increased—improved this power by—by—"

"By choosing those individuals in which the power was strongest, for breeding purposes, and in turn selecting those of their offspring and the descendants of their offspring in which the characteristics you desired to emphasize were most prominent," Cliff prompted. "Thus the abilities of these messenger creatures were gradually improved. Right?"

"Yes. Right," The Student printed. "Now, we make marks on the flesh of a messenger creature. The irritation produces stimuli—a sequence of stimuli through nerves of skin, through brain, through—communicating organs. Other creatures, far off, pick up the impulses. Again there is a sequence of stimuli—communicating organs, nerves of skin, luminous cells of skin. The luminous cells which—which—"

Cliff had followed the strange explanation keenly, and now his own quick analytical powers grasped the idea which The Student was trying to express.

"The result is that the luminous cells in the skin of the receiving animals, corresponding in position to the luminous cells in the skin of the transmitting animal, are stimulated so that they emit light. Thus the symbols are made visible on the hide of the receiving messenger, just as they were originally traced. Is that correct?"

"Correct," the ovoid printed.

"There are entomologists who have suggested that certain insects have the power to communicate over distances like that," Cliff answered, "the cockroach, for instance. Their antennae are supposed to be miniature wireless sets, or something."

The Student did not offer to reply to this immediately, and so Rodney scratched one word in the sand. It

was "Wait." For a minute or two he was busy piling odds and ends of wreckage beneath the spy window. Then, equipped with a piece of board, and a pencil taken from his discarded clothing, he scrambled to the top.

V

For the first time, he viewed the colony of the ovoids, the green canopy of luminous organisms, the hordes of sea people, the welter of infernal activity, the protoplasmic battery sparking on its isolated knoll, the moving shadows of robot beings, and the alert fighters that patrolled the outskirts of the city, where light and darkness met, like enemies holding each other in deadlock.

And the greatest of these miracles was this devil who called himself The Student, and who had now backed off in revulsion at Cliff's approach.

But there were matters still to be investigated more closely. Dimly visible against the outer walls of the dome was a great shapeless mass that expanded and contracted as if it were breathing. Above the thing, and projecting from the dome like a canopy, was a curious curved shell of pearly, vitreous material.

His deductive faculties keyed up. Cliff was almost certain that he understood the function of the arrangement. With his pencil he traced two questions on the board he held: "You know chemistry, physics, what oxygen and nitrogen are?"

"Yes. I have learned from research. I have learned from men's books," The Student replied, conquering his revulsion.

"You know that the air bladders of fish are filled with a mixture of oxygen and nitrogen?" Cliff asked. "You know that these gases are derived from the blood through the capillaries that line the air bladders, and that this oxygen and nitrogen are drawn originally from the oxygen and nitrogen dissolved in sea water, by means of the gills?"

"Yes."

"Then," Rodney went on, "the air in this place comes from animals too! That creature out there under that

roof arrangement—it has gills which take the gases from the sea water and deliver them into the bloodstream.

“Part of the oxygen is used to keep the creature alive, of course; but another part of it, together with the nitrogen, is discharged through the walls of capillaries as an actual, free gas, just as a portion of the oxygen and nitrogen in the blood of a fish is discharged into its hydrostatic organ or air bladder! The roof arrangement probably collects it in some way, and delivers it here to me!”

“That is correct,” The Student printed. “Several animals work to give you air. Something new—ages to produce.”

“Ages, all right.” Cliff breathed fervently. “I can well believe it!” He had spoken aloud.

But he was not finished yet. His face was flushed with eagerness, and his pulses were pounding. He had another question to print: “How is the water kept out of here? Nothing of flesh could prevent it from entering when the pressure is so great.”

“There our skill failed,” The Student responded. “We used the skill of men. We made pumps from parts of ships and from materials which were our own. Air is pumped into the domes and from the domes—and water, when necessary.”

The black tendrils withdrew from the window. Transparent lids flickered over the ovoid’s great eyes. The transparent body swayed languorously, reminding Cliff of the first sting ray he had seen in an aquarium when he was a child.

It was clear at last, this alien science. Low down beyond the window, and against the shell of the dome, he glimpsed vague motion, where a monster toiled, swinging the lever of a rusty mechanism back and forth. The machine was a pump. Its operator was forcing to him the air which those other monsters produced. And beyond extended the murky, unbelievable reality of this submarine world.

“It is all glorious,” Cliff printed in tribute, “even beautiful, almost—your achievements, your ways of doing things!”

The Student's tentacles stirred uneasily, but he made no reply.

A climax had been reached and passed. Rodney's enthusiasm began to cool a little, leaving him to become more cognizant of his own position. He thought of people and friends that he had known and experiences he had enjoyed. The thoughts made him feel very cold and lonely.

His pencil scratched in the silence. "What are you going to do with me?" he was demanding.

"Keep you," was the response.

"Until I rot?"

"Until you rot."

It was a simple statement, devoid of either malice or compassion. Yet it was loaded with a dread significance. It meant staying here in this awful place, dying of starvation, perhaps, if the icy dankness didn't get him.

It meant death in any event; probably it meant madness. There would be ovoid eyes watching him, studying him; there would be ovoid beaks opening and closing vacuously—crazy, wonderful things everywhere, but only his submarine, and the depressing relics in the museum, familiar!

They had conversed, The Student and he. They had been almost friends. But beneath their apparently amicable attitudes toward each other had lain mistrust, broadened and deepened by the fact that they had so very little in common. Cliff saw it now.

Fury smoldered within him, but he held it in check.

He tossed aside the board, which was too covered with messages to be of any further use, and selected in its stead the pulped remnants of a book from the stack of things which supported him close to the spy window.

On one of the illegible pages he printed a note and held it up for the ovoid to see: "I know a better way for you to learn about my kind. Why not establish friendly relations with the world above? Certainly we have many things that you could use. And you have many things that we could use."

"No!" The Student's slender, boneless limbs seemed

to jerk with emphasis as they traced the word and repeated it. "No!"

"It will happen anyway," Cliff promised. "Soon my people will come in machines of steel. They will make you understand what is best."

"Men coming here will not return," The Student answered.

And Clifford Rodney, remembering his own capture and seeing now the waspish fighters patrolling the city of the ovoids, had no reason to doubt the weight of the statement. The sea people could protect themselves in their native element.

"You fear us? You mistrust us?" Cliff wanted to know.

The response was frank: "Yes."

"There is no reason."

To this The Student offered nothing.

Cliff tried a new angle, printing swiftly: "What do you know of the place we live in, really—sun, stars, planets, day, night? You have read of such things, no doubt. Wouldn't you like to see them? They are beautiful!"

"Beautiful?" The Student questioned. "Beautiful to you. To me—to us—horrible. The Sun, the great dazzling light—it is horrible—and the heat, and the emptiness of air. They make me afraid. But they are wonderful—interesting, very interesting."

Some emotion seemed to stir the nameless soul of the ovoid, making him hesitant and uncertain.

Clifford Rodney thought he glimpsed a shadow of hope. He scarcely understood why he argued; whether he had some dim idea that he might save himself, or whether he was trying to advance the cause of mankind in its demand for expansion into alien realms.

Perhaps he was urging this queer intelligence of the deeps only because it is in the nature of any strong, healthy-minded youth to fight even the most adverse circumstance.

"You are interested, but you are afraid," he wrote. "Why don't you give your interest the chance it deserves? Why don't you—" He hesitated, not knowing

quite what he wished to say. "Why don't you try to make contact with my people?"

For a flickering instant The Student paused, in a way that betrayed some hidden process within him. Then his decision seemed to come. "The world of men is the world of men," he printed. "The world of the sea is our world."

Further urgings on Cliff's part met only with flat refusal. He desisted at last, feeling oddly like a salesman who, through a slip in technique, has lost a sale. But that comparison could not be true either. He felt that The Student's obstinacy was too deep-seated to be overcome by mere salesmanship.

Dejectedly he watched the chalky words of the ovoid's last rebuff being washed from the window by the ocean.

Then those black tendrils holding the crayon went to work once more. "You wish to escape," they printed. "It would be interesting, man, to watch you trying to escape."

Startled, Cliff wondered what bizarre mental process had given birth to these statements. Hope was resurrected.

"I cannot escape," he printed warily. "A glass port of my submarine needs repairing, for one thing. I have no materials."

"We will give you materials," was the astounding assertion.

"Eh?" the man said aloud, before he remembered that the ovoid could not hear his words, or understand them if he had been able to hear. "I could not get out of these domes anyway," he wrote. "It is useless."

Cliff Rodney was trying to make a subtle suggestion, in the hope that his unfathomable jailer would offer him a chance for freedom.

"Men have many tricks," The Student responded. "Watching you make use of tricks will be very interesting. We will learn much. Men have powerful explosives."

"I have no explosives!" Cliff insisted truthfully. A feeling of exasperation was rising within him.

"Men have many tricks," the ovoid repeated.

It was a tribute, nothing less; a tribute of mingled awe and mistrust, which the people of the depths felt for the people of the upper air. It was an example of other-world minds at work.

"You expect me to escape?" Cliff demanded.

"You will not escape," was the answer. "This is a test of your powers—a test of men's powers—an experiment. If you escape from the domes you shall be recaptured. We understand caution, man."

Thus Rodney's hopes were broken. But before this message had faded from the spy window, he wrote on a page of the tattered book an acceptance of the challenge: "Good! Get materials you promised, and go to the devil!"

"Materials shall come," was the reply. "Go to the devil."

Breaking off the conversation thus, The Student wheeled in the water. His silvery fins flashed, and he vanished amid the throng of nightmare watchers.

Cliff wondered in a detached way what emotion, if any, had prompted the ovoid to repeat his angry epithet. Was it fury, amusement, some feeling beyond human conception, or just another bit of mimicry? Cliff didn't know; and because he didn't, the skin at the back of his neck tightened unpleasantly.

VI

The Student was out there among his fellows, giving orders in buzzing, tympanic tones and preparing for the test. None could see the turmoil inside his brain—fear pitted against intense eagerness and interest.

He had made no decisions yet, nor would the decision he had in mind be sanctioned by his people. And it is certain, too, that he had no sympathy for the man who had fallen into his clutches, nor any desire to help him win his way to freedom.

Clifford Rodney did not immediately climb down from his position atop the wreckage he had piled up. Instead he remained by the window, looking out, for no particular reason. The only sound, the gentle, pulsing hiss of air being forced into his prison, had a monoto-

nous effect that was more oppressive than absolute silence.

The weird colony wasn't so very different, though, from the cities at home, if you allowed your eyes to sort of blur out of focus; if you didn't see that sunken liner with the wispy ribbons trailing up from it, or the twisted architecture, or the inhabitants. The moving lights made you think of gay places and of gay music and people. One corner of his mouth drew back thoughtfully.

He could see that his chance of getting out of this mess was practically nil: in the first place, he had not the ghost of an idea how he might escape from the two domes. And if he did manage to break free from them, those armored fighters would bar his way. Their great claws would grip the submarine while they discharged their bolts of electric force. The metal hull would protect him to some extent, but not sufficiently, as he knew from experience.

More conscious than ever of the aches in his body, his loneliness and dejection, he looked down at his feet absently. Under them were books. He toed one. Its gilt title was almost obliterated, but he still could make it out—Kipling's *Barrack Room Ballads*.

There was a friendliness in those dim, familiar words, and he chuckled a bit. Funny to think of an ovoid intellect trying to read and understand the poems in that volume—"Danny Deever," "Mandalay"! "If" was one of Kipling's works too: "If you can keep your head—"

Cliff smiled ruefully. Anyway he couldn't go wrong by attempting to improve matters a little.

He cast a final glance through the spy window. The ovoid crowd was growing thicker, anticipating activity. Behind them the fighters were gathering in the dusky shadows. In their claws some of them clutched massive bars of some material—rams, no doubt. Probably it had been one of those rams that had broken the port of his submarine.

Still garmented in the tattered carpet, he started in by setting his craft in order as best he could; straightening a warped propeller blade, draining water out of machines and instruments, and repairing those that were broken, whenever it was possible. At least, he had cloth

and paper from the museum to help him mop up the wetness of everything.

The radio was a tangle, but he had hope of fixing it some way so that, by means of its beam, he could get a word up to the boys aboard the *Etruria*, on the surface. They couldn't help him, of course; they could only watch and wait.

Several hours must have passed without incident. While he worked, Cliff kept a close lookout for some sign of The Student. When it came, it was not delivered by the wizard of the deeps in person, but through the proxy of a messenger beast. The oak-leaf body of the creature wavered before a window, and on its hide luminous words appeared: "Food is coming through an air tube. Eat."

Cliff waited. From one of the air passages that entered the chamber, a mass of albuminous substance was blown, and it plopped to the floor. It looked like white of egg. Cliff touched a finger to it, and tasted the adhering dab.

No doubt it was from the body of some specialized marine animal. Probably it was very nourishing, and though it hardly excited Cliff's appetite, he realized that a man might train himself to relish such fare. At present, however, he preferred the brine-soaked chocolate and other food articles that he had brought with him on his adventure.

The messenger now exhibited another message: "Cement for port of the submarine, through same tube."

Its manner of arrival was similar to that of the food. A great lump of clear, firm jelly, probably also the product of a subsea creature.

Rodney gathered it up. As he carried it, a thin film of the substance hardened to glassy consistency on his hands, as collodion would do. He applied the jelly to the submarine's fractured port, inside and out, pressing it as firmly as he could. It would take some time for the cement to set.

He returned his attention to the radio transmitter, but only for a moment. Out of some inner well of his consciousness, the faint shadow of an idea had appeared.

He clambered from the submarine, and with a knife proceeded to dig the cement from around the huge, glassy plug that kept out the sea, just as he had done before with the smaller plug that had sealed the entrance dome from the museum.

He worked entirely around the circular mass, loosening the adhesive substance as deeply as he could probe with his blade. No seepage of sea water appeared. The great block was intended to open outwardly. It was very thick, and beyond it, holding it shut, was the weight of the Atlantic.

But Clifford Rodney's plan was maturing. His efforts were not entirely useless. Undoubtedly that external door was not as firmly placed as it had previously been.

Cliff felt that he might yet demonstrate his ability to get out of the domes, though once beyond them, he could find no glimmer of reason to expect that he could elude the circle of horror that awaited him, even for a few seconds. He could only try to do his best, not so much in the expectation of escape, but to keep his energies busy.

Conscious that his every move was watched with absorbing interest by the ovoid audience at the spy windows, he rummaged in the museum, finding there some wire and strips of metal. These he brought back beside the submarine.

The drinking-water container of his craft was glass-lined. He unfastened it from its mounting, bashed in the top, and added to its contents a small amount of acid from his batteries. Then he carried it up through the hatch and set it on the floor of the chamber.

Into the water, at opposite sides of the container, he placed upright strips of metal to act as electrodes. To each of these he fastened wires, and attached their opposite ends to the powerful storage batteries of the submarine.

Next, with paper and other refuse, he plugged the air tubes and drains of the two domes. Then he closed the switch, sending current through the apparatus he had just constructed.

There was a hiss as of a caldron boiling as the electricity went through the water in the container, splitting

it up into the elemental gases that composed it. Free oxygen and hydrogen bubbled away from the electrodes, mixing with the air of the domes.

This crude process of electrolysis was only the beginning. From the museum Cliff collected all the combustible materials he could find and carried them into the chamber of the submarine—books, wood, a few scraps of celluloid, hard rubber, and so forth. Then, with a little of the glassy cement that remained, he sealed the block that had separated the two domes back into place.

There was another matter. For a few seconds it puzzled him, but finally a solution came. With wrenches he unbolted the heavy glass lens of the submarine's searchlight. Carefully he tapped the incandescent bulb beneath, breaking it, but leaving the delicate tungsten filaments undamaged. Against them he placed a wad of paper, daubed with the remaining benzine of his cigarette lighter.

So far, so good. He investigated the electrolysis apparatus again, shutting off the current for a moment while he scraped away the interfering bubbles that had collected on the crude electrodes.

Satisfied that his preparations were as complete as they could be made for the present, he shut himself inside the submarine and continued to work on the radio. After perhaps an hour of fussing and tampering, he believed that he might get a code message up to the *Etruria*.

He was almost ready, but there was one thing more. Aboard the craft there were ten flasks of compressed oxygen. Opening the valves of nine of these, he tossed them through the hatch, retaining only one for breathing purposes.

While their contents souged away he disconnected the electrolysis wires and closed the heavy steel door over his head. Working the key of the radio, he flashed out his appeal:

Rodney calling S. S. *Etruria*. . . . Rodney calling
S. S. *Etruria*. . . . Captured by deep-sea creatures.
. . . Trying to escape. . . . Get position and stand
by to help. . . .

He repeated the communication several times. If it were received, it would be simple for his confreres to calculate his position from the direction the waves came in. They'd be waiting to pick him up. He even chuckled ruefully at the thought.

Through the ports he could see that the ovoids had moved back from the spy windows of the dome, anticipating danger; but their forms, and the forms of their fighters, still hovered tensely in the luminescent haze of the ocean bed. He could not see many from his unfavorable position, but doubtless they were above and all around the dome, waiting for him to make a move!

VII

Cliff forced himself to forget these unnerving thoughts. His hand touched the searchlight switch. His face was grim as he directed his gaze through another port toward the great, circular block that kept out the sea.

"Any one of three things can happen," he muttered. "The force can be insufficient, in which case what I have done won't accomplish anything at all—I'll still be locked in this dome. Or it can be too great, forcing out that plug all at once and letting the water in here all at once, to smash this steel coffin—all at once. Or it can be just right, admitting the ocean gradually enough so that this old tub can stand the strain."

Even the stout steel hull couldn't withstand the sudden thrust of the pressure of the deeps, he knew. Its position would be something like that of a nut under the blow of a hammer.

Cliff didn't want to give himself time to think. He closed the switch. Almost immediately there was a flash of red, as the hot filaments of the searchlight ignited the benzine-soaked paper that was in contact with them.

The flame spread through the dome in a wave of orange, as the hydrogen in the air burned. The sound which penetrated the thick shell of the craft was not the concussion of an explosion. Rather, it was a whispering, soughing roar; for the weight of the sea without was too

vast for this feeble beginning of chemical forces to combat.

However, the reserves now came into action. Immersed in a highly oxygenated atmosphere under pressure, the paraphernalia from the museum took fire and, though damp, rapidly became an inferno of incandescence that threw off enormous volumes of gas, expanding irresistibly with heat.

His heart thumping, Rodney kept his eyes glued to the great block which he hoped to dislodge. Stubbornly it continued to stand its ground, unmoved. He gritted his teeth as if, by sheer force of will, he sought to move the insensate thing that barred his way.

Moments passed. There was a snap like a muffled rifle shot. The block jerked, shuddered. Around its rim a curtain of glass appeared—no—not glass—water, screaming like a concourse of mad devils. The flood rolled over the floor, found the fire, and burst into steam, the pressure of which added to the titanic forces combating the titanic weight of the deeps.

More moments—the chamber was half full of water. Then, with a sort of majestic resignation, the plug yielded, folding outward like a dying colossus. The ocean was in then, swiftly—so swiftly that a living eye could not capture its movements. The thud of it was heavier than a clap of thunder.

The submarine bobbed in the maelstrom like a bit of flotsam. But its hull held, even though it was flung repeatedly against the walls of the dome.

A minute went by before Clifford Rodney was able to do anything. He picked himself up from the place where he had been hurled, and scrambled to the controls. He could see the opening which led from his prison. The motors throbbed and the submarine turned, heading through the still surging water.

It did get clear of the dome. Cliff almost thought he had a chance. Maybe the confusion produced in the vicinity by the suction when the sea had entered the dome, had unnerved the ovoids momentarily.

He set the vertical screws spinning. Their lift wasn't very good. They had been damaged again. It was hardly

remarkable after the way the little ship had been bounced around.

Cliff looked up through a ceiling port. Six fighters were pouncing down upon him, their hinged claws spread wide, their long, armored forms ghostly in the shadows. Others were approaching from all directions, accompanied by a horde of ovoids.

A seventh had joined the six now. Rodney had not seen it dart up from the deep muck of the bottoms, where it had lain, hidden even to the people of the depths. It bore a strange, glassy object of considerable size. Without much attention the man wondered what it might be.

"All right," he muttered, "you win! I hope you enjoyed the show!"

The fighters were upon him. He could hear the scrape of their claws against metal. Clouds of black stuff, like the ink of a squid, surrounded the submarine, hiding everything from view. He was still rising, though—rather rapidly, he thought. In a moment the electric bolts would stun him.

Upward and upward he went. Cliff began to be puzzled. He detected scraping noises that he could not interpret. He must have advanced half a mile toward the surface since the start. It was all very odd.

There was a jolt. The climb became halting and erratic. The motors labored doggedly.

The water cleared. Cliff could make out schools of phosphorescent fish, hanging in the darkness like scattered galaxies. He was alone, far above the bottoms. There were no fighters around him, though he thought he glimpsed dim shapes vanishing beneath. They could not endure the reduced pressure that existed here.

Matters were better, far better, than he had dared to expect—mysteriously so. Now if the vertical screws continued to function at all— The submarine appeared to be badly damaged. It seemed clumsy, heavy.

Cliff came into a region of deep bluish light, beautiful as some fairy-peopled realm of infinity. Not long thereafter the bathyspheric craft broke through the sun-lighted surface of the Atlantic. Cliff opened the valves of a pressure tank, inflating the bellows like water wings

which supported the heavy submarine when it was on the surface.

How had this all happened? There was still the mystery. He almost forgot that he must gradually reduce the pressure around him, to avoid the "bends."

At length he opened the hatch and crawled out onto the rounded top of the undersea boat. An egg-shaped object was fastened to the metal shell just behind the hatch. Rodney approached it, unable yet to fathom its nature. Glassy cement, like that with which he had recently become acquainted, held the thing in place.

It was a massive object, six feet through at its greatest diameter. It was made of the same material as the domes, except that this substance was darker, perhaps to shield what it covered from the fierce sun.

Rodney peered into the semitransparent depths of the object, discerning there a huddled form enveloped in a milky, semiliquid film. The form was delicate; vital organs pulsed visibly beneath its skin. It had flippers, and masses of black tendrils. Its beaked mouth opened and closed, giving it an air of vacuous solemnity, but its eyes were keen. Its tentacles clutched a white crayon. It was The Student!

Clifford Rodney's mind was a whirl as he sought to solve the riddle. Then, since no other means of printing a message was available, he traced words with a finger on the wet surface of the oval object:

"You helped me—how?"

The Student's tendrils trembled as he printed the answer on the inside of his protecting shell: "I helped you. The six fighters, and the seventh, were mine. They did not attack you. Concealed by the liquid that darkens the sea, they raised your submarine upward.

"They attached me to the submarine. They raised it as far as they could climb. It was a trick to outwit my people. They forbid traffic with the upper world. They are afraid. I was afraid, but at last I chose. While you prepared for the test an idea came. I used it, outwitting my people. I am afraid. But I am glad."

Rodney was lost in the fantastic wonder of it all. "Thank you, my friend!" he printed.

The Student plied his crayon again: "Friend? No. I am not your friend. What I did, I did for myself."

"Then why in reason's name are you here?" Cliff printed. "Men will put you in an aquarium, and stare at and study you!"

"Good," was the response, "I am glad. Men study me. I study them. Good. That is why I came: to see the accomplishments of men, to see the stars, to see the planets. Now I see the Sun and sky—dreadful but interesting—very interesting. Good."

"Good if you don't smother before you can be transferred to a suitable aquarium," Rodney traced.

"I am safe here," the ovoid answered with a nervous flurry of tendrils. "The pressure is normal. There is much oxygen in the fluid which surrounds me. But do what you must, man. I am waiting."

Cliff was accustomed enough to the situation by now to grin down at the great dark egg. Mixed with his awe there was a curious inner warmth. Man and ovoid were different in form and mind; perhaps real sympathy between them was impossible. But Cliff had found a tangible similarity.

In this sullen devil of the depths, eagerness to know the unknown had battled fear, and had won. The Student had placed himself, without defense, in the power of the unknown. It took guts to do that, courage . . .

Young Rodney thought of many things as he looked out over the water in search of signs of rescue. A ship was approaching. It was near enough so that he could recognize it as the *Etruria*.

"The boys'll probably call you Davey Jones' ambassador or something," he said banteringly, addressing the ovoid. "I hope you're sport enough to take it, old socks!"

But The Student wouldn't have listened even if he were able. His eyes were drinking in the miracle of the approaching ship.

Godson of Almarlu

WITH ALMOST SOUNDLESS caution it moved beneath the child's window. No one saw it but the stars. They alone might harbor some knowledge of its purpose.

Satisfied that there was small reason to fear interruption, it arose from the ground, its five-inch wings of fabric and metal thrumming softly. Slender filaments explored the screen of the window, locating the slit which their owner had made in the meshed wire several nights previous. Then, stealthily, the thing drew its slim length through the opening.

Again it took to its wings, darting toward the crib. It came to rest on the counterpane, and crept forward like some huge moth out of the realm of fairyland. Its metal antennae groped over the slumbering child's forehead. The gentleness of its caress contrasted strikingly with its baroque form, glowing faintly phosphorescent in the gloom. Minute sparks, like electrical discharges, flickered about the ends of those fine, burnished filaments. But the child's healthy features remained relaxed in the dancing glow, and his breathing went on evenly. The house was still. None of its inhabitants could have known what was happening.

A half-hour went by thus. Somewhere a clock chimed distantly. The visitor had fulfilled its mission, as, on other rare occasions extending far back into ages past, it had doubtless fulfilled other missions. The ancient learning of Almarlu had worked its magic on its latest protégé. There would be no more unheralded nocturnal entries into the child's nursery after this.

The visitor left the room in the manner that it had entered. It rose rapidly toward the starlighted firmament—one mile, two, three. The air grew thin and cold.

The visitor's wings folded, disappearing into slotlike sheaths in its sides. It had become a little projectile that shot with terrific and ever-mounting speed toward the region of the interplanetary wastes.

Jefferson Scanlon, born in March 1934, did not show any early indications of promise. Frankly, he was a bad boy whose impish, freckle-faced grin was always an indication of mischief to his teachers. Yet even then it is probable that certain elusive mental phantasms, which he did not understand, and concerning which he never spoke, occasionally came into his thoughts.

And when he left school he had a change of fortune. Somewhere within him a knack for business had lain dormant. Starting as a salesman for a company that produced television sets, he began his swift march toward financial success.

Before many years had gone by he had, through a combination of industry, good judgment, ruthlessness, and what seemed a phenomenal, intuitive foresight which his acquaintances found difficult to credit to a small, rotund, sandy braggart like himself, achieved complete mastery of the television company.

After that his progress was still more rapid. He organized a new concern under the broad name of Scanlon Manufacturies. His hunches always seemed more valuable and accurate than the advice of the staff of experts he had hired to watch the field of science and invention; and it was his habit never to scorn a hunch.

Thus he prospered. His company was the first to put out a truly successful rocket motor for planes. But this was only one of its many triumphs. Among them was the invention which made practical the transmission of electricity along beams of ionized air instead of wires; and then there was the electrolytic apparatus which could convert the potential energy of coal into usable power without the necessity of removing it from the mine.

Equally important was an extremely light and hard alloy whose base was beryllium, for it revolutionized transportation, ushering in an era of colossal freight and passenger planes, the dimensions and load-carrying

capacities of which were almost as large as those of the vessels which had sailed the oceans.

"What I need is—er—money!" was Jeff Scanlon's watch phrase. Just why he needed it was a question which he seldom paused to consider. He did not realize that his motive was quite different from the simple acquisitive urge which sometimes impels capitalists to amass vast riches. Nor did he have the remotest inkling of the colossal drama in which, by the prearranged direction of intelligences long dead, he was destined to take a leading part.

While the great war of 1978 was going on, he was busy making Brandt flame projectors, synthetic fabrics, and other things necessary to meet the demands which the strained conditions of the period imposed. And he was also busy looking out for himself.

During the slump which followed the conflict, he managed, by a series of dexterous and sometimes shady maneuverings, to gain control of scores of bankrupt and near-bankrupt companies on five continents.

One of these, an embryonic German concern, interested him especially. Under the pressure of wartime shortages its chemists had developed really practical methods of processing organic substances such as straw, grass, fodder, and so forth, in such a way as to derive from them highly nutritive and not unpalatable food concentrates, quite satisfactory for human consumption. The process had vast financial possibilities; but Jeff's attention to it, for once, seemed more a matter of scientific curiosity.

Three years after he had taken over the companies, he had things moving smoothly and profitably once more. No other man in the world could have demonstrated the possession of resources equaling one third of his. Jeff Scanlon was financial dictator of the Earth. Perhaps he might have become its political master had he so elected.

Picture him then: Now well past forty, growing truly obese, and loving his Napoleonic poses more than ever. His small blue eyes had a glint that was at once benign and foxy. His wife, Bessie, five years his senior, was the

only person who could bulldoze him; though, realizing his peculiar talents, she never interfered with, or questioned, his decisions in money matters. Jeff had no children, but was devoted to a nephew, David Scanlon, who had a reputation for worthlessness.

Jeff's initial move, now, was to build a laboratory, of which he intended to make personal use. The circumstance was puzzling even to himself; for his actual knowledge of sciences such as chemistry, physics, and higher mathematics was scarcely better than that of any fairly educated layman. And he had never developed skill in the use of his hands, as scientists must. Yet, since he was not a person much given to self-analysis, his puzzlement over his urges troubled him little.

He sometimes had strange daydreams, it is true—visions of un-Earthly waste places, and of incredible, broken desolation, which he thought of as existing somewhere in interplanetary space, still untouched by human exploration. On a drifting, airless fragment of a world in the asteroid belt beyond the orbit of Mars, it seemed to be.

In those dreams he pictured, very dimly, vague, broken things of metal, jagged rocks, and dazzling, depressing sunshine. And occasionally he muttered in his sleep, referring to life spores and to a substance of incredible weight. Once in a great while he even voiced with a sort of morbid reverence the name, Almarlu, without, during his waking hours, remembering more than a shadow of its significance.

Bessie, his wife, scolded him and laughed at him for the strange things he said in his sleep; but both she and he had grown accustomed to the recurrence of such incidents.

Now, alone and unassisted, he went to work in his splendidly equipped laboratory, leaving the management of his business to carefully selected subordinates.

And to all appearances the notorious Scanlon luck still held good. Within four months he produced an invention which he boasted was unequaled in the annals of scientific achievement. It would wreck the existing

power industry utterly, but it would be a boon to all mankind.

His past success had been such that the populace in general was quite willing to listen to his assertions. The scientists, however, greeted the announcement of his invention with skepticism. But Jeff undertook to convince the doubters by inviting them to his laboratory, that they might see for themselves what his creation could do.

They looked in awe at the marvelous outlay of equipment he had collected; and their wonder deepened at sight of the strange, glittering maze of perfectly tooled glass, crystal and metal, which the little financial wizard, hitherto unrecognized by them as a *savant*, declared he had made with his own hands.

They were astounded at his lithe skill as he moved here and there, adjusting dials and levers, and putting the outlandish fabrication of his into operation. A luminous lavender haze collected around the brightly polished knob that capped the machine. A moment later a great electric motor several yards distant, whose terminals were attached only to a heavy coil made of a peculiar reddish alloy, began to whine out a song of strength.

The observers were inclined to suspect that trickery lay behind this demonstration; for the efficient transmission of electric power through the ether, without the agency of some conductor, either ionized air or metal, was regarded as an impossibility. They knew, of course, that radio waves could induce a current in an aerial thousands of miles from the point of origin of those waves; but it was a small current indeed, compared to the one in the transmitting aerial. Most of the latter's power was lost by being scattered far and wide through space.

Yet when the scientists examined Jeff's motor carefully, and when they had produced a motor of their own, equipped it with a receptor coil which he supplied, they found that their natural supposition was incorrect. Their motor ran as sweetly as did Jeff's. It not only ran while in the laboratory, but it did so just as perfectly when removed to a distance of more than a mile!

Back in Scanlon's workshop, the learned gentlemen

made polite queries as to the manner in which the miracle was accomplished.

The little financier looked a bit stumped over their questions for several seconds, so that they couldn't tell whether he was hesitant about revealing anything, or whether he hadn't a very clear idea of the answers himself. The first conclusion was, of course, the more logical; still, the puzzled gleam in his small eyes, and the heavy sigh he gave, seemed somehow to indicate that he had suddenly discovered an embarrassing gap in his knowledge—one that was beyond his comprehension.

However, experience in handling people enabled him to flounder out of the difficulty in such a way that his visitors regained some small measure of confidence in him.

"You see, friends," he orated, "I—ah—couldn't really say much at this time. There might be competitors, you know, who—ah—might treat me unfairly. But I can give you a few facts. This invention of mine builds up a kind of potential in the atmosphere. Not exactly an electrical potential, you understand, but a potential which acts on the red alloy coils to produce a powerful electric current in them. It is just another case of one form of energy being turned into another form. It's like the chemical energy in a storage battery being changed into current. So you see how it is."

Jeff Scanlon knew that his words were fact as far as they went. But egotistic though he was by nature, he couldn't quite figure out how he had ever built this wonderful apparatus without understanding it better. He remembered times when he had worked on it all night, with consummate efficiency and skill, without, at dawn, recalling more than vaguely just what he had been doing.

"Of course, gentlemen," he went on grandly, "my method of distributing power, though useful, is not so very remarkable. The source of the power in the first place is far more interesting. The supply, gentlemen, is practically without end. It is drawn from the kinetic energy of the Earth's rotation!" Again Jeff knew that he spoke the truth.

"How do you harness it, Mr. Scanlon?" a hawk-faced old fellow with piercing black eyes demanded coolly. His name was Feodor Moharleff, and he was one of the world's greatest *savants*. To his natural doubt of Jeff was added a life-long resentment against all capitalists, of whom the little financier was the most powerful that the Earth had ever known.

Jeff grinned like a mischievous, red-visaged elf. He was sure of himself now that his embarrassing moment had passed. He could give glamour to his incomplete understanding of the things of which he spoke, by veiling them in mystery.

"The energy of the Earth's rotation was harnessed quite some time ago, friend," he intimated. "It was done when man first made use of the power of the—ah—tides. Our planet rotates in the gravity fields of the Sun and the Moon. The attraction of these bodies raises the tides. But if the Earth did not spin, the tides would remain motionless and without energy. It is from the world's rotation that their power is derived, as no doubt you all know."

No doubt Scanlon's erudite audience *did* know, but they continued to listen patiently.

"However, there is another, more direct method of tapping the energy of this great revolving ball," Jeff went on. "I shall not explain it to you; I shall only give you an analogy. Think of the armature of a dynamo, spinning between its field magnets. The magnets resist the rotation of the armature; and the energy necessary to overcome that—ah—resistance, is converted into electricity.

"Think of the Earth, spinning in space, where an artificial resistance field has been built up. You see the point, gentlemen? The power used in overcoming the drag, must come from our planet's rotation. The law of conservation of energy states that energy cannot be destroyed, but must take another form, in this case one that we can use. Of course, countless ages would be required to reduce the Earth's rate of rotation appreciably, even though we might constantly draw enormous stores of power from it; for the inertia of so huge a mass

of material is very great. That is all I need say, gentlemen."

Jeff Scanlon had spoken with an eloquence that even he found surprising. To an audience less learned, he might have been looked upon as some minor deity; but in the minds of the *savants* before him, there were still certain doubts and skepticisms that did not concern his statements so much as they did the possible scientific worth of the man who made them.

With the evidence of his remarkable accomplishment tangibly demonstrated, the scientists still found greater wonder in Scanlon himself. A small, bluff, money baron, who, until four months ago, had scarcely touched a test tube, suddenly proving himself a creative genius? It was not only a phenomenon; it was impossible! Yet to all appearances, it was true.

But, in spite of that, there was a haunting disbelief among the scientists, and a feeling that all the cards were not before them. They could not know, of course, that perhaps a billion years ago the mathematics of far-seeing minds of another sphere had made certain astronomical predictions. Nor could they know that those same minds had evolved a cosmic plan which was slowly approaching fruition. That Jeff Scanlon was to be the pivotal tool of that plan was perhaps only a whim of chance.

"What are you going to do with your invention, Mr. Scanlon?" Feodor Moharleff questioned with brusque suspicion.

Jeff had apparently not even considered the matter, for he stumbled a bit in making a reply: "I—er—oh, yes!" he said. "You realize that I have plenty of money. I have no personal use for more than a tiny part of it, you see. So I'm going to make a gift to the world. I'm going to build an enormous apparatus which will supply everyone with all the power he needs, free of charge!" Scanlon's sudden inspiration was truly a magnificent gesture. The faces before him, trained not to reveal emotion, remained stony, but the minds they concealed were dumfounded and a trifle doubtful.

Scanlon went ahead with his plan with his usual *sang-froid*. He gave radio talks; he interviewed newspaper and news-disseminator reporters. He built several other small power plants, and staged demonstrations of his invention in large cities both in the United States and abroad. The result was that soon hundreds of millions of people were ready to swear by him, body and soul.

In Jeff they believed that at last they saw true greatness of heart. As he had anticipated, money raised by popular subscription began to pour into his coffers in an appalling flood.

The popular contributions were necessary, for even the gigantic Scanlon fortune would have been almost wiped out by the project Jeff contemplated.

He worked with a staff of skilled draftsmen, preparing blueprints for his colossal plant. He allowed various scientists to examine the working models of his inventions, in minute detail; but he brushed aside their wondering queries as to its principle, with brusque generalizations. They could understand the thing sketchily; and though they were never able to probe out its darker secrets, they naturally assumed that Jeff Scanlon could. Which was untrue. He had made his models in a dream, though he had neither the desire nor the right kind of imagination to realize this fact.

An island, far up within the bounds of the Arctic Circle, was chosen as the site for his plant. Jeff had no conscious reason for selecting this location; he was prompted to do so only by that prescient mental phenomenon known as a hunch. And, in spite of the obstacles to building operations offered by such a climate, he was insistent.

A great fleet of freight aircraft, in cooperation with surface vessels that could pass through a channel in the ice kept open with explosives and thermite, was pressed into service.

First, a thick glacier had to be removed from the island. Then, over its rocky expanse, a vast foundation, three miles square, was laid. Above it a two-mile tower began to rise, coated with armor plate that would have stopped the hugest shell that any gun could have fired. Into a deep shaft beneath the base of the tower, count-

less tons of molten metal were poured, forming, when they cooled, a slender ingot that was like an immense electrode.

In every aspect the great building was far stouter, and more resistant to stress and strain, than any fabrication ever before erected by man. Into its interior, cryptic machines of vast size were moved, and bolted into position. All were connected with an intricate controlling mechanism, which Jeff, working in a state that was like hypnosis, had made with his own hands.

Two years of teeming efforts were required to complete the titanic assembly. It was by far the largest piece of construction work ever attempted on Earth. Tapered in graceful curves, like the Eiffel Tower of Paris, capped with a huge, glittering ball, it was a truly magnificent monument to look upon, rearing over the frigid wastes of the arctic.

II

During the final months of the job, Jeff Scanlon had not been quite himself. Where he had felt cool and self-assured before, he had now become possessed of a feverish inner tension that drove him to haste like a lash. It was as though he were racing with time against some unfathomable catastrophe, of which he could grasp only an unrestive shadow.

For astronomers, probing toward the outer reaches of the solar system with their telescopes, had just seen some tremendous and unexplained phenomena in the vicinity of the planet Saturn. The orbits of all of its many moons had become elongated in one direction, and its rings, pulled out of shape by the same unknown forces, were disintegrating to form a nebulous haze to one side of the planet. Gaseous Saturn, itself, was bulging ominously; and there was evidence of gigantic explosions taking place beneath the veil of its tremendous atmosphere.

It was as though some terrific gravitational force were being applied to the planet's entire system. But of any invading heavenly body that might cause such colossal distortion, or, in fact, any distortion at all, there

was not the slightest evidence. No faint speck of unknown identity had intruded into the pattern of the stars. And the utter, senseless ruthlessness of what was happening denied the theory that it was the work of an intelligent agent. Though there was no discoverable cause, it seemed rather a manifestation of the mad caprice of nature.

Finally something had come which was even more spectacular than preceding events. Titan, heaviest of all Saturn's satellites, had exploded, dying space with the red flame of its still fiery heart.

The people of Earth, however, were not too concerned with the announcements of astronomers; for such matters seemed remote, and unlikely to influence their lives in any way. They were far more interested in Scanlon and the mighty gift which was soon to be theirs. Quite naturally, a large quantity of receptor coils of red alloy had already been prepared and distributed, to be connected with various electrical devices. And even working men had planes which were intended to be powered by the new energy. For years private aircraft had been common; and now the heyday of their popularity seemed about to arrive.

When the vitals of the power plant were ready to be set in motion, Jeff Scanlon again did the unexpected. He made no speeches. He left word with the newspaper and news-disseminator people that power could be received in five hours; then he departed alone in his plane for the island of his greatest achievement.

True to his predictions, the energy came on. The knob at the crest of the great tower glowed a beautiful, ghostly lavender that brightened the gray aspect of the polar summer. Machines everywhere awoke to life. The human race went mad with joy. Jefferson Scanlon, who had been a hero, was now a god. But he was a lonely god, hidden away in his artificial Olympus.

He saw no one, and no one could have pried their way through the walls behind which he was locked. Had he been asked, he would have said that fascination kept him there; and he would have believed that he

spoke the truth. But he was in a daze. His subconscious waited for the proper moment in which to act.

Four times the Earth turned without unexpected incident. The power plant was a success. Apparently that was the only fact that anyone was aware of. The weather was unusually sultry, but such trivialities were forgotten. There were freak storms and tornadoes. Earth's atmosphere was soaking up moisture, and absorbing Scanlon's potential. The ice was melting rapidly from around the island of the power plant.

On the fourth day some watcher of the sky thought he glimpsed a minute speck of dull reddish light shining in space; but the growing cloudiness of the atmosphere rendered a confirmation of his report difficult. In addition to his observation, certain peculiar tidal and seismic disturbances were noticed; but only a few scientists paid any attention to them.

Except for the dim unrest which these reports awoke in Jeff Scanlon, he gave them no conscious consideration. Only a keen knowledge implanted in the back of his brain long ago understood their mystery. And that knowledge was apart from the true Jeff, for it had never passed the barriers of his conscious mind.

Yet each bit of fantastic news had made a hidden impression upon him, and had stirred up and directed an equally hidden chain of cool, calculating thought, the result of which was an active response that bore an unerring purpose. And so, at midnight on the fifth day, prompted by what seemed to him only an explorative impulse, he closed a massive switch which belonged to the controlling mechanism of the plant.

At once, hell broke loose around him. Colossal bolts, either of electricity or of something akin to electricity, flashed and forked through the great, vaulted chamber. Blinded and deafened, Jeff stumbled toward the switch, intending to break its contact and end the awful bedlam. But an electrical cramp froze his muscles and forced him back.

With a momentary and unnatural calm, he groped his way to a small window, to get a view of the outdoors, and to consider whether the situation was dangerous or not.

He soon decided that it *was* dangerous. The island was cloaked in ghastly, lavender light, far more intense than it should be. The whole scene, south, east, and west, visible from the window, seemed to glow with it; and the water of the Arctic Ocean, bounded by a ring of ice crags some distance beyond the shores of the island, was beginning to heave and pulsate in a way that was alarmingly unnatural, since as yet there was no wind.

Small, angry wisps, like miniature waterspouts, were rising from the surface of the sea. They swirled and coalesced, promising to grow swiftly until they reached cataclysmic proportions. The aspect of the scene was ominous to say the least.

The sky was thinly overcast; but a blur of light in the east, betraying the position of the hidden Moon, found its way through the veil. A momentary rift in the clouds to the southwest revealed a single, dully glowing dot of red fire, like the eye of a malignant planet. For no discoverable reason, except that he knew that that ruddy orb should not be there, Jeff felt fresh fears coming upon him.

The fat little man was frightened—not so much for himself as for others. Had anyone been able to look into his mind just then, it would have become apparent to that person that Scanlon had a heart after all.

He must stop the maddened forces that were running amok around him. To fail to do so, he felt sure, would lead to devilish and far-reaching consequences. The giant power plant had overstepped the bounds of its normal functions, and had assumed other functions of which the true Jeff Scanlon had no inkling.

Such was his excitement that he did a very foolish thing. He seized a metal bar that was part of the detachable railing around the crystal-cased intricacies of the controlling mechanism; and since he could not reach the switch which seemed to be causing all the trouble, he hurled his improvised club straight at the governing apparatus, hoping that, if the mechanism were damaged, the chain of forces that were surging madly in the vitals of the huge plant would be broken.

The spinning bar struck the stout crystal cage fairly, though it did no visible damage. But, wrapped in lancing, coiling ribbons of flame, it seemed to rebound as if hurled from a catapult. There was no chance to get out of the way. The bar flew straight at Jeff, gashing his shoulder and striking him violently on the side of the head. His senses reeled into oblivion.

Some time later, he regained a semblance of consciousness. The thunder and flame around him continued unabated. His attack on the controlling mechanism had not lessened in the slightest the fury which possessed the giant powerhouse. In fact, new elements of terror had been added to the hell that had been unleashed.

The air was hot and fetid, and it reeked with the choking pungence of ozone. The great structure in which Jeff was imprisoned trembled and rocked perilously, as if the Earth itself were breaking apart.

Jeff felt a giddy lightness, which may have been only a natural result of his recent injury, but which still might have a deeper cause.

Through the eighteen-inch glass of the windows, no familiar polar scene was visible—only churning, lavender-lighted water, crowding close against the panes. The entire island, and part of the tower itself, seemed to be submerged by an abnormal flood. From beyond the mighty walls that encircled Jeff, came a monstrous soughing sound, as if a thousand hurricane-driven oceans were breaking against them.

Mingled with the noise of chaos was the blare of a nearby news-disseminator diaphragm, bringing to Scanlon's ears, in disjointed fragments of terror, the story of a world being battered under the fury of outraged elements.

"Station XC-Delta, Flagstaff, Arizona, broadcasting," a voice shouted from the diaphragm, and it was like the voice of a man lost in a storm. "Cannot contact Station O-Gamma in Frisco. Last message from O-Gamma received ten minutes ago. Reported heavy earthquake—reported heavy earthquake; also tidal

wave approaching city. Am trying to raise Frisco. Am trying to raise O-Gamma in Frisco—”

Automatically, the communication was broken off by the receiver's rotating selector disk; which, unless stopped for a time by a listener interested in any particular broadcast, kept turning round and round, contacting in sequence a large number of stations throughout the world.

Another voice took the place of the first: “Eastern seaboard under water. New York stations dead. No replies to calls from any coastal cities between Nova Scotia and the Florida Keys. This is Pittsburgh, Station NV-Theta—NV-Theta. Nothing from Asiatic cities for the last several minutes. Japanese islands believed disintegrating. Trouble began coincidentally with the accident at the Scanlon powerhouse an hour and nine minutes ago. Phenomenal activity of Scanlon plant still in progress.”

Finally Feodor Moharleff came on the air, presenting his theories coolly from a Minneapolis station: “Our friend, Jefferson Scanlon, seems to have tampered with something too big for him to control; that is, if this is not a deliberate scheme to bring the nations of the world to their knees that he may dictate his terms. What has happened is perfectly clear. His plant is drawing far more energy from the rotation of the Earth than was intended. It is acting as a brake, slowing our planet's rate of axial rotation to such an extent that its internal balance has been disrupted. The results are earthquakes, tidal waves, volcanic eruptions, and storms, all of a violence hitherto unheard of. The Scanlon Tower must be destroyed—”

The communication ended, and more reports of death and destruction roared from the diaphragm.

Jeff, lying on the metal floor of the great chamber, listened to it all with a kind of fearful fascination. Several times he had tried to rise, but as yet there was insufficient strength in his battered body. He could only drag himself feebly to a corner, leaving behind him a blood-flecked trail, like a wounded animal. He sprawled there panting and perspiring. His thoughts were not of

Jefferson Scanlon, but of the millions of human beings that would suffer and perish in the holocaust.

It was easy for one's imagination to fill in the gaps neglected by the generalized news-disseminator accounts, giving heart-rending detail to the picture of the calamity.

Without realizing it, Jeff had climbed above his egotism. The pettiness in him had minimized. He reached out toward the stars.

"Heaven give me some way to help!" he screamed despairingly, forgetting the smug pride of his usual oratory.

His face was buried in the hollow of his doubled arms. His every muscle and nerve was taut. And his emotions were a driving, throbbing fury, whose sole objective was to lash his sluggish faculties to action that they might find a means to combat the hell which he seemed to have unwittingly created.

He could not stop the functioning of the plant. The lancing, roaring flames around all its controls prevented that. He could hope that attempts would be made to destroy his great tower; but considering the tremendous solidity of its construction, and the storm of forces that now raged around it, the task would be anything but easy.

Possibly it was the inner tension which possessed Jeff that served to puncture, in some small degree, the barriers which kept the storehouse of his subconscious memory hidden from him.

He was like a man beginning to recover from an amnesia that has been with him through his entire life. Things that had been implanted in the convolutions of his brain long ago came foggily into view.

He saw again, though clearer than ever before, that picture of unutterable desolation—a landscape that was not a landscape, for the ground did not give the impression of even reasonable levelness, like the surface of a sphere. It was broken and harshly jagged, like the mad, formless contour of a fragment of a shattered world. There was no air; the sky was not azure, but a hueless gray, like slate over which chalk dust has been smeared unevenly. There were sharp stars; and there was a sun

of dazzling brilliance. This part of the memory was almost as vivid as if he had visited the place yesterday.

Jeff raised himself feebly on his elbows, a wild hope shining in his eyes. "They're wrong!" he said defiantly. "Feodor Moharleff and all the rest of 'em! A bunch of liars! Because—because they've got to be!"

Feverishly, Scanlon continued to review the memory picture. Interwoven with the shattered rocks that strewed the planetoid were twisted braces and girders that must once have formed the framework of buildings. And there were other things which gave more intimate hints of the lives and personalities of the creators of those buildings.

Pinched between two great lumps of stone, was a torn bit of pale-blue fabric, sheer as silk. Uncounted eons in the cold vacuum of space had changed it not at all. It seemed to be part of something else—something hideous and brown and dried, like a mummy. Crushed between the great stones with its visage showing, it formed one of the most prominent elements of the scene. it might have been human once; it might have been beautiful; it might have been capable of feeling love and hate and fear and tenderness, like any man or woman of Earth. But that had been a long, long time ago.

Not far from the withered body, trapped amid the conglomeration of junk and broken rock, was a large sphere, battered and dented in spite of the fact that, as Jeff knew from the memories that had been transplanted into his brain, it was almost solid.

In a hollow cavity at its center rested the intricate thing that was its reason for existing. The thing was not alive; it had no sense of being, like a man; and yet, in a way, it could think, as much simpler devices, such as the calculating machines of Earth, are able to think. Partly it was a clock, which counted the passage of ages as easily as it counted the seconds and hours. Partly it was a record of the thoughts and preparations of a race that had perished; and partly it was the instrument for putting those preparations into effective action.

It could not move from its tremendous protecting

shell, which had already shielded it from calamity unutterable; but piercing that shell was a small, cylindrical passage which provided a means of entrance and exit for the soul-less, mothlike fabrication that was its messenger.

Jeff Scanlon, deafened by the mounting bedlam going on around him, and sickened and dazed by the pain of his injury, could still grasp much more of the truth than he had ever, previously, been privileged to see. The dim hints which had been given him in past years, and which he had consciously ignored, had now assumed shadowy meanings, though much was still hidden.

Gingerly, he raised himself from the trembling steel floor under him, and stood on his unsteady legs. Oblivious now to the blaring declarations of calamity which continued to come from the news-disseminator diaphragm, he let his mind rove briefly to other things.

He thought of Bessie, his domineering wife, and of his nephew, Dave Scanlon. But such human attachments were trivial. He thought instead of the ruddy, ominous little planet that had now come close to the Earth. Far out there in the region of Saturn, it had been too small to see; but, because of its incredible density, its gravity was something terrific.

"Almarlu!" he muttered under his breath; but he knew, even as he spoke, that he was making a mistake. The red midget was not Almarlu; it was rather the insensate, unreasoning fiend that had brought ruin to Almarlu and her inhabitants. It followed a tremendous, elliptical orbit around the Sun, returning from its prodigious plunge into the interstellar depths once in many ages.

"But hardly anybody even bothers to notice the things!" Jeff complained childishly. "They're too busy watching me!"

His brows puckered partly in vexation, but mostly because there was still so much that was veiled and mysterious. And so he continued to mumble to himself, as if by so doing he would be better able to straighten matters out. His words were halting and jangled, and his manner was that of one person advising another:

"Neutronium, Scanlon," he said. "Don't you remember? It's the heaviest substance that can be conceived to exist. Sixty million tons to the cubic inch, it's supposed weigh, according to how the old-timers in the third decade of the twentieth century figured. No—ah—normal atoms in it. Neutrons. Compact, lying close together, with no space between. Dense as the devil. Certain stars—the White Dwarfs—are supposed to have quite a lot of the stuff in them. And there's supposed to weigh, according to how the old-timers in the centers of—ah—other planets. It could have collected there from submicroscopic particles of the dope floating in space.

"They're so heavy they could fall right through any other substance—right through the body of a man, even, without his knowing it—most likely. And our little red visitor from space is made mostly of neutronium—of compact particles called neutrons, each one of which consists of a normal electron and proton in contact, without any silly planetary electrons revolving in their orbits and taking up room!

"That's why this—ah—small visiting world has so great a force of gravity. Its mass must be many times greater than that of the Earth; and gravity is proportional to mass. That's why—"

Jeff paused in his monologue, and began to pace unsteadily up and down. His struggle with the memories that were his, and yet not his, had whimsically taken a new track. His scowl of concentration darkened.

"Why are you always thinking of life spores, Scanlon?" he demanded of himself. "Why can't you remember? And who made you the—ah—goat? That is—who gave you all your information? The machine on Almarlu—on a fragment of Almarlu? Fragment—"

He uttered this last word with a kind of blurred excitement, for it was significant. It started a fresh chain of probing thought, angling back over the loose bits of information he had covered before.

"Of course!" he said suddenly. "Almarlu broke up—exploded—to form the minor planets of the asteroid belt. Her people were wise, but they didn't know of the danger soon enough to escape. So they—they—" Jeff

halted, and then leaped at a more significant piece of information: "Now there's going to be another asteroid belt," he stated, before he grasped the full import of what he was saying.

During the next few seconds his round face, already pale because of his physical injury and because of the strain he had been under, went ashen.

"No!" he shrilled. "No! It can't be as bad as that! The Earth is too solid—too permanent. It couldn't—break up! The whim-whams it's got will end some way before that happens!"

But even as he spoke he knew that he was only trying to reassure himself, and to deny the workings of an immutable destiny. They of Almarlu had made a mathematical prediction of the calamity an incalculable time ago. Then, too, Titan, moon of Saturn, had burst—A giant of tremendous strength had gone mad in its vitals.

Jeff's dread suddenly vanished, and a great calm took its place. The progress of events was not over yet: it had little more than begun. Even now the earthquake temblors, which made the huge tower groan and vibrate, seemed to grow heavier and more frequent. But he knew that the plans of ancient wizards of Almarlu were fairly certain of fulfillment.

So far, in spite of their complexity, they had worked out to perfection. He glanced toward the crystal-case which contained the controlling mechanism of the power plant; and he knew that it could guide all necessary functions of this mighty marvel he had built. Several matters were still unclear to him; but there was one task which he must take care of. He must broadcast a message to the world. After that, his usefulness as a pawn would be at an end. Death for him seemed to be decreed; but, of course, that was too trivial to make any difference.

With some semblance of litheness, he strode to the microphone of the news-disseminator radio.

III

David Scanlon, favored nephew of the world's biggest money baron, heard the report of the mishap at the power station, along with everyone else. The titanic blaze of lavender flame around the two-mile tower of the plant had been spotted instantly by planes flying over the arctic wastes; and the news of the phenomenon was whisked over the world by the magic of man's science.

Radio, developed and refined to a point where static no longer interfered with transmission, continued to function as usual, blaring out reports over the vast news-disseminator network.

Conforming to the dictates of his nature, Dave Scanlon was in a nightclub at the time. The city was London, and his companion was a blonde. They had just arrived; but, true to his nature, Dave Scanlon was already bored. He wasn't worried about this circumstance, however. The music was sweet, and as soon as he got tight he'd feel better.

When the diaphragm of the news-disseminator began to rasp, he wheeled around lazily and listened to what the thing had to say. The information it conveyed produced no startling result in the youth. The left shoulder of his tall, angular form, sagged a bit more truculently. With a reflective air he pulled at an earlobe, and the sour expression on his face changed to a rueful, one-sided grin. That was all.

He turned to the girl. "Looks as though I've got a job, Evelyn," he remarked mildly. "I'll be seeing you some other time, maybe."

Evelyn made heated protests, to which no response was offered. Without haste, young Scanlon slouched his way to a phone booth. Once latched behind its sound-proof door, he communicated with the local offices of the International News-disseminator Co., and discovered that in the past twelve hours, no message had been received from Jefferson Scanlon, alone on the arctic island of the tower. Ordinarily, this information would

have been no special cause for worry; but, under existing circumstances, it looked a bit suspicious.

Even Dave Scanlon had his loyalties. His Uncle Jeff was the object of one of them. He was ready to make any sacrifice for him, providing that conditions involved the conceited little man in real danger, and not merely in exasperating inconvenience. Dave didn't care whether Jeff Scanlon had inconvenience or not. In fact he had frequently been the cause for such inconvenience. But now things were different; they looked serious. Dave Scanlon was ready to respond to duty.

He made another phone call, this time to Chicago by radio. For secrecy, revolving disks at the transmitting stations, both in London and Chicago, changed the wavelength of the carrier wave during every second of a communication; and other disks at the receiving stations, synchronized with those of the transmitters, retuned the receivers for each change, so that for the persons speaking with each other, the messages remained unbroken. But since the disks were hourly readjusted to a fresh wavelength pattern, there was small possibility that an outsider would be able to pick up the conversation.

After a wait of only a few seconds, the youth was speaking with Jeff's wife, who, disinterested in her husband's achievement insofar as the technical side went, had remained in Chicago.

"The old nitwit seems to have got himself into a tangle, Aunt Bessie," Dave explained in a brusque drawl. "I'm going to try pulling him out. And now here's a little advice for your benefit: stay where you are unless this thing leads to real trouble. I've got a funny feeling that certain saps are going to get mad about what's happening. If they do, the name of Scanlon is going to be in hot water. Keep away from people as much as you can. If worse comes to worst, you could fly up to Uncle Jeff's lodge in Canada. It'll make a good hideout."

"What—what do you intend to do?" Bessie Scanlon demanded.

"Oh, I dunno," Dave replied. "Take my crate up north to the island, and see what's happening, I sup-

pose. The rest is in the laps of the gods. Take care of yourself, and don't worry."

Young Scanlon broke the connection abruptly, and ambled out of the booth. Just then he felt a perfectly perceptible temblor under his feet. Earthquake! Five minutes hadn't elapsed since the report of trouble at Jeff's island had come. Things were evidently moving pretty fast. Now the people around him were shouting excitedly and crowding toward the exits. He'd better hurry.

He got into the street. A cab, piloted by a driver with a scared look on his face, whisked him to the airport where his plane was housed in a public hangar. It was a new job, fitted both with rockets and with electric motors intended to draw their power from the Scanlon plant.

Dave got the machine rolled out onto the field. The receptor coils of red alloy were drawing plenty of power for the motors—too much, in fact; for Jeff's huge apparatus, having gone crazy, was delivering energy to the atmosphere at a rate that was in excess of normal. But this excess, for some reason, was not nearly as great as one might have expected. And Dave could overcome the difficulty it presented by moving a metal contact point, thus reducing the number of turns of the red coil acting to collect power.

The Earth was shaking with increasing violence at irregular intervals, as young Scanlon took off. He circled, and headed northwest. A hot, unnatural wind, gusty and treacherous, was on his tail. But he had no intention of remaining within any short distance of the ground. The quieter stratosphere was above; and, hampered by little resistance, one could attain terrific speeds there. The cabin of his plane was insulated and airtight; and the compressor-ventilator system would maintain an internal atmosphere of normal warmth, freshness, and density.

He pulled the joy stick back and nosed sharply upward. The roar of the rockets joined the thin screech of the motors. With all the majesty of some great meteor pursuing an inverted path, it growled and flamed its way skyward. The breathlessness of Dave's climb was

dizzying. But at last she shot through the last thin layer of clouds and attained the cold, calm glory of the stratosphere. The ship leveled out and screamed on at maniacal velocity toward its distant arctic destination.

Grim-faced, Dave looked about. To the east, amid the clear, sharp stars, was the Moon. It was the same as it had always been; or, was it a shade larger in appearance, as if some monstrous force had pulled it closer to the Earth? From far to the northwest a thin thread of lavender light angled up, its point of origin concealed somewhere far beneath the cloud-wrapped horizon. At this distance it was impossible to study details of the phenomenon. And so Dave turned his attention toward the west.

It was then that he glimpsed the small invading wanderer from space, for the first time. It was a tiny, reddish crescent, luminous only because its surface could reflect a little of the Sun's light. A halo of gas clung around it, not fuzzy, as the atmosphere of a normal planet would be, but with outer limits that were defined much more sharply. A tremendous gravity had compressed it, making it so. Through the vaporous envelope, a solid surface was dimly visible. Though scarred and cracked, it seemed otherwise perfectly smooth. It was as though features such as mountains and hills could not exist on such a world, for their weight alone would be enough to flatten them.

Dave felt the lightening effect of the invader's tidal tug, and wondered vaguely what it might be.

"Damned funny!" he grumbled truculently. Cynic though he was, the shadowy terror of the unknown was upon him. Then he shrugged to dismiss the feeling.

He put his radio receiver in operation, and for awhile listened to the catastrophic reports coming from various news-disseminator stations. Now and then he attempted to contact his Uncle Jeff with his transmitter, but he received no reply.

Minutes passed, and hundreds of miles slipped away beneath his keel. The slanting bar of lavender fire ahead thickened and became more distinct, as the distance between him and it was shortened a little. The air,

even here in the stratosphere, was growing bumpy. The Moon-silvered clouds, speeding past beneath, were denser than before, and the gray wisps of them boiled and seethed ominously.

Now and then a rift appeared in their texture, through which Dave could look down toward the Earth, far, far below. He could see nothing but inky blackness; yet his imagination was keen enough to picture a little of what would reasonably be taking place under those chaotic clouds—wind and blinding rain, sweeping over white-capped waves—for his odometer told him that he had now progressed far enough to be over the ocean.

And so he kept on, his motor and rocket throttles wide open, racing with the unknown, with the recklessness of the cynical daredevil he was. At last he reached the summer twilight of the arctic.

Piercing the chaos of the clouds ahead was the pyrotechnic marvel of lavender flame. Dave knew that it slanted down through the atmosphere, contacting the ball at the summit of the Scanlon tower.

Members of the Scanlon family were supplied with private wavelength code disks, similar in function to those used in public radiotelephone systems for secrecy. As he had done when he had tried to contact his uncle before, Dave inserted his disk into his transmitter, and called "Uncle Jeff!" into the mike. Repeated hails brought no response. This meant nothing, for Jeff might not have prepared to receive a private call now. And because of the rotation of the news-disseminator selector disk, it was impossible to judge what wavelengths Jeff's outfit could pick up at a given time. Any contact that might be made would be a matter of pure luck.

Meanwhile, considering his next move, he looked again at the great bar of livid luminescence. He judged it to be at least a mile in diameter where it disappeared into the clouds. It slanted toward the east, and gave the impression of tapering away and away into the depths of the sky, until its visible extremity vanished in the distance. It might be of the same diameter throughout all its length; but apparently it was like a huge, lavender,

silver-tinted spear point directed straight at the white visage of the Moon.

Dave shrugged. He had not the faintest idea of the thing's meanings. Besides, it was probably best not to waste time just wondering. If he could descend far enough, and get closer to the power plant . . .

He nosed his plane down sharply, and catapulted toward the churning atmosphere. When he reached the clouds, the furious wind struck his ship like a hammer. But the momentum of its dive, backed up by the thrust of its propellers and the blasts of its rockets, kept the stout little ship on a fairly straight path.

Dave, himself, did not weaken. He clung grimly to the stick, with no thought of turning back. He had nothing to guide him but his instruments, and the foggy path of lavender light shining through the blasts of snow-packed wind. Yet he kept on until he had almost reached the point where that majestic enigma of weird light was rooted in the Arctic Ocean. It was hardly an ocean now, but a maelstrom of all the struggling forces that could convulse tortured air and water.

The scream of the tempest sounded even above the growl of the rockets. The world was a gray blur of whistling snow and booming, ice-flecked waves. And all that inferno seemed to converge upon that inclined pillar of lavender glory that looked like a Gargantuan vortex—like a monster waterspout magnified a billionfold. All about it the scene faded away into the dense gloom of the storm—a gloom that was like the blackness of infinity.

Dave, struggling to keep his plane from destruction, looked toward the base of the vortex, seeking the tower and the island on which it had been built. Neither could be seen. Both were hidden somewhere in the depths of that ethereal colossus that seemed to be sucking up the substance of the sea and of the atmosphere. It had a faint pearly tinge and eerie witch flames sparkling in it slumberously. Could Jeff Scanlon still be alive inside that unholy miracle?

Dave had no time to consider the primary motive of his arctic adventure; for he felt his plane being pulled

by the suction of the vortex. Instantly, he looped the ship upward and half-rolled, completing a sloppy Immelmann turn. Then he opened up his motors and his rockets to full capacity, and the tug-o'-war began.

For perhaps ten seconds everything hung in the balance; then he began to tear away from the whirlpool-like attraction. Instant by instant his velocity mounted, as he battled his way back toward the calmer regions of the stratosphere. Only the maneuverability and power of his little ship had enabled him to escape from what seemed certain death.

"Whew, that was close!" he growled when he had reached a comparatively safe altitude. "I don't dare get too near to that—that purple column again, even at this height. It'll be just too bad for any dumb army pilot who tries to bomb the Scanlon isle!"

Dave's ship was coated with ice. Once, during his climb, a gust of spraying water, like inverted rain, had struck its metal wings, and had congealed swiftly. The memory of the incident gave Dave an inspiration. Was the flaming vortex perhaps sucking sea water into space for some purpose? Was the pillar of energy projecting it, in the form of finely divided ice crystals, across the etheric desert, together with enormous volumes of air?

Young Scanlon was not a scientist. The efforts of his youth, most of it misspent, had given him only a very mediocre knowledge of such matters. He had little more than a good imagination to back up his guesses. Besides, his main purpose was to try to contact his Uncle Jeff, and to give him what he felt from the start was much-needed help. But the question of aiding Jeff, imprisoned in an armored tower in which devilish forces were obviously at work, had a doubtful aspect.

He did not quite know what he should do; and so, for several minutes, he cruised back and forth through the roughening air of the stratosphere, listening to his news-disseminator. Coastal cities everywhere had ceased to broadcast; and there were few places even far inland whose stations were not dead. Those that were still active reported dire calamity. A tidal wave, heralded by a mighty hurricane, was sweeping up the Mississippi Val-

ley. A vast volcanic crevasse had opened up in central Nevada, and was spewing flame and smoke. And so it went.

Airliners and freighters, having found temporary safety in the upper atmosphere, were still sending out reports. From the FMZ, a scientific ship, came the information that, according to calculations based on sketchily gathered data, the Earth had slowed on its axis, the time required for it to make a complete revolution having increased by two minutes, since the accident at the Scanlon Tower not so much more than an hour ago. Fleets of bombing planes, sent out by various nations, were speeding north, and might be expected shortly to reach their objective.

And over all the messages whisked through the tortured ether was cast a vindictive note directed at Jefferson Scanlon, so recently hero of a world.

"Damn!" Dave sputtered absently. He didn't know what to believe. His natural loyalty to his uncle made him angry at everyone who denounced him; and yet the seemingly obvious evidence that Jeff was the maker of his own misfortunes was irritating to say the least.

"If the old fool thinks he can get away with universal murder he deserves everything that's coming to him!" the youth growled savagely.

Then, like a bolt from the blue, the voice of Earth's newly elected archfiend sounded from Dave's speaker diaphragm. And the tone of it didn't sound like the tone of an archfiend at all. Rather contrite, it was—rather apologetic.

"Jefferson Scanlon speaking from the Scanlon Tower," it said. "To my people everywhere: Believe me, I am not responsible for what has happened. But no, I cannot ask you to believe that. Anyway, it does not matter. There is one thing I must tell you. Soon the Earth will be untenable. Within a matter of hours no one will be able to remain on its surface and live. The upper air is the only safe temporary refuge. Load food supplies aboard every ship capable of flying in the stratosphere. Load other necessities, including apparatus for manufacturing synthetic food. Embark and fly

north, all of you who can. Approach the Scanlon Tower, and fly into the energy beam above it.

"This is my advice. You will think the last part of it insane; and you will hesitate to believe me anyway. But the time is not far off when you will be ready to do anything that promises some faint possibility of survival. That is all I will say. If I told you more of how everything that has happened came about, you would be still less inclined to listen to me. I shall not communicate after this, except with members of my own family. I shall be waiting for calls from them on our wavelength code. Good-bye, everybody. Good luck!"

Jeff had spoken very calmly, without his usual, halting *ahs*. And his message was going out over the entire world, the impulses that bore it covering every wavelength of the news-disseminator band.

IV

Dave's first reaction to the tones of his uncle's voice was one of gladness that the older Scanlon lived. Then came doubts and deepened puzzlement. But since there were no available answers to the latter, his thoughts and emotions returned to the practical.

It was simple for him to contact his financier uncle now, with the code disk. He inserted it deftly into his transmitter. He thought of making some caustic remark as an opening to their conversation; but the memory of Jeff's strange, new humbleness checked the anger inside him. Somehow he was sure that to express it would be extremely unkind.

So he just said: "Hello, Uncle Jeff. This is Hiho. I'm above you with my crate. What'll I do?"

In making an answer, Jeff tried hard to suppress his joy at hearing the kid's familiar tones, and he tried to be matter-of-fact; but his voice was wavering and husky, and his words stumbled.

"It seems—ah—sort of queer that you talk just like ordinary, Dave," he said. "Everything else is—is so changed!"

"We'll skip that," Dave responded with a trace of ir-

ritation. "I'm here to get you out of your jam. What'll I do?"

"You heard my message?" the elder Scanlon asked. "And you have food aboard your plane?"

"I heard your message," the youth stated impatiently. "And I have the usual concentrated emergency rations."

"Then—ah—do what I said. Fly your ship into the energy beam."

"What'll happen to me if I do?" Dave questioned guardedly.

"You'll be carried to a place where you'll have a chance to—to live," Jeff replied. "You can see for yourself that—ah—the Earth is an uncertain place to be."

"And where is this refuge, may I ask?" young Scanlon demanded.

"Well, you see I'm afraid that you'd think— That is—"

"Uh-huh," Dave responded. "You think I'd think you were plumb loco if you said right out in plain, clear English that the destination the energy beam takes things to is the Moon. I don't catch on to much of what this mess is all about yet; and it's true that I did have some bad moments wondering whether you were quite right or not. But I have faith enough in my own sanity to believe what I see: and I've seen plenty in the last little while that I wouldn't ordinarily take any stock in. For one thing that purple column is pointing straight at old Lady Luna, and keeps on doing that, in spite of her change in position."

"Then you'll do as I tell you?" Jeff demanded incredulously.

Thus challenged the youth was, for a moment, not quite so sure of himself. Cynical though he was, the unknown still had its terrors. But at heart he was a reckless daredevil. And the news-disseminator reports of the convulsions that racked the tortured Earth cheapened the value which he placed upon his life.

"You're going to take your own advice?" he questioned.

"I—I can't, boy," Jeff answered solicitously. "I'm

trapped inside this tower. Besides, my work is done."

"Your work is done!" Dave sneered. "Cut the heroics! Do you mean to say that you are just going to sit tight and let all this sneak up on you? Can't you even try to escape? Don't you know a few things about your own power plant?"

The young man was very doubtful of his uncle's position. But he saw no harm in perpetrating a subtle bluff that might provoke the financier to action.

"There's something I could try, with your help," Jeff said. "I don't have to stay here. There's a controlling apparatus that takes care of the running of the plant—even keeping the energy beam turned toward the Moon. But I—I'm waiting for a call from your Aunt Bessie. And the planes are coming—the bombers. They can't do anything to the tower; but if you wait and they see you and find out you're a Scanlon—well, you know how the world loves Scanlons."

Dave, who had been guiding his ship in a wide circle far above the power plant throughout the conversation, forced a grim chuckle. "You bet," he said. "If glimpsed, I'd probably be burned out of the sky like an unhealthy mosquito, just because I happen to be related to what everybody thinks is a louse. Which proves nothing at all about the justice and good sense of mankind in general. But have you tried to call Aunt Bessie yourself?"

"No," Jeff responded. "That is, not unless—ah—what I said at the end of my message to the world—about my waiting for calls from members of my family on our private wavelength code, may be construed as such."

"That was plenty good enough," said the youth. "I had almost forgotten. If she's still alive and anywhere near a news-disseminator, she knows you're hoping fatuously for a buzz from her. But if she's got half the brain I give her credit for, she won't oblige you. Even wavelength codes can be unsnarled. If she happened to call you, and somebody happened to find out it was she—well, a direction finder would be all that would be necessary to put Bessie Scanlon in a hot spot. She never

did like crowds, particularly crowds that booed and threw things."

Jeff gasped, like one who has just discovered that he has walked unwittingly into a place of grave personal danger. "I—I slipped up," he muttered raggedly. "I didn't remember. But you can't talk like that about my wife, you—you young scamp!"

"Oh, never mind that, Uncle Jeff!" Dave said with placating impatience. "I'm as anxious for Aunt Bessie's safety as you are. If she's still one of us mortals—and of course she's left earthquake-ridden Chicago if she is—she's probably listening in on us right now. Anyway, the sound of our voices never was so very important to her, even in a pinch. She's as well able to take care of herself as the average person. We can't do anything sensible to help her out anyway. I'm getting a little bit tired hanging around up here, and being bumped around by this choppy air. What was that plan you had for getting out of the tower with my help?"

Jeff gulped fearfully, as he thought of the physical hazards of his idea. But when he spoke again his tone was firmer than before. "Wait exactly five minutes, counting from the second we break communication," he said. "Then fly into the energy beam. As soon as you are inside it you'll find your plane being thrust upward very powerfully. There'll be a lot of water and ice and wind around you; but I think that you're skillful enough to use such impromptu measures as may be necessary to reach the approximate center of the beam.

"Straighten your ship out so that its fuselage is parallel to the path of the beam, with its nose of course pointed upward. Then shut off your motors and open up your forward retarding rockets to cut down speed, meanwhile keeping on the lookout for me. I'll come sailing up behind you—quite helpless.

"The—ah—important thing is for you to stay in the center of the beam. If you don't, you'll miss me entirely, for the tower is at the center of the beam and I'll shoot straight along the latter when I escape. The energy path is more than a mile in diameter. There's plenty of room for a fellow to get lost in it. That's all, unless you have any questions, boy."

"Cryptic but sufficient," Dave responded with a forced curtness, for he was worried for his uncle's safety, and his nerves were keyed up. "More information would only tend to confuse. And now good luck, Uncle Jeff. Good luck, Aunt Bessie, if you're listening. I'm looking at my wristwatch. I'm getting ready to—"

"Count!" said Jeff.

Their communication ended with the snap of switches.

Jefferson Scanlon, in his mad tower, removed his head from the soundproof box which was used to cover the microphone of his radio when there was any noise to interfere with the exchange of messages. The screech and roar of the inferno that hemmed him in struck his eardrums almost like a physical blow. And his eyes were tortured by their re-exposure to the lancing tracery of stabbing flame. In the box over the microphone only a tiny pilot light had burned.

Weak though he still was, Jeff made his preparations coolly. An old smock, tied into place with a cord, protected his mouth and nostrils. Thus arrayed, he made his way up a spiral runway to a chamber two floors above. The small, portlike windows, set at even intervals in the curve of the trembling walls, were made to open by an arrangement resembling the threaded breech lock of an artillery piece.

Jeff worked the lever that controlled the lock of one. The pluglike mass of the window folded inward. With tearing force, a thick spray of water and air rushed past the opening, producing a howling sound, like wind blowing across the mouth of a bottle, though infinitely louder. Mingled with it was the sibilant scream of the tempest, and a crackling rumble which must have originated in the tortured bowels of the Earth.

Except for a few scattered drops which could do no damage, no moisture entered the chamber through the window. It was as though the speeding, inverted rain, aglow with slumberous lavender fire, was hurled on by too great a force to be deviated from its path.

Jeff tried to make his mind a blank, so that he would not be conscious of the dreadful risks he was about to

take. Then, drawing a deep breath through the smelly texture of the smock over his face, he got down on all fours and crept through the window.

It was not even necessary for him to leap; in fact, no such opportunity was given him. Before he was fairly at the outer lip of the circular opening, he was caught up and torn from his perch as if some aerial henchman of Eolus had seized him. His injured shoulder was pumped severely against the metal sash of the window, and his legs collided with painful force against the same obstacle; then he was free in that phantasmal hell of icy spray, and slumberous, cold livid fire.

No, he was not free, for he was shooting upward along the slanting path of energy as helplessly as a bit of steel sped through the loops of a helix by the magnetic force of the current passing through its spiral coils. The comparison was apt, for the power that propelled him at ever-mounting speed would not be derived solely from the blast of wet air that rose around him. It was another enigma, entwined with the many mysteries of the lavender flame.

He had known that his adventure would be like this, informed by the subtle intimations that had broken their way across the line between his consciousness and subconsciousness. Yet there can be a great difference between knowing and realizing.

Water, changing swiftly to ice, soaked his clothing and chilled his flesh. His wind was gone in spite of the protecting cloth over his face. His body was wobbling and gyrating crazily, until he wondered how it was that his senses endured the motion. And every second his velocity increased. Would he reach comparative safety aboard Dave's plane, or would he perish in the terrific cold of space? A sinking terror fluttered in his heart; but after a moment it gave place to the calm of resignation.

He could look about now, sanely, through slitted lids, almost closed to keep the spray from blinding him. Everything was a luminous, streaky haze inside that slanting bar of energy. In it, coursing with him, were cakes of ice, and smaller objects which must have been fish, sucked from their normal habitat by the vortex.

It was perhaps odd that any part of his mind could think of Bessie, under existing circumstances. But he found that he could picture her now very clearly—tall, angular, austere, handsome in a majestic sort of way, and—caustic. She had laughed at his shortness, his fatness, and his Napoleonic pomposities. Always there had been in her gibes a hint of rancorless benignancy that made them all the more irritating, because it seemed somehow to emphasize the impression that she regarded him as being nothing more than a dandy little money-maker, trivial and ridiculous and a bit pathetic in every other respect.

But now, for Jeff, there was a homely sweetness about the thought of her that gave his throat the tightness of a sob. He had called her "a darned old battle-ax" on more than one occasion; but now, with death threatening from every angle, he found that she meant more to him than anything else in life.

But while his mind rambled thus, Jeff kept his attention centered, as well as he could, along that vast Jacob's Ladder of un-Earthly magic that climbed into the void. Scarce daring to hope, he kept watch for Dave's plane. Thus many seconds went by. It was colder now, for he was nearer to the emptiness of space, and most of the flying water about him had changed to finely divided ice crystals. He did not know whether he could remain conscious much longer.

Presently, however, above him, and to his left, he glimpsed the bulletlike form of the ship he sought, showing like a dim shadow through the streaking, lavender-tinted blur. Its forward retarding rockets were spewing incandescent streams to check its speed, so that his hurtling body could catch up with it.

Almost simultaneously he saw, beyond the limits of the energy beam, many hazy specks of white heat, which he knew marked the position of other active rockets—those of an approaching squadron of bombers, he supposed; but he gave this distressing circumstance little attention.

As in a dream, Jeff saw Dave's ship edge toward his line of flight. He wasn't sure whether the movement his

eyes perceived was real or just a vagary produced by his agonized wish that it be true. Drawn on by the mysterious propulsive force of the column of energy, he shot ahead until he was abreast of the plane. Its rockets now ceased to flame, and the two, the man and the ship, coursed on, close together.

The financier saw the craft's stubby wing tip slip inch by inch toward him, guided by the skillful manipulations of the pilot. The wing was within reach now, and Jeff grabbed at it automatically with freezing fingers. Then he began to edge his way inward toward the cabin.

It was easier to do this than one might have expected; for Jeff was, in effect, quite weightless, with the force that propelled both him and the ship, supporting his body. Nevertheless, in fulfilling his aim, he expended almost the last dregs of his expiring energy. But the door of the cabin opened in time; a pair of muscular young arms clutched him and drew him inside.

For several minutes after that, impressions were vague and fuzzy. He knew that he was panting heavily, and that Dave was rubbing his limbs in an effort to restore retarded circulation. He felt under him the reassuring reality of the plush upholstery of the plane's interior.

Dave talked to him. He made wild answers, saying things about a world of the past—a wrecked world called Almarlu which had once floated serenely between the orbits of Mars and Juniter, where, for untold eons there has existed nothing but a region of cosmic debris called the asteroid belt, or the path of minor planets.

Coherence came to his faculties without any fine dividing line between the jangled and the sane.

"What is this Almarlu, again, Uncle Jeff?" Dave asked. It was the first question which the older Scanlon remembered later to have clearly understood.

Jeff looked at his nephew quizzically for a long moment. "Well," he said at length, "it's hardly possible that you'll believe me; but—ah—you really don't have to, of course. Almarlu is the planet where all life on Earth had it's origin. Her people didn't have time to escape when catastrophe came. But their science of—

ah—biology was highly developed. So they created life spores, deriving them from their own flesh, and from the tissues of the various animals and plants of Almarlu. They put the spores in small projectiles and shot them to the still sterile Earth, where—ah—the spores became active, and through the well-known evolutive process, reached their present stage of development.

“Before their world broke up to form the asteroids, the people of Almarlu devised a machine which—ah—through the ages would now and then influence terrestrial life, guiding it and protecting it to a certain extent—though not enough to make it the emasculated puppet of an ancient civilization.

“I’m one of the tools of Almarlu, as maybe—ah—chaps such as Pasteur and Edison were, and as maybe the cave man who first made a flint spearhead was. Everything I have done was indirectly the work of Almarlu. It was necessary if anyone was to survive. Certain things were implanted in my mind when I was a baby; they came to the fore when it was time. More about Almarlu was revealed to me than to any of its previous godsons. So there you are, Dave. I’ve told you—ah—what you wanted to know.”

Jeff’s nephew didn’t speak for several seconds. He was glancing this way and that, through the windows of the plane’s cabin. The financier’s explanations were not so difficult to believe, if what was visible beyond those windows was true.

The ship was clear of the atmosphere now; it had shot along that flaming path originating at the power station until it had entered the region of empty ether in which the planets float. All about it was the pearly haze of freezing air and of suspended ice crystals, borne on by the mysterious energy of the vortex, just as the plane itself was now being borne; for its motors had been stopped. Through that haze, the stars gleamed steadily; and ahead the great path continued on, tapering into the distance, to form a lavender dagger point directed straight at the pale face of Luna.

Far to the right, receding now, was that tiny red invad-

er of ill omen, gashed and smooth and vapor-wrapped, going on to keep its cometlike tryst with the Sun. But it had already sown its seeds of destruction on Earth, starting processes at her core which only a wizard of physics could have probed.

"You're expecting me to call you a liar, Uncle Jeff," Dave Scanlon said; and his voice was vibrant in the strange new stillness that had come now that the motors were stopped. "But I'm not doing it. Because—because what has already happened is so extraordinary that what you say must be true, too!"

"Thanks, kid," Jeff acknowledged, knowing that Dave's caustic cynicisms had been temporarily subdued.

They looked back toward the Earth, a vast, bulging expanse beneath, the horrors that were taking place on its surface hidden by boiling clouds. And then they saw another craft—a huge bomber following the cylinder of flame and ice and air in their wake. Beyond the first were others, and mingled with them were several small planes which must have belonged to newspaper and news-disseminator reporters. The two Scanlons saw the faint beams of the leading bomber's flame projectors stabbing in their direction.

There was no time for comment. Dave leaped to the controls of his ship, and opened up both the motors and the rockets. Thus driven, the little plane raced swiftly away from its clumsy and somewhat less speedy pursuers.

"Uh-huh," Dave remarked. "Some of our friends who were going to blow up the plant—the ones that the vortex sucked in before they knew what was happening to them. They must have seen your getaway, and are still able to remember that Scanlons are to be brought in dead or alive."

Jeff said nothing, but his plump face looked weary and old.

They did not speak for some time. Both were aware that the future held many uncertainties. But one thing was sure: wherever they were taken, those warcraft crewed with angry, vengeful men, armed to the teeth, would not be far behind.

"Do you see what I see, Uncle Jeff?" Dave questioned presently. "The face of the Moon is changing."

It was true. At one edge of the disk the old, familiar features were giving way to others which were new, but of the same character as those which they had replaced.

And Jeff Scanlon remembered the meaning of the phenomenon, just as he had remembered other things which had been buried in the darker recesses of his mind.

"Yes," he said without excitement. "The Moon is beginning to turn more rapidly on its axis, so that now it no longer keeps just one face turned toward the Earth. It is like the armature of a great electric motor to which electricity is being fed. Invisible fingers of force are—ah—speeding it up, just as similar fingers of force are retarding the rotation of Earth. Energy is being transferred from one sphere to the other. Earth is the armature of the generator, revolving in an unseen force field established by the power plant; and the Moon is the armature of the motor, being turned by a force field of similar origin."

"I see," was Dave's only comment on the explanation, and it was matter-of-fact. "And now about ourselves. I gather that we've got some two hundred and thirty-nine thousand miles to travel. Won't we smother out here in space? Won't we freeze?"

"No. Not yet, anyway," Jeff replied. "There is air all around us, even if it is partly congealed. The hull of this ship has vacuum compartments to protect us against cold. Besides, the plant is still giving us plenty of power for heating purposes and so forth."

And so the two Scanlons tore on across space, following the path that Almarlu's science had created. There was little to do but talk and listen to radio messages coming from various aircraft. As far as they were able to tell, all of the ground stations had gone out of action.

One thing about the messages pleased them: many people, driven by desperation were following Jeff's advice. They were loading planes with supplies, and flying toward the Scanlon Tower. For some reason, perhaps

associated with the lack of centrifugal strain due to the Earth's rotation, the earthquakes were less violent in the polar regions than nearer the equator.

Then, too, the tower, being located as it was, near the North Pole, could send its beam continuously toward the Moon, unhampered by long periods during which the satellite was far beneath the horizon.

But though refugees were preparing to use Jeff's plant as an avenue of refuge, the chance he had given them did not lessen in the slightest the fury they felt toward him. For he was still the man whose blunderings or designed evil had brought about the destruction of their homes and property, and the deaths of their loved ones. The aspect of the future was black. Both Jeff and Dave knew that they were facing almost certain destruction, even granting that they could survive the inanimate dangers which lay in their path.

V

Feodor Moharleff, wizard of physical science, inhaled and exhaled heavily through his slender beak of a nose. A long sprint over ground that heaved almost as tumultuously as the waves of the ocean had winded him. Besides, a fury that would have quickened the pulse and breath of any man surged within him.

"The crime, Franz—the crime of this blundering dollar-chaser— In no tongue known to man are there words to express its blackness!" he said, his thin, austere face working with emotion.

Franz, elderly laboratory assistant aboard the FMZ, a small, scientific air cruiser owned by Moharleff, nodded impassively.

"It is so, sir," he replied. "But it is fortunate that we were able to rescue you from the crumbling wreckage of Minneapolis. You should be glad, sir, because if it hadn't been—"

"Glad?" Moharleff echoed, his bushy eyebrows arching upward. "If you had seen cracks open in the ground that engulfed streets and whole crowds of people, and if you had seen those cracks closing again like monster maws, and if you had heard the screams of the dying

and had smelled the volcanic fumes and the odor of burned human flesh, you would never be glad again, Franz."

The great scientist leaned wearily against a workbench that extended along one wall of the cruiser's laboratory. The craft was climbing swiftly through the chaotic atmosphere, after its daring swoop to the tiny landing area that was, or rather, had been, part of Moharleff's suburban property.

"I am sorry, Franz," he said after a moment. "I am afraid that I have shown poor self-control. No one should allow himself to become so excited, even when he has as good a cause for anger as I have. But you will forgive me, I know. What new developments have you to report?"

"Several," the assistant responded. "First, the Earth has slowed still further on its axis. The day is now a full five minutes longer than normal. Observations of the Sun's motion prove this."

Moharleff nodded, his thin lips compressed. "A continuation of the Scanlon blunder," he commented. "That mad plant of his keeps on drawing power from the Earth's rotation at an enormous rate, straining the planet's crust and stirring up its internal fires. And the other developments?"

"I have seen a small heavenly body, reddish in color, and apparently following a cometary path," Franz replied. "It is receding now, but should still be visible to the naked eye. I noticed it before, but paid little attention to it because of the pressure of other things. An obscure astronomer, named, I believe, Moseley, claimed to have observed some such object with his telescope when all was yet well. My attention was drawn to the thing when I noticed a strange tidal effect that the action of the Scanlon Tower did not seem to explain. It decreased the weight of objects very appreciably at the time of the visitor's closest approach to the Earth. And there is a puzzling aftermath which I do not understand at all."

Moharleff's eyes had narrowed with interest, and his shoulders were hunched. "Aftermath?" he questioned very softly. "What kind of an aftermath, Franz?"

"A fluctuation in the weight of anything," the old assistant replied. "It is a fluctuation that is as regular as the swinging of a pendulum. Here, I'll show you!"

From the workbench he took up a spring balance, and attached to it a hundred-gram weight. Next he suspended the balance and the weight from a metal support above the bench.

"A plane in flight is not the best place in which to attempt such an experiment as this, sir," he said. "But our pilot has leveled off now and there should be little to interfere with this test. Watch!"

Very slowly, as the two men observed, the weight and the pointer of the balance moved downward, then up again, then down once more.

"You see?" Franz questioned sharply after the several minutes necessary to complete the oscillation had passed. "If our nervous systems weren't a little deadened by the jars and jolts we have recently been subjected to, I have no doubt that we could feel the change in the weight of our bodies."

"Hmm, interesting," Moharleff growled. "Only one thing that I can imagine could cause such a phenomenon: a regular shifting or swinging of the Earth's center of gravity. At times it is nearer to us than at others, and when it is nearest our weight is greatest. We know from Newton that the gravitational force of a body is inversely proportional to the distance from its center of gravity."

"But what could cause such a shifting or swinging?" Franz demanded.

The scientist seemed reluctant to reply immediately. "Show me this small invading planet, Franz," he ordered.

The cruiser was flying now in the upper stratosphere. Franz pointed through a window toward a place in the deep purple of the sky, not far from the early-morning Sun. In spite of the intense illumination, the tiny speck of red fire was not hidden, for the air was very thin.

"There, sir," said Franz.

The object, as it appeared now, was not remarkable. Mere visual inspection of it could reveal nothing but a

very hazy idea of its position in space. Yet the sight of it seemed to arouse in Moharleff a chain of involved thought.

"Do you remember our experiments with neutronium, Franz?" he asked suddenly.

The assistant nodded. He had reason to remember, for he was carrying in his pocket, as a sort of charm, a lump of lead formed curiously like a piece of the common delicacy of amusement parks—popcorn. The lump had an interesting history: Once it had been an invisible speck of unbelievable weight, supported in a glass tube by the force of a terrific protonic bombardment. It had been synthetically made there by the rearrangement of the inner structure of an original fragment of lead. But, when the fury of the protonic bombardment had been increased to a point that its stable composition could not endure, it had expanded suddenly, changing back to the lead it was meant to be.

"All intelligent theory points to the existence of neutronium at the center of the Earth, Franz," Moharleff said. "There cannot be a large quantity by volume, but its mass must be tremendous. It floats at the exact middle of the planet's molten core, being held there by an equal, or practically equal, gravitational pull from all sides. Normally, the only deviation from equality of attraction is produced by the tidal pull of the Sun and the Moon, and this is comparatively feeble.

"But if something came in from space suddenly—something with a great gravitational attraction—something that moved so swiftly that no time was given for it to pull the Earth appreciably from its natural orbit—you can guess what would happen. The central core of neutronium would be drawn outward, through the molten substance of the Earth's interior, toward its crust. Then, being so much heavier than the surrounding material, it would sink back toward the center of the Earth after the force that had drawn it outward was lessened.

"Gathering momentum in its fall, it would not stop at the middle of the planet, but would pass this point for some distance, before it again began to sink, and in a

slightly lessened amplitude, continue the process of oscillation. Its mass being so great, the neutronium core, moving thus back and forth like a suspended object brushed by some carelessly passing person, could easily cause the Earth's center of gravity to shift regularly, causing the increase and decrease that you have demonstrated in the weight of objects on the surface. You see how it all fits into the pattern of things, Franz?"

"Yes," the old man replied. "The movement of the center of gravity would strain the Earth's crust just as constant bending back and forth weakens a wire. Earthquakes would be inevitable. And, owing to varying air pressures over the face of the Earth, due to differences in gravitational force between one place and another, there would naturally be terrific storms.

"Nor are those things all that the list contains, Franz," Moharleff pointed out. "The moving core would stir up the molten interior of the Earth in a simple, mechanical way, too; though its action would go far deeper than that. Neutrons, compact and very heavy, can fall right through the tenuous structure of an ordinary atom, which is built like a minute solar system and consists mostly of empty space. In its motion the neutronium core would doubtless become diffused to a certain extent, not clinging together in one lump, for it is evidently shifted with a fair degree of rapidity and could not push other material entirely out of its way.

"Many of its neutrons would seek the shortest path as they moved, going right through the fabric of neighboring matter, wrecking many atoms and causing them to give up their store of energy—a tremendous store if we may rely on calculations and experiments. Then, too, as you will remember, neutronium is something like the old-time explosive, TNT; it is stable enough to stand a great deal of abuse, yet it has its limits of patience."

Franz nodded silently and impassively. For several moments the two men looked out of the cruiser's windows, occupied with thoughts of their own. A hell of heaving, writhing clouds was beneath them; but the Sun was warm. The little invading planet could still be seen very dimly.

"I wonder if we haven't an explanation of the recurring ice ages and periods of tropical heat of our geologic history here, Franz," Feodor Moharleff remarked presently. "Our ominous friend follows what seems to be a path like that of a comet, returning to the solar system at very long intervals, since its presence has never before been detected. Couldn't it increase the internal activity of the Sun at the time of its nearest approach, just as it has now increased the internal activity of the Earth?"

"The tropical ages would come when such solar activity was at its height, and the ice ages would prevail when it was at its lowest ebb. What we have been experiencing is not properly to be called an ice age; but this does not deny my theory, for certain factors inherent in the solar structure could vary the length of the period during which this mighty midget, whose main component is obviously neutronium, would maintain the Sun's fires."

"But why hasn't the solar activity been more violent?" Franz asked. "Why during previous visits of its little tender, hasn't it become a true nova?"

Moharleff managed to chuckle a bit. "It is so very big," he said. "Besides, it is largely gaseous, while the Earth is made like a grenade, with a hard crust on the outside and potential hell within. Bodies like the Moon are dead; they have lost their internal fires and are practically solid, and so they have a greater immunity. Besides old Luna is a light world, with a feeble gravity; it could have little neutronium in its composition, nor could it collect much from the minute particles which science has recently suggested may float in space."

Franz hemmed and hawed for a moment, by way of an introduction to something which he meant to express—something that he felt was a delicate subject to broach to his master.

"Your mention of the Moon was fortunate, sir," he said. "It is invisible from here now, but I have seen it. Its rate of rotation is increasing. Its hidden face is becoming exposed. And you no doubt know of Scanlon's last message before he—he left Earth. He asked that

everyone fly north who was able. He asked them to enter the beam over his tower.

"The implication of his words is clear now, for several bombers were drawn into the beam together with a few news-disseminator planes. These craft report no discomfort among their occupants, and some of them suggest that other ships follow them, for there is some belief that they are being borne to a place of safety, in spite of the feeling against Scanlon.

"People are complying in many cases, for there seems to be nothing else to do. Perhaps we should follow them, sir, now that so much that is new has been revealed to us."

Moharleff stiffened suddenly at his assistant's words. His dark eyes blazed; the muscles of his face twitched, and his cheeks whitened with fury. But otherwise he maintained a deadly calm. He had denounced Jeff Scanlon once, and pride formed a barrier to the retraction of his words. And then, too, the training of a lifetime smothered reason.

"No, Franz," he said very quietly and distinctly. "We shall not follow the herd—at least I shall not—even if the way leads to a real utopia. What I have learned since my rescue has not altered my opinion of Jefferson Scanlon. I shall accept no favors from him, nor will I help him in any way. He is still a petty, self-glorifying capitalist to me. But you are free to do as you like. I can leave the cruiser in a parachute unless you decide to cast lots with me. In the latter case we will continue our scientific observations until the end."

But Franz had an Old World loyalty to his superior, as had all of Moharleff's employees, among them the pilot and navigator of the cruiser.

"My place is with you, sir," he said. "And I think I can speak for Gregory and Vladimir as well."

The little cruiser swept on above the boiling clouds, golden and sulfurous under the Sun. Red volcanic flames had begun to dye their chaotic depths.

VI

"We can land in a minute, Uncle Jeff," said Dave Scanlon who clutched the controls of their plane. He spoke matter-of-factly, for both men had, by now, grown accustomed to the appeal of the unusual.

Below them, sweeping by, was a desolate, ashen plain—a lunar "sea." Their journey had been made without incident, in a trifle more than twenty hours. During part of it their speed must have reached many miles per second.

Above were gray clouds from which thin, salty snow was falling very slowly—the first snow which Luna had known for an incalculable time, for both her air and her water had been gone. Now a flood of both had been brought to her magically from Earth.

With a grinding thud the plane landed in the fine, dusty soil.

"Here we are," Dave announced without animation. "For the sake of our own skins, I guess we'd better hide this crate and then keep under cover ourselves, eh?"

Jeff only nodded.

They opened up the sealed cabin and clambered forth, breathing the brittlely cold, lung-searing air. It had been half congealed in space; but contact with the surface of the Moon—which until the arrival of the rejuvenating substances from Earth had been exposed to the fiercely hot rays of the Sun—had warmed it very considerably.

Behind the two refugees was a small crater with a broad ledge projecting from its outer wall. It seemed an admirable place to conceal their ship, if they used a little ingenuity of their own.

The slight gravity of the Moon made the task of wheeling the plane into shelter beneath the ledge an easy one. Nor, for the same reason, was the piling of scattered rocks to hide the gap under the projecting shelf of rock particularly difficult. And the fine but steady snowfall would swiftly obliterate all evidence of their work. The men left only a small spy hole through which they might peep and observe developments.

They ate a sketchy meal from their dwindling store of concentrated rations. Then Jeff indulged in a short nap, while his nephew kept watch. The elder Scanlon, taking the next shift at the spy hole, was the one who saw the first of the bombing planes arrive from out of the lavender pall in the center of the cloudy sky.

Like an apparition, sheathed in ice, it dropped toward the surface of the fantastic world. The growl of its motors was ghostly in the stillness. Things fell with it—small objects which seemed to be refuse from the Arctic Ocean of Earth. Then it was on the ground, taxiing to a halt.

"Dave!" Jeff whispered hoarsely to the sleeping youth.

No other word passed between them for a long time. They could only crowd each other at the spy hole and watch.

The bombers appeared in swift sequence, until nine of them rested on the now snow-clad expanse of the plain. They looked strange there, with jagged, isolated hills and mountains towering around them. The several news-disseminator ships landed with them.

For an hour or so no other craft arrived. Then the flood of adventurous souls who had responded to Jeff's call began to appear in a motley array of ships, ranging from huge airliners to terrifically speedy sport planes. The caravan thickened after that until every ten seconds seemed to produce a fresh arrival.

By then, many familiar sounds were finding their way to the tense ears of the watchers: human voices talking excitedly, angrily, and very often in the wild tones of hysterical grief; shouts; clangings of metal; the baaing of a sheep from somewhere in the depths of a great freighter; and, from nearby, wonder of wonders, the cawing of an excited crow! Someone had brought his black-feathered friend along!

People were moving about among the growing concourse of ships from Earth. As yet, few of them showed any signs of a constructive urge; they were concerned only with their emotions, and with the novelties of their environment.

Hours passed, and more and more ships arrived. The great blob of lavender shifted in the sky, substantiating the known fact that the Moon was turning on its axis more rapidly than was its wont. The blob of color was the only visible celestial marker, for both the Sun and the Earth were hidden by the dense grayness above—the grayness of falling snow.

It grew dark as night approached, but it was considerably warmer than it had been at the time when the Scanlons had arrived. The Sun's rays, beating down on the opaque blanket of vapor and ice crystals that overcast the sky, had had its effect. Through the gloom, lights in the interiors of the assembled aircraft gleamed eerily.

Now the incoming planes were not landing close by, for, because of the rotation of the Moon, the energy path across the void no longer touched this part of its surface, but another part farther west.

A stiff breeze arose where there had been no breeze before, for, with the great interplanetary duct directly above, feeding atmosphere to the Moon, its burden had been scattered evenly in all directions, causing no wind. But now that this dead area had shifted westward the effect was different, as the flood of air and moisture poured over the vacuum of lunar sea and rille and crater.

Men came past the Scanlon hideout, grumbling angrily. The reflection of the rays of a flashlight which one of them carried lighted up their faces. They were strong, determined-looking fellows, all of them; weaklings had lacked the courage to dare the unknown, and had stayed behind, on Earth, to perish. Perhaps, in their mighty plan, the *savants* of Almarlu had considered the selective factors of these human elements.

"Death is almost too good for him," one of the men said with sibilant emphasis. "The blood of three billion people is on his hands, the little, stinking rotter with his crazy ideas!"

"Sooner or later we'll find him," another reassured meaningly.

Both Scanlons, crouching in their hideout, knew to whom the speakers referred.

Three times day and night came. It was much warmer now, and misty rain replaced the snow. Dave's and Jeff's lair would soon be discovered, for the fallen snow that concealed the rocks they had piled in front of their refuge was fast melting.

The lunar sea was dotted with many shallow puddles and lakes of salty water. But low ridges still provided ample camping ground for the Earthians. A few had erected tents, but most of them still preferred the comfort of the cabins of their ships. Some were now busy fabricating machinery—steam engines several of these devices seemed to be, their boilers flanked by huge mirrors, which, when the unsettled weather, incident upon the influx of air and moisture from Earth, came to an end, and the Sun shone once more, would collect and concentrate the solar rays.

Still other colonists were attempting to plant gardens in the ashy soil—efforts which were almost certain to be abortive under the new conditions. But by now countless pale-green shoots were peeping through the snow everywhere, promising soon to develop into a lush growth that would provide nourishment for such livestock as had been brought to the Moon, and at the same time offering a source of cellulose from which by synthesis, a nourishing diet for human beings could be made. The green shoots were the sprouts of the ancient lunar vegetation, whose seeds or spores had remained quiescent in the waterless soil for countless ages.

On the fourth day the misfortune which the Scanlons had anticipated occurred. Wandering bands of colonists had moved past their lair constantly day and night, preventing any chance of escape.

There was nothing very dramatic about their discovery. A girl of perhaps twelve years suddenly shouted, "Look, Dad!" to her father who was walking with her; and in a minute it was all over. Other men had come swiftly; the barrier of rocks was torn down, and though Jeff and Dave fought, they were swiftly overpowered. Half stunned, they were dragged forth.

Bound securely, they were tossed into the cabin of a plane. There they were left, presumably while their captors determined their fate. Wild-eyed folk who had re-

cently been civilized, peeped in at the windows of their prison and exchanged comments in low tones.

"Well, I guess we're in for it now, eh, Uncle Jeff," Dave remarked with a crooked grin.

Jeff shrugged. He felt weary clear through. "Don't know that I blame them much, boy," he said. "If friends and relatives and homes are taken suddenly away from people, particularly—ah—when everything looks rosy, they temporarily lose their natural kindness, their reason, and their sense of justice. And if it looks even a little bit as if you are responsible for their misfortunes, you're just out of luck if they get hold of you. They're just mad beasts. I don't much care, though, as far as I'm concerned. I've done my job. The big shame is that you are mixed up in this mess, just because your name happens to be Scanlon. They'll probably give you the same medicine they give me."

Dave forced a chuckle. "Who cares?" he said in a laconic expression of loyalty. "What do you suppose the future here on the Moon will be like?"

"Well," Jeff replied, "my unsubstantiated guess is that there are at least two hundred thousand survivors here. Their—ah—descendants will live on the Moon for perhaps a few centuries or millennia until their science has advanced to a point where they will be able to move to a more satisfactory planet if they so desire. There will be hardship and starvation and death, but these things will strengthen them and make them hardy—"

For more than an hour the two Scanlons chatted casually. From outdoors they heard shouts and cries and low mutterings, mingled with the carrying tones of news-disseminator diaphragms aboard various craft. The report of the capture of the supposed archfiend of a world was spreading swiftly, via the ether.

Then, quite subtly at first, the aspect of the altered lunar scene, some of it visible to the prisoners through the windows around them, took on a new, disquieting element. A different ruddiness, like the glow of hot embers, spread itself ominously over the wild terrain. It came from the sky, from behind the dense translucence of the clouds, like red fire shining through a fog.

The world without seemed very still; awe had checked human tongues in their wagging. Only the smooth, muted rustle of news-disseminator diaphragms told that these devices were in action, waiting for someone, somewhere, to speak into a radio microphone.

But the Scanlons were not as awed as the other watchers, for their knowledge was more complete.

"Do you know what the red glow in the sky means, Dave?" Jeff asked.

"Yes," said the youth. "The Earth is—going." His lips curled as if he were in pain.

And then several news-disseminator diaphragms, belonging to receivers that were correctly tuned to receive the incoming message, began to boom. Others joined them, as swift fingers, working almost automatically, adjusted dials.

"Cruiser FMZ calling lunar colonists," came the message. "Feodor Moharleff communicating. I must talk rapidly, for I have little time left. I have heard of the capture of Jefferson Scanlon and his nephew; and I wish to say that neither deserves death. Jefferson Scanlon is a hero, not a blackguard; for somehow—I know not how—he foresaw calamity and provided you with a means of escape.

"I who have publicly denounced him, tell you this, though I swore I would never aid a money king. But things have changed. One cannot see nature crumble around him, and not attain a broader, clearer view; one cannot see death approaching as it is approaching me, and feel that petty animosities are worth their pain.

"I have been a fool. If I had not been a fool I would be with you now, enjoying the same chance to live that is yours. Nor would I be sacrificing the lives of three of my loyal employees who are with me aboard the cruiser.

"We are in space now, in the energy beam. We have just left the Earth. But we can never reach our destination, for the beam can last but a few seconds or minutes more. Only the tremendously stout construction of the Scanlon Tower has enabled it to remain active until now.

"The Earth is exploding. The action is still chiefly along the equator. It is all happening with apparent slowness and great majesty. In a way it is a beautiful spectacle. Our old Earth looks now like a huge, rosy ball of cloud, gradually expanding around its middle. Molten rocks, like sparks of fire, are hurtling up through its cloudy atmosphere. Now a large chunk is drifting away into space.

"Neither Scanlon nor his invention is responsible for what is happening; though the latter, by retarding the Earth's rotation and imposing a certain strain on its structure, was guilty of a guiltless fault—that of aggravating an already hopeless situation. A small cometlike body, with a tremendous force of gravity, is the real cause of Earth's misfortune. It caused Titan, moon of Saturn, to explode, too, as some of you may remember. It contains a large quantity of neutronium. There was also neutronium at the center of the Earth. There is little time to explain further, but there are scientists among you who can work out a theory.

"The energy beam in which we are floating is wavering and flickering. The jolts are threatening to break up the cruiser. The neutronium inside the Earth was caused to swing back and forth by the terrific tidal attraction of the cometlike invader. Atomic energy was unleashed from broken atoms. And now, finally, under the fury of that energy, the neutronium at the center of the Earth is expanding to form common matter, probably lead. A speck of neutronium, too small to be visible, would weigh several tons. So you can imagine. For every tiny speck of neutronium, several tons of lead, much greater volume. Terrific explosive possibilities—I—"

The communication broke off with a sort of twanging crash that had the sound of sudden death. The slender, elastic duct from Earth to Moon had snapped; and, like a fly roosting on a tautly drawn strand of rubber that is suddenly released, the cruiser in which Feodor Moharleff and his loyal henchmen rode was crushed by the contracting forces.

Everything now seemed deathly still. There was no

sound except the sighing of the wind and the whisper of news-disseminator diaphragms. The people of Earth had respected Feodor Moharleff's learning.

Then the Scanlons heard the rasp of many slow footsteps. In a moment they saw awed and sheepish eyes looking at them through the windows. The door of the cabin, partly ajar, was opened wide. No one cheered, no one smiled, and for many seconds no one said anything.

It was Jeff who broke the spell. "I guess everything's all right now, isn't it?" he asked very mildly. His old swaggering, oratorical self was dead forever; Jeff Scanlon felt very small and lost and trivial.

There was a pause. Then a big, burly fellow spoke up. "Yes, I think so," he said. "And I guess you're in command here now, Mr. Scanlon." He offered no apology for wrongs done, and he asked no questions. Yet his words were an expression of blind faith which most of his fellows must have felt, too.

"No," Jeff replied. "We all belong to a democracy. But there's something I'd like you to do for me. Send out a radio call for my wife, Bessie Scanlon. I want to know if she came."

Several men leaped to obey his commands; but Jeff wasn't flattered. He was only a comic little man, trying to do his best. The bonds that pinioned him and Dave were quickly cut, and they were helped out into the open.

Timid questions were put to him, but he brushed them aside with brief and noncommittal answers, for he was too weary to attempt an explanation of ancient Almarlu.

There was a small girl nearby, crying; while he waited for an answer to the radio call, he tried to cheer her up by directing her attention to a large cat, greedily devouring a fish that had been brought to the Moon from the Arctic Ocean of Earth.

"No report from Aunt Bessie," Dave announced presently, relaying the information from a nearby plane.

"That means that she isn't here and won't come," Jeff said quietly. "Everyone on the Moon would have received the call." And though he smiled as he spoke, he knew that he had loved her more deeply than any-

thing else in life, even though she had often irritated him. But she had never, never been willing to follow his suggestions.

The sky above was much redder now. Meteors—fragments of the Earth—might soon be falling.

Jeff looked at the fernlike lunar sprouts in the damp soil; he thought of food and of sleep and of work. Already the godson of Almarlu was turning over in his mind plans for the future. Adventure was at an end. Tomorrow toil would begin in earnest. Jeff was pleased.

Dave seemed pleased, too, for he smiled grimly. Harsh fact had made a man of an aimless trifter.

And the long-dead people of another sphere might have been pleased also, had they seen the successful termination of the thing they had planned—the survival of the folk who were, in a sense, their children.

A Menace in Miniature

MACDOWD LOOKED AS though he was about ready to crack. His face was like molded chalk behind the transparent curve of his oxygen helmet. The pupils of his eyes were dilated with fear that was close to hysteria, as he gazed from a port of the conning tower and out across the desolate expanse where the spaceship was grounded.

“Paxtonia is just another name for hell!” he whined into his ether phone, addressing his two companions. “It’s just a broken piece of an inhabited world that exploded maybe ten billion years ago! It was shot away from that world’s parent star! Why did it have to wander into our solar system, and establish itself in an orbit around our sun? Nothing could live on it except the spirit of death.

“That’s what it must be—the spirit of death! Those

ships that blew up when they got too close to Paxtonia— Some smart people think that maybe there's an intelligent agent here who did that by exploding the old-type rocket fuel. But there's nothing here that anybody can find, except the ruins of buildings and machines, and a lot of empty silence! Still, a week ago there were twelve men in this expedition—and now there are only three of us left alive. Please! There isn't any sense in our staying on Paxtonia! We've got to get out of this devil's paradise—at once!"

"Shut up, MacDowd!" Pilot Al Kerny, big and bear-like and brave, but not possessing the mental keenness of a scientist, growled emphatically. "You joined this outfit of your own free will, to help do a job that's got to be done! Until we find out what makes Paxtonia so dangerous, and until some way is figured out to combat this condition, no spaceships that come into this vicinity will be safe, in spite of the new, and less easily detonated, rocket fuel. Our lives don't balance against thousands of other lives. Dr. Rolf and you and I are sticking, MacDowd!"

Dr. Kurt Rolf, wispy old *savant*, and since the passing of his superiors, chief of the Montridge expedition, was about to add a few words of his own to Kerny's fierce declarations, when tragedy was repeated.

MacDowd gave an anguished start. He gasped, and his gloved hands clutched and clawed at the chest plates of his spacesuit. Then he slumped to the floor of the conning tower.

As with previous tragedies, there hadn't been the slightest visible or audible warning of the approach of danger. But when Kerny and Rolf bent over the crumpled body, it was a corpse. MacDowd was the tenth victim of the unknown, the incomprehensible.

For a moment Al Kerny's massive form seemed to wilt with weariness and discouragement. His head sagged forward inside his helmet, as he looked out over the plain on which the spaceship rested. Paxtonia, which, when it was drifting into the solar system, an astronomer named Paxton had discovered with his telescope, was shaped like a crude wedge, or like a bomb fragment. The plain was the top of the wedge, and was

a segment of the surface of the world that had been shattered.

Its airless expanse was crusted with utterly dry loam, baked and gray under the merciless sun of the void. Here were visible the remnants of ancient vegetation. And Kerny could see, here, things which would have thrilled the heart of any archeologist—vast, broken domes of hewn stone, which might once have imprisoned air and water in their interiors, and gigantic, moveless engines and machines—all of them belonging to an age of incredible antiquity.

On the domes, carved in bas-relief, were many representations of the people who had created all these wonders. The carven figures stood erect, like men, but they were very slender and attenuated. Their eyes, set in their triangular heads, were large and protruding. But like the things around them, the members of this graven host were lifeless and incapable of inflicting harm—impassive denials of the fact that somewhere among the debris of a wrecked civilization there was a malefic something that seemed to possess the powers of black magic.

"I'm sorry, MacDowd," Kerny muttered to the corpse. "I guess you were right. We should have got out of here. Even wearing spacesuits all the time doesn't seem to help. We—"

Dr. Rolf gripped Kerny's arm in sudden realization. "Al!" he cried harshly, and the small radios, or ether phones, by which spacemen communicate when sealed in vacuum armor, transmitted his voice to his companion. "Observe that gauge, please! The air pressure—it is falling! They—it—whatever the cause of so much murder may be—has invaded the ship—pierced a slight opening in the hull, somehow! It is not that the air is leaking out that should worry us, for there is plenty in the reserve drums. It is that the unknown threat is here, around us and invisible, at this very instant doubtless making ready to strike us down! MacDowd was the first man to die inside the ship. That is additional proof!"

"Shall we leave Paxtonia, then?" Kerny questioned anxiously.

The scientist's thin face was working with emotion. He yanked a proton pistol from the belt around his bulky attire, and sent a blue cone of flame belching from its maw.

"No!" he shouted, as he continued to battle the unseen foe which he knew was near. "There is not a chance to do that! It is doubtful that we could even get the ship into space before we were killed. We must stay and try to think of a plan! The war turret ahead—We must go there and lock ourselves inside! There's ten-inch dural steel on roof and floor and walls. If the hidden ones can bore through the hull of the ship they can doubtless penetrate that armor, too, but doing so will doubtless take considerable time."

Al Kerny, big and powerful, was not capable of the intricate thinking and deliberate action which characterizes some men. Yet his mind could work with lightning rapidity, and his responses were swift and cool. What his more erudite companion had just said brought him realization.

The things he did now he seemed to do all at once, efficiently and without lost motion. He jerked his proton pistol from his holster, and, emulating Rolf, sent its fiery cone spraying and bobbing in every direction.

At the same time he stooped and jerked the body of MacDowd, which had little weight here on tiny Paxtonia, up under one arm. To this burden he added a chest, about a yard long and two feet broad, which had reposed on a steel rack over the intricate control mechanisms of the spaceship.

Dr. Rolf and he rushed from the conning tower and along a corridor which led to the war turret forward, with their proton pistols active. What narrow escapes they had in their flight to this refuge, they could not have observed or guessed. Inside the turret, they swung the ponderous, airtight door shut and worked the locking mechanism.

Here all was heavy, tomblike quiet, which seemed to magnify the throb of their speeding pulses. A great

rocket-torpedo projector, ugly and capable when pitted against a tangible foe, gleamed slumberously before the sealed firing port in the curved wall. Bars of sunshine, slanting from small bull's-eye windows, armored with ten-inch glass almost as hard as diamond and as tough as Damascus steel, made golden paths through the dust floating in the air. Nothing could appear more harmless than those lazily eddying motes; yet at sight of them both Rolf and Kerny were gripped by a vague, cold suspicion that among those specks might drift the instruments of sudden, ghastly extinction. How could one be sure that, during the instant that the massive door was open, the impalpable essence of death had not slipped through, into the war turret?

The two men, possessed of the same thought, which had come to them both by a process of parallel reasoning, acted in an identical manner. Their proton beams flared out, lashing the dust particles into violent motion, and reducing them to fragments too fine to be visible, even if magnified a thousand diameters. The entire atmosphere within the war turret was submitted to the sterilizing action of the beams. Any living thing in the paths of the protonic storms from the pistols, must surely have been destroyed.

"Perhaps for the present we are safe," Kurt Rolf panted in his usual stilted manner of speech. "We must have missed by only a very little the same fate that came to MacDowd."

Al Kerny had lowered the chest he carried, and the body of MacDowd, to the floor. Together, he and his companion stripped the spacesuit and clothing from the corpse. Except for a tiny hole, which must have been made by something much finer than a needle, the vacuum armor was intact. This puncture penetrated the heavy metal chest plating of the suit.

MacDowd's flesh was livid. There was a minute, reddish pinprick over his heart. That was all. He had died as had the others before him. Delicate tests of the blood of previous victims had revealed the nature of the killing agent. It was a protein poison related to the venom of snakes, though many times more virulent. But beyond that, except for the vague evidences of punctured

armor and flesh, there was nothing tangible to work on in an effort to solve the mystery of Paxtonia. From these sketchy hints little could be concluded except that some weapon unseen because of its smallness, was involved, that it was under intelligent control, and that the purpose of that intelligence was hostile.

The two men looked at each other. Both were aware that they were prisoners aboard their own ship, for to venture out of the war turret was to court instant death. For a time, protected by the thick and terrifically stout turret armor as they were, they were safe; but they felt sure that not to make active use of that time would be fatal. The Paxtonian menace had doubtless spent days digging surreptitiously through the hull of the ship, and progress would be slower against the turret shell. Nevertheless, once a small, and not easily discoverable hole had been driven through it, subtle invisibility could be relied upon to defeat, in the end, whatever protection proton pistols might provide.

Rolf and Kerny could not safely reach the radio room at the rear of the conning tower to send out an S.O.S. call, even if to do so would accomplish any good. It would be pointless to signal a puny freight or passenger craft, and even a war rocket would be almost helpless. Now that the invisible foe was much more on the alert than it had been at the time of the Montridge expedition's arrival, dozens of men from a war rocket might be killed in trying to effect a rescue.

"Well?" said Dr. Rolf at last. The tone of the word was enough to show that, for the moment at least, he was in doubt as to what might be done.

Al Kerny had an opportunity now to explain the scheme of which he had thought. He glanced at the chest resting beside MacDowd's body, and then back at Rolf.

The big pilot spoke hesitantly, for he knew his limits where the higher brackets of science and mechanics were concerned.

"I believe you'll agree with me, Doc," he began, "that it's almost certain that what made those tiny wounds in MacDowd and the rest of the men were some

kind of solid objects—poisoned projectiles so small that they're out of sight. The thing to do is to get down to their level of smallness, magnify them so we can fight them in their own size plane and thus spoil their advantage. That way we'll be able to tell what they are and what's running them!"

"Yes indeed!" Rolf commented sarcastically. "But how are we to 'get down to their level of smallness'? A microscope, you will say, is the answer, and perhaps an ultrasensitive microphone. But have not both been tried without results? Did not Professor Montridge even probe the pinprick wounds of the first victims, only to find nothing? We could never examine all the air in this ship with a microscope. Finding what we seek, that way, would be like finding one special grain of sand on a beach! Nor are our best microphones delicate enough to pick up whatever sounds the—the danger here might make!" Kurt Rolf's tone was bitter.

"You don't understand," said Al Kerny. "Wait!"

He stood the chest up on end and opened its front. Within was the intricate switchboard of a radio-robot control. There was a radio-vision screen here, by means of which the operator could see what the mechanical eyes of the robot saw. And there was a diaphragm which would reproduce in amplified form the sounds heard by its mechanical ears. More intricate were the keyboard controls, the visible portion of which resembled the keyboard of a typewriter. By manipulating properly the banked rows of keys here, one transmitted radio impulses into the ether, which, when received by the robot, were translated into the desired action of its various limbs and parts.

From a small box inside the chest—carefully lined with felt, like a jewel casket—Al Kerny took a minute mechanism. He held it in his gloved palm. The mechanism looked like a beetle made of metal. Its length was only about a quarter of an inch; but it had legs like a living beetle. It was provided with a tiny rocket, and a gravity screen, like a spaceship. Moreover, it possessed a pair of appendages meant for grasping and handling. These were fitted with metal fingers finer than human hair.

The device was a microrobot, or, if the trade name was to be used, a Scarab. The task of constructing such a tiny and incredibly intricate fabrication was a matter involving infinite skill, patience, and precision. The most powerful microscopes had to be used, and the most delicate of tools. The nervous waver of a finger, during the process, was enough to ruin much of the fragile workmanship that had so far been completed.

However, in spite of all the difficulties of their manufacture, Scarabs, or microrobots, had proved very useful since their invention. First, because they could go almost anywhere and spy on almost any activity; they had been employed in detective work. But their utility had since broadened into other fields. Mechanics inspected the not easily accessible interiors of great engines with them, and they were of value in scores of other ways. No expedition to a strange place would have felt itself adequately equipped, unless it possessed a microrobot. Al Kerny held the tiny miracle where Dr. Kurt Rolf could see it. "Maybe I'm crazy, Doc," he said hesitantly. "But I'm a kind of optimist."

"I do not grasp at all what you mean," Rolf stated in puzzlement. "We have used the Scarab to explore the deep crevices of Paxtonia. Professor Montridge worked its controls on the first day, before he was killed. Then there were others—Ted Rose, Boris Andriev—both dead now—and myself. We learned nothing of what it is that makes Paxtonia dangerous. The Scarab, small though it is, is not small enough to deal with the unknown."

"Agreed," Kerny admitted. "But look! You're smart that way. You know all about these microrobots. If you could make another one, the size of a grain of sand, it should be able to see just what the menace is!"

Rolf gave a start of sheer consternation. For once his intellectual face looked almost stupid. It was seconds before he could manage to speak. "Splendid," he croaked feebly. "That is, if it was possible. How could you expect me—anyone—to build a Scarab no bigger than a sand grain? Are you—"

"Insane?" Kerny questioned with a mild grin. "Well, I suggested that I might be. But you haven't got all of

my idea yet, Doc. I don't mean that you should construct this ultra-microrobot with your own fingers, of course—at least not directly. I mean that you should manipulate the robot control, making our Scarab do the work. In the television screen you would see the magnified images of what its eyes saw. As far as vision and handling goes, the whole size scale would be raised so that the job would be almost like working with stuff of the usual dimensions.”

Again Rolf registered extreme surprise, as the boldness of the idea struck home. But when he spoke once more, his voice calm. Inspiration had been given to him; and now, in his methodical way, he was testing it mentally, to discover whether or not it was sound and practical.

“Substance,” he mused, “You would think that the parts of a machine so very small would break under the strain of their mere operation. But no, that is not true. The strength of material, in proportion to size, increases as size is diminished. This scientific fact is easy to demonstrate: under Earthly gravitational conditions, a lump of soft putty a foot in diameter will flatten with its own weight if set on a solid surface; while a lump of the same putty, if only an inch in diameter, will not flatten.”

Rolf was silent for a moment. Then fierce eagerness gripped him. “It is a magnificent thought, Al Kerny!” he shouted. “We will make use of it! Or, anyway, we will try to make use of it! Under more favorable circumstances I could really do it justice, by working—how should I say—in steps downward. With the Scarab as big as a beetle, I could make a Scarab as big as a sand grain. This second Scarab could build a miniature of itself, as big as a dust grain. The third Scarab could construct a fourth, bearing the same proportions as the first to the second, or the second to the third. And so on, down, to the limit imposed by the ultimate indivisibility of the atoms themselves!

“The only difficulty would be in maintaining radio control of the smaller Scarabs—the waves they would emit and respond to would be so very fine and faint!

But I think this obstacle could be surmounted in steps—upward and down! A large radio transmitter would send its signals to a small receiver, to which was attached a transmitter of the same size scale. This second transmitter would contact a still smaller receiver. And so the relaying process would continue, using finer and finer impulses all the time. Upward the process would work just as well, a small transmitter contacting a larger, though sufficiently sensitive, receiver. The radios, which are part of each Scarab, in both diminishing and increasing order of size, would complete the chain. Thus I might be able to explore a truly miniature environment, in which the most minute microbes would appear as colossal monsters!”

“Hold on!” Kerny advised, to check the scientist’s hurtling thoughts, and to keep them within the bounds of practical necessity. “Most likely the building of one Scarab of sand-grain dimensions will be a tough enough job for now.”

Rolf’s expression sobered. “Yes,” he mumbled in realization. “A tough job. There is great need for hurry, and so much to do, and so much care to be exercised! Almost everything must be made from scratch, so to speak—even many of the tools for our present Scarab. Then it must devise wires almost as fine as the cilia of a microbe, and tiny electromagnets and photoelectric cells, and lenses of microscopic size, not to mention scores of other things as intricate! But from the complete set of spare parts, available in the supply compartment of the chest here for the repair of any breakdown of our present Scarab, we can at least draw the necessary substances: steel foil and floss, copper, sodium, tantalum, tungsten, quartz, and so forth. And we have the little atomic repair furnace to supply heat.”

“Then your job starts now, Doc,” said Kerny. “I’m sorry I can’t help you much.”

His words were mild and apologetic. But his feelings were loaded with stark, burning lust for vengeance against the nameless horror that had murdered his friends.

Kurt Rolf nodded grimly and took the Scarab from

Kerny's hand, replacing it, for the moment, in its felt-lined box.

The two men removed their cumbersome spacesuits, which they had worn as a now evidently futile guard against the danger of the menace. They could breathe here in the sealed turret, since all rooms aboard spacecraft have individual air purifiers. One never knows what chamber may need to serve as a refuge for the survivors of an accident of the void. Likewise, each room is provided with bottled water and a supply of concentrated rations.

Rolf inspected the Scarab, started its minute atomic motor. Kerny disposed of MacDowd's body by locking it in the torpedo compartment, which adjoined, and formed a unit with, the turret. Next he collected the materials and articles necessary for the coming task, and placed them on a portion of the floor which his companion indicated. In the midst of this outlay the scientist set his tiny, mechanical proxy.

Then he crouched down before the robot control and began to manipulate its keyboard. The Scarab went to work.

Paxtonia, the jagged, baneful fragment of an ancient and mighty world, tumbled around on its axis. Night and day succeeded each other, each built of tense, dragging hours. A race was in progress, a race between Rolf, constructing an ultra-microrobot, and whatever it was, that, if given time, must surely find its way into the turret room, with fatal results to its human occupants and failure on their part to solve Paxtonia's ghastly riddle.

One night, Kerny, peering sternward from the turret windows, noticed a new and weird manifestation of that riddle: several glowing, phosphorescent dots on the visible curve of the spaceship's hull. Those dots marked the positions of tiny, deepening holes in the metal. The unknown was drilling fresh passages into the craft, as doubtless it was puncturing bulkheads within, and working, out of sight somewhere, on the surface of the turret itself. But Kerny was still unable to act against the mystery which smallness concealed. He could not bring his

proton pistol to bear against the luminous dots, through the massive walls of the turret; and he dared not venture forth yet, not only because of the danger of his own life, but because, during his exit, death might enter the refuge, destroying his and Rolf's last chance of penetrating the enigma which threatened all commerce in this region of space. He could only shake his big fists, curse vengefully, and help Rolf whenever he was able.

On the turret floor, during the endless hours, a metal beetle toiled busily, plying tools which were almost too small to see with the unaided eye—tools many of which it had fabricated itself from bits of steel floss and foil, and minute flakes of hard diamond, with the aid of the little atomic furnace that sputtered beside it.

And in the television screen of the robot control, the operations were enlarged, until those tools seemed to be of a size which men would use for fine work. The turret room itself had the aspect of a tremendous, cliff-walled cavern.

Rolf alone was qualified to handle the robot control during most of the job; but while he slept, Kerny guided the little Scarab, polishing new parts, winding coils, and doing other less-intricate, though necessary, things.

Gradually, the Scarab of super smallness was taking form. Viewed directly, it was only a glinting speck, like a little shred of steel among a mass of filings; but examined in the television screen, it was a minute though intricate thing, somewhat like the mechanism that was building it, though, because of the need for haste, it had been simplified.

It had no arms or legs, but it was provided with gravity screens, a rocket-propulsion unit and deflector-fins to guide it in its flight. It had eyes and a minute microphone which could pick up sounds finer and more faint than any a larger device could detect. Within its flattened, oval form were its radio receiver and transmitter, and the instruments necessary to interpret properly the commanding impulses that came to it through the medium of the ether.

At last the new Scarab was completed and made ready for action. But would it work as it should? And

would it be effective in combating the Paxtonian mystery? Or had the two men who were responsible for its creation been following a false lead in their theory that in microscopic things lay the only means of approach to the grim problems they were trying to solve?

Dr. Kurt Rolf adjusted his robot control to receive and transmit the delicate radio impulses on which the effective guidance of the ultra-microrobot depended. He did not need to use the radio of the larger Scarab as a relay, for the new robot, in spite of its extreme smallness, was still not so tiny as to be beyond the direct range of the control.

Next, he and Kerny put on their spacesuits once more; for presently, if all went as they had planned, there would be no air around them. Now Rolf proceeded to manipulate the keys of the guiding apparatus, just as he had done while directing the movements of the larger Scarab.

Ejecting a minute thread of white flame from its rocket, the little metal miracle leaped from the floor and circled the walls of the turret.

In the television screen, what seemed a great, murky void was visible. In it even the dust motes of the air seemed as huge and jagged as masses of broken stone.

"You've done it, Doc!" Al Kerny said with tired though mighty enthusiasm. "Now maybe we'll be able to fight!" His face was haggard with the strain of tension; it looked almost brutal.

"Perhaps," was Rolf's weary, laconic response. "It is best that we do not open the door to give our super Scarab exit. It would be safer to make a hole in the door."

Kerny turned the focusing boss of his proton pistol until the flame it would throw was reduced to a concentrated stream of energy no thicker than a pencil. This he directed at the door from close range. Under the hammering of myriad, focused protons, the metal melted swiftly. In a minute there was a hole, the caliber of the beam, through the portal. With an expiring whisper, audible even through oxygen helmets, the atmosphere in the turret rushed from the opening; for in the passage without, and in the conning tower beyond, all the air had long since escaped, leaking through the

punctures made, by the hidden enemy, in the ship's hull.

Now Kerny broadened and decreased the force of the flame; but he still kept it directed at the hole to form a sure guard against the entrance of the baneful unknown. Only for a moment was Kerny's pistol inactive. That was when Rolf guided the super Scarab through the boring that had been made for it. Now, out of sight, it was flying close to that surface of the door which faced the passage.

The rapt attention of both men was now on the television screen. In it, through the eyes of their tiny servant, they could see the tremendous expanse of the door, and the colossal void of the passage leading to the conning tower. The great rocks that were dust motes, sucked from the war turret along with the air, were settling rapidly, for the atmosphere that had supported them had been much thinned by expansion, and now it was being thinned further by leakage through the punctured hull. Soon it would be gone entirely. No sound could be picked up by the super Scarab's microphone or transmitted by the diaphragm of the robot control, for the air was already too thin to carry vibrations.

But with the swift disappearance of the dust motes, vision improved. There was nothing strange in the vicinity of the door, but in the vast, clear distance of the passage, close to the gigantic globe of a ceiling illuminator, was a swirling swarm of specks which did not settle! Paxtonia was beginning to give up its grim secret!

Rolf sent the super Scarab hurtling cautiously nearer to the swarm. Details sharpened, as with fascinated attention, the men watched. In the screen they saw scores of black spheres, smaller than the vanished dust particles. But they looked like spaceships! Spaceships employing a principle of flight different from that known to Earthmen!

It was still startling to think of craft of such smallness as being possible. But both Kerny and Rolf knew that there was no scientific fact to deny either the possibility of the existence of such craft, or the existence of their still more minute makers.

And if they were spaceships, many riddles were easy to explain. Smallness imposes no limit on speed, at least in a vacuum, while in air, if given time to accelerate, and if powered by motive devices of a strength in proportion to that of the vessel sent out from Earth, the attainment, by these hypothetical spacecraft, of a velocity surpassing that of a bullet, should not be difficult. Such speed would enable these ships to hurl themselves right through the metal of a man's vacuum armor and into his flesh beneath. This idea is, at first, rather hard to believe; but the strength of materials, in proportion to size, increases as size is diminished. A small object can be dropped from an enormous height without injury, while a large object of similar construction and materials, would be, under the same conditions, completely smashed. The same rules apply to living creatures.

Perhaps, then, MacDowd and the others had been killed by tiny spaceships which had penetrated their armor and flesh, injecting into the latter a microscopic but effective portion of virulent poison. If this was the case, doubtless the craft had retreated back through flesh and armor in the way they had come, leaving no trace of themselves for man's microscopes to discover.

Perhaps the glowing specks which Rolf and Kerny had seen on the flanks on their own vessel were only the visible manifestations of microscopic heat tools, mounted on invisibly tiny spacecraft, and being applied to burn through metal. The explosions of the commercial ships from Earth, when they had approached Paxtonia, could be explained by the penetration of some of these super Lilliputian space vessels into their interiors, and the application of a tiny spark to the sensitive, old-type fuel in their fuel tanks. Yes, with a tangible basis for a theory, answers to several questions were not difficult to find now.

Ruminations of this sort must have flashed through the minds of both Kerny and Rolf. But their most intense thoughts necessarily concerned the practical considerations of the immediate present. The time had come to clash with the enemy!

"They have retreated from the door!" Rolf shouted

into his ether phone. "You can open it now, if you act quickly! A foot to the right of the first illuminator globe in the corridor is where the swarm of spheres is amassed!"

Kerny jerked the portal open, and directed his proton pistol with swift and vengeful accuracy. Blue, deadly flame shot from the weapon, blanketing the space which Dr. Rolf had indicated.

Al Kerny saw no evidence that his act had produced any effect; but he heard the scientist's triumphant shout: "Success! Small things may be tough, but the spheres can't withstand the blast of swift and ultimately small protons! The heat, generated in their substance, has melted them! Now I shall look for more swarms of spheres, and tell you where to find them! We must clear the corridor and get back to the conning tower!"

For several seconds there was a pause, while Kerny watched the super Scarab waver and circle ahead of him. Tiny though it was, its position was always plain because of the spark of incandescence ejected from its rocket.

Presently, Rolf shouted again: "Above the Scarab—perhaps eighteen inches! Blast quickly before there is time to attack and destroy our robot!"

Al obeyed, and another group of tiny, deadly spheres was wiped out.

So it went. The scientist gave directions through his ether phone, and Kerny responded with wolfish and gleeful efficiency. There was still grave danger; but Kerny was not blind and helpless anymore, when faced by the menace in miniature. He and his companion possessed a little guide that could meet that menace on an even basis.

Thus, at last, the corridor was cleared, and Al moved on to the conning tower. Here, death must have passed him by only the narrowest of margins; for one of the hordes of spheres, swirling to attain what was probably meant to be a death-inflicting velocity, passed within a yard of him before he could destroy it. But presently, for the moment at least, the conning tower was clear of enemies.

"Make a dash for it now, Doc!" Kerny shouted into his ether phone.

Momentarily, the super Scarab came to rest among banked levers and instruments, while Rolf, bearing the robot control, reached the conning tower as quickly as he could. Once inside, he slammed the metal door behind him. Then he set the robot control down on the floor, and began again to hammer its keys.

The super Scarab took off once more, to parallel the walls in its flight, seeking the tiny holes which the enemy had drilled in the ship's hull. There were several of these here in the conning tower. Kerny welded all but one of them shut with his proton pistol.

This remaining hole, viewed in the television screen, looked like a big tunnel. Now, under Rolf's guidance, the super Scarab darted through it, and out over the Paxtonian plain. Ahead of it, revealed in the screen, were several retreating spheres.

"We will follow them with our ship," Rolf announced. "We must keep close to our robot, or else the distance will be too great for contact with it. The radio waves it emits are very faint."

Pilot Al Kerny leaped to the ship's controls. Levers moved in his grasp. There was a heavy vibration of rockets as the craft cleared the ground.

The tiny flame of the Scarab was difficult to see in the bright sunshine; but Kerny, peering through the windows, managed to locate it. After that he kept his gaze fixed on it with grim purpose.

Over the wreckage of vast machines and buildings, the ship flew. Bas-reliefs of slender, attenuated bodies with great bulging eyes, carved on crumbling walls, glided by beneath.

"Proceed," Rolf assured his companion. "We are on the right track. The super Scarab is still behind the retreating spheres."

Al Kerny saw the speck of flame that was his guide dart down toward what was apparently an immense boulder. Then it disappeared, seeming to vanish into the mass of the huge lump of stone. Automatically, not knowing what else to do, Kerny worked the helm levers,

causing the ship to begin the arc of a circle above the great rock.

He looked back toward Rolf, crouching beside the robot control. But in the television screen, action was depicted which caught and held Kerny's gaze as though it possessed hypnotic power. So like was the aspect of everything to the parts of an environment which a man would consider of normal dimensions, that it took Kerny a moment to realize that what he beheld was the magnification of minute miniatures.

The microrobot from which the view was broadcast was traversing what appeared to be a wide tunnel, illuminated dimly. Before Rolf's creation, the spheres were retreating more slowly now; and from the floor of the passage queer, rodlike weapons, mounted like cannons, were being discharged against the intruder with faint white spurts of flame. But strangest of all, these weapons were manned by slender gray monsters, identical in every detail to the monsters depicted in bas-relief on the walls of the ancient Paxtonian domes!

The firing from the rod weapons was feeble and scattered; so Rolf guided the super Scarab on along the tunnel. But presently its way was barred by an air lock of some transparent material. The spheres, retreating ahead, had passed through the lock, but now its doors were closed. Nevertheless, through its clear substance, a cavern was visible beyond it—a cavern illuminated by what must have been artificial sunshine. There were lakes and forests and hills and growing crops on the cavern floor; and there was what seemed a great, crystal city, in which millions of monsters, like those of the bas-reliefs, were swarming.

Now the ground batteries in the tunnel began a more active barrage. Rolf was forced to cause the microrobot to retreat. Presently it emerged above the barren landscape of Paxtonia.

The scientist was pounding control keys less furiously now. "I think I understand it all at last," he said. "The spheres are really spaceships, manned by Paxtonians as small, almost, as microbes. They were the cause of all our troubles."

"But they are miniatures of the ancients, who were countless times their size!" Kerny burst out. "Why should that be?"

Rolf shrugged. "Simple," he breathed. "Simple and marvelous. It is a solution to the problem of shortages, which probably has seldom been thought of. When the world of which Paxtonia was a part broke up, ages ago, a number of its inhabitants survived here. They built the stone domes, in which water and air could be sealed. But existence was—how shall I say?—very cramped. There could be no expansion of population because of the limited supplies of air and water that had been salvaged from the wreckage of the broken world. Race extinction was doubtless in sight. But it so happens that a small organism needs less air and water than a large organism. In consequence, the Paxtonians decided to grow smaller.

"In a limited way we understand the means they must have used. Growth, in man, is controlled to some extent by gland secretions. Heredity also has its part to play in determining an individual's size. By a process of selecting only the smallest individuals of the race for parenthood, the Paxtonians might have reached their present minuteness after long ages of time. But doubtless they found a quicker way with the aid of gland control.

"Utilizing much the same methods, they reduced animals and plants in proportion. And now they are a people which must number many millions of individuals, living complex, civilized, and comfortable lives inside the sealed caverns which they have excavated in a great rock. No wonder their refuge wasn't found before this!"

Al Kerny looked a trifle dazed. "Well," he said, "that ends the Paxtonian mystery, doesn't it? There's nothing left to do but knock over that damned anthill and wipe out every bug inside it! The torpedo projector in the war turret is made for that kind of work!"

Kerny glanced toward the door, his gray eyes glinting with the light of vengeance. Then, suddenly, most of the grimness of him softened.

"We know how to fight them now," he said irrelevantly. "They aren't dangerous anymore, if we're care-

ful." He paused, and then went on: "They were probably scared; that's why they blew up those commercial ships and killed the boys. In their position, we'd have done the same, if we had the nerve. Besides, they've already paid the price in blood. Maybe, when they find out that Earthmen aren't such bad eggs, they'll make friends. Earth ought to be able to learn a lot from them. Say, Doc, let's just scram and leave the little devils alone! There probably are a few of their spheres still somewhere on the ship; but with the super Scarab to watch, we'll be fairly safe."

Rolf smiled. "I was almost sure you would have a change of heart, my friend," he said. "And yes, here comes the Scarab, back."

Through the tiny hole in the wall of the conning tower flew a pinprick of hot, white light. . . .

Seeds of the Dusk

IT WAS A spore, microscopic in size. Its hard shell—resistant to the utter dryness of interplanetary space—harbored a tiny bit of plant protoplasm. That protoplasm, chilled almost to absolute zero, possessed no vital pulsation now—only a grim potentiality, a savage capacity for revival, that was a challenge to Fate itself.

For years the spore had been drifting and bobbing erratically between the paths of Earth and Mars, along with billions of other spores of the same kind. Now the gravity of the Sun drew it a few million miles closer to Earth's orbit, now powerful magnetic radiations from solar vortices forced it back toward the world of its origin.

It seemed entirely a plaything of chance. And, of course, up to a point it was. But back of its erratic, unconscious wanderings, there was intelligence that had

done its best to take advantage of the law of averages.

The desire for rebirth and survival was the dominant urge of this intelligence. For this was during the latter days, when Earth itself was showing definite signs of senility, and Mars was near as dead as the Moon.

Strange, intricate spore-pods, conceived as a man might conceive a new invention, but put into concrete form by a process of minutely exact growth control, had burst explosively toward a black, spatial sky. In dusty clouds the spores had been hurled upward into the vacuum thinness that had once been an extensive atmosphere. Most of them had, of course, dropped back to the red, arid soil; but a comparative few, buffeted by feeble air currents, and measured numerically in billions, had found their way from the utterly tenuous upper reaches of Mars' gaseous envelope into the empty ether of the void.

With elements of a conscious purpose added, the thing that was taking place was a demonstration of the ancient Arrhenius Spore Theory, which, countless ages ago, had explained the propagation of life from world to world.

The huge, wonderful parent growths were left behind, to continue a hopeless fight for survival on a burnt-out world. During succeeding summer seasons they would hurl more spores into the interplanetary abyss. But soon they themselves would be only brown, mummied relics—one with the other relics of Mars; the gray, carven monoliths; the strange, hemispherical dwellings, dotted with openings arranged like the cells of a honeycomb. Habitations of an intelligent animal folk, long perished, who had never had use for halls or rooms, as such things are known to men on Earth.

The era of utter death would come to Mars, when nothing would move on its surface except the shadows shifting across dusty deserts, and the molecules of sand and rock vibrating with a little warmth from the hot, though shrunken, Sun. Death—complete death! But the growths which were the last civilized beings of Mars had not originated there. Once they had been on the satellites of Jupiter, too. And before that—well, per-

haps even the race memory of their kind had lost the record of those dim, distant ages. Always they had waited their chance, and when the time came—when a world was physically suited for their development—they had acted.

A single spore was enough to supply the desired foothold on a planet. Almost inevitably—since chance is, in fundamentals, a mathematical element depending on time and numbers and repetition—that single spore reached the upper atmosphere of Earth.

For months, it bobbed erratically in tenuous, electrified gases. It might have been shot into space again. Upward and downward it wandered; but with gravity to tug at its insignificant mass, probability favored its ultimate descent to the harsh surface.

It found a resting place, at last, in a frozen desert gully. Around the gully were fantastic, sugar-loaf mounds. Nearby was one thin, ruined spire of blue porcelain—an empty reminder of a gentler era, long gone.

The location thus given to it seemed hardly favorable in its aspect. For this was the northern hemisphere, locked now in the grip of a deadly winter. The air, depleted through the ages, as was the planet's water supply, was arid and thin. The temperature, though not as rigorous and deadening as that of interplanetary space, ranged far below zero. Mars in this age was near dead; Earth was a dying world.

But perhaps this condition, in itself, was almost favorable. The spore belonged to a kind of life developed to meet the challenge of a generally much less friendly environment than that of even this latter-day Earth.

There was snow in that desert gully—maybe a quarter-inch depth of it. The rays of the Sun—white and dwarfed after so many eons of converting its substance into energy—did not melt any of that snow even at noon. But this did not matter. The life principle within the spore detected favorable conditions for its germination, just as, in spring, the vital principle of Earthly seeds had done for almost incalculable ages.

By a process parallel to that of simple fermentation, a tiny amount of heat was generated within the spore. A

few crystals of snow around it turned to moisture, a minute quantity of which the alien speck of life absorbed. Roots finer than spiderweb grew, groping into the snow. At night they were frozen solid, but during the day they resumed their brave activity.

The spore expanded, but did not burst. For its shell was a protecting armor which must be made to increase in size gradually without rupture. Within it, intricate chemical processes were taking place. Chlorophyll there was absorbing sunshine and carbon dioxide and water. Starch and cellulose and free oxygen were being produced.

So far, these processes were quite like those of common terrestrial flora. But there were differences. For one thing, the oxygen was not liberated to float in the atmosphere. It had been ages since such lavish waste had been possible on Mars, whose thin air had contained but a small quantity of oxygen in its triatomic form, ozone, even when Earth was young.

The alien thing stored its oxygen, compressing the gas into the tiny compartments in its hard, porous, outer shell. The reason was simple. Oxygen, combining with starch in a slow, fermentive combustion, could produce heat to ward off the cold that would otherwise stop growth.

The spore had become a plant now. First, it was no bigger than a pinhead. Then it increased its size to the dimensions of a small marble, its fuzzy, green-brown shape firmly anchored to the soil itself by its long, fibrous roots. Like any terrestrial growth, it was an intricate chemical laboratory, where transformations took place that were not easy to comprehend completely.

And now, perhaps, the thing was beginning to feel the first glimmerings of a consciousness, like a human child rising out of the blurred, unremembering fog of birth. Strange, oily nodules, scattered throughout its tissues, connected by means of a complex network of delicate, white threads, which had the functions of a nervous system, were developing and growing—giving to the spore plant from Mars the equivalent of a brain. Here was a sentient vegetable in the formative stage.

A sentient vegetable? Without intelligence it is likely that the ancestors of this nameless invader from across the void would long ago have lost their battle for survival.

What senses were given to this strange mind, by means of which it could be aware of its environment? Undoubtedly it possessed faculties of sense that could detect things in a way that was as far beyond ordinary human conception as vision is to those individuals who have been born blind. But in a more simple manner it must have been able to feel heat and cold and to hear sounds, the latter perhaps by the sensitivity of its fine, cilialike spines. And certainly it could see in a way comparable to that of a man.

For, scattered over the round body of the plant, and imbedded deep in horny hollows in its shell, were little organs, lensed with a clear vegetable substance. These organs were eyes, developed, perhaps, from far more primitive light-sensitive cells, such as many forms of terrestrial flora possess.

But during those early months, the spore plant saw little that could be interpreted as a threat, swiftly to be fulfilled. Winter ruled, and the native life of this desolate region was at a standstill.

There was little motion except that of keen, cutting winds, shifting dust, and occasional gusts of fine, dry snow. The white, shrunken Sun rose in the east, to creep with protracted slowness across the sky, shedding but the barest trace of warmth. Night came, beautiful and purple and mysterious, yet bleak as the crystalline spirit of an easy death.

Through the ages, Earth's rate of rotation had been much decreased by the tidal drag of Solar and Lunar gravities. The attraction of the Moon was not much increased, since the satellite was nearer to Terra than it had been in former times. Because of the decreased rate of rotation, the days and nights were correspondingly lengthened.

All the world around the spore plant was a realm of bleak, unpeopled desolation. Only once, while the winter lasted, did anything happen to break the stark mo-

notony. One evening, at moonrise, a slender metal car flew across the sky with the speed of a bullet. A thin propelling streamer of fire trailed in its wake, and the pale moonglow was reflected from its prow. A shrill, mechanical scream made the rarefied atmosphere vibrate, as the craft approached to a point above the desert gully, passed, and hurtled away, to leave behind it only a startling silence and an aching memory.

For the spore plant did remember. Doubtless there was a touch of fear in that memory, for fear is a universal emotion, closely connected with the law of self-preservation, which is ingrained in the texture of all life, regardless of its nature or origin.

Men. Or rather, the cold, cruel, cunning little beings who were the children of men. The Itorloo, they called themselves. The invader could not have known their form as yet, or the name of the creatures from which they were descended. But it could guess something of their powers from the flying machine they had built. Inherited memory must have played a part in giving the queer thing from across the void this dim comprehension. On other worlds its ancestors had encountered animal folk possessing a similar science. And the spore plant was surely aware that here on Earth the builders of this speeding craft were its most deadly enemies.

The Itorloo, however, inhabiting their vast underground cities, had no knowledge that their planet had received an alien visitation—one which might have deadly potentialities. And in this failure to know, the little spore plant, hidden in a gully where no Itorloo foot had been set in a thousand years, was safe.

Now there was nothing for it to do but grow and prepare to reproduce its kind, to be watchful for lesser enemies, and to develop its own peculiar powers.

It is not to be supposed that it must always lack, by its very nature, an understanding of physics and chemistry and biological science. It possessed no test tubes, or delicate instruments, as such things were understood by men. But it was gifted with something—call it an introspective sense—which enabled it to study in mi-

nute detail every single chemical and physical process that went on within its own substance. It could feel not only the juices coursing sluggishly through its tissues, but it could feel, too, in a kind of atomic pattern, the change of water and carbon dioxide into starch and free oxygen.

Gift a man with the same power that the invader's kind had acquired, perhaps by eons of practice and directed will—that of feeling vividly even the division of cells, and the nature of the protoplasm in his own tissues—and it is not hard to believe that he would soon delve out even the ultimate secret of life. And in the secret of life there must be involved almost every conceivable phase of practical science.

The spore plant proceeded with its marvelous self-education, part of which must have been only recalling to mind the intricate impressions of inherited memories.

Meanwhile it studied carefully its bleak surroundings, prompted not only by fear, but by curiosity as well. To work effectively, it needed understanding of its environment. Intelligence it possessed beyond question; still it was hampered by many limitations. It was a plant, and plants have not an animal's capacity for quick action, either of offense or defense. Here, forever, the entity from across the void was at a vast disadvantage, in this place of pitiless competition. In spite of all its powers, it might now have easily been destroyed.

The delicate, ruined tower of blue porcelain, looming up from the brink of the gully—The invader, scrutinizing it carefully for hours and days, soon knew every chink and crack and fanciful arabesque on its visible side. It was only a ruin, beautiful and mysterious alike by sunshine and moonlight, and when adorned with a fine sifting of snow. But the invader, lost on a strange world, could not be sure of its harmlessness.

Close to the tower were those rude, high, sugar-loaf mounds, betraying a sinister cast. They were of hard-packed Earth, dotted with many tiny openings. But in the cold, arid winter, there was no sign of life about them now.

All through those long, arctic months, the spore plant

continued to develop, and to grow toward the reproductive stage. And it was making preparations too—combining the knowledge acquired by its observations with keen guesswork, and with a science apart from the manual fabrication of metal and other substances.

II

A milder season came at last. The Sun's rays were a little warmer now. Some of the snow melted, moistening the ground enough to germinate Earthly seeds. Shoots sprang up, soon to develop leaves and grotesque, devilish-looking flowers.

In the mounds beside the blue tower a slow awakening took place. Millions of little, hard, reddish bodies became animated once more, ready to battle grim Nature for sustenance. The ages had done little to the ants, except to increase their fierceness and cunning. Almost any organic substances could serve them as food, and their tastes showed but little discrimination between one dainty and another. And it was inevitable, of course, but presently they should find the spore plant.

Nor were they the latter's only enemies, even in this desert region. Of the others, Kaw and his black-feathered brood were the most potent makers of trouble. Not because they would attempt active offense themselves, but because they were able to spread news far and wide.

Kaw wheeled alone now, high in the sunlight, his ebon wings outstretched, his cruel, observant little eyes studying the desolate terrain below. Buried in the sand, away from the cold, he and his mate and their companions had slept through the winter. Now Kaw was fiercely hungry. He could eat ants if he had to, but there should be better food available at this time of year.

Once, his keen eyes spied gray movement far below. As if his poised and graceful flight was altered by the release of a trigger, Kaw dived plummetlike and silent toward the ground.

His attack was more simple and direct than usual. But it was successful. His reward was a large, long-tailed rodent, as clever as himself. The creature uttered

squeaks of terror as meaningful as human cries for help. In a moment, however, Kaw split its intelligently rounded cranium with a determined blow from his strong, pointed beak. Bloody brains were devoured with indelicate gusto, to be followed swiftly by the less tasty flesh of the victim. If Kaw had ever heard of table manners, he didn't bother with them. Kaw was intensely practical.

His crop full, Kaw was now free to exercise the mischievous curiosity which he had inherited from his ancient forebears. They who had, in the long-gone time when Earth was young, uprooted many a young corn shoot, and had yammered derisively from distant tree-tops when any irate farmer had gone after them with a gun.

With a clownish skip of his black, scaly feet, and a showoffish swerve of his dusty ebon wings, Kaw took to the air once more. Upward he soared, his white-lidded eyes directed again toward the ground, seeking something interesting to occupy his attention and energies.

Thus, presently, he saw a brownish puff that looked like smoke or dust in the gully beside the ruined blue tower at the pinnacle of which he and his mate were wont to build their nest in summer. Sound came then—a dull, ringing pop. The dusty cloud expanded swiftly upward, widening and thinning until its opacity was dissipated into the clearness of the atmosphere.

Kaw was really startled. That this was so was evinced by the fact that he did not voice his harsh, rasping cry, as he would have done had a lesser occurrence caught his attention. He turned back at first, and began to retreat, his mind recognizing only one possibility in what had occurred. Only the Itorloo, the Children of Men, as far as he knew, could produce explosions like that. And the Itorloo were cruel and dangerous.

However, Kaw did not go far in his withdrawal. Presently—since there were no further alarming developments—he was circling back toward the source of the cloud and the noise. But for many minutes he kept what he considered a safe distance, the while he tried to de-

termine the nature of the strange, bulging, grayish-green thing down there in the gully.

A closer approach, he decided finally, was best made from the ground. And so he descended, alighting several hundred yards distant from the narrow pocket in the desert.

Thence he proceeded to walk cautiously forward, taking advantage of the cover of the rocks and dunes, his feathers gleaming with a dusty rainbow sheen, his large head bobbing with the motion of his advance like any fowl's. His manner was part laughably ludicrous, part scared, and part determined.

And then, peering from behind a large boulder, he saw what he had come to see. It was a bulging, slightly flattened sphere, perhaps a yard across. From it projected flat, oval things of a gray-green color, like the leaves of a cactus. And from these, in turn, grew club-like protuberances of a hard, horny texture—spore-pods. One of them was blasted open, doubtless by the pressure of gas accumulated within it. These spore-pods were probably not as complexly or powerfully designed as those used by the parent growths on Mars, for they were intended for a simpler purpose. The entire plant bristled with sharp spines, and was furred with slender hairs, gleaming like little silver wires.

Around the growth, thousands of ant bodies lay dead, and from its vicinity other thousands of living were retreating. Kaw eyed these evidences critically, guessing with wits as keen as those of a man of old their sinister significance. He knew, too, that presently other spore-pods would burst with loud, disturbing noises.

Kaw felt a twinge of dread. Evolution, working through a process of natural selection—and, in these times of hardship and pitiless competition, putting a premium on intelligence—had given to his kind a brain power far transcending that of his ancestors. He could observe, and could interpret his observations with the same practical comprehension which a primitive human being might display. But, like those primitives, he had developed, too, a capacity to feel superstitious awe.

That gray-green thing of mystery had a fantastic cast

which failed to identify it with—well—with naturalness. Kaw was no botanist, certainly; still he could recognize the object as a plant of some kind. But those little, bright, eye-lenses suggested an unimaginable scrutiny. And those spines, silvery in sheen, suggested ghoulish animation, the existence of which Kaw could sense as a nameless and menacing unease.

He could guess, then, or imagine—or even know, perhaps—that here was an intruder who might well make itself felt with far-reaching consequences in the future. Kaw was aware of the simple fact that most of the vegetation he was acquainted with grew from seeds or the equivalent. And he was capable of concluding that this flattened spheroid reproduced itself in a manner not markedly unfamiliar. That is, if one was to accept the evidence of the spore-pods. Billions of spores, scattering with the wind! What would be the result?

Kaw would not have been so troubled, were it not for those crumpled thousands of ant bodies, and the enigma of their death. It was clear that the ants had come to feed on the invader—but they had perished. How? By some virulent plant poison, perhaps?

The conclusions which intelligence provides can produce fear where fear would otherwise be impossible. Kaw's impulse was to seek safety in instant departure, but horror and curiosity fascinated him. Another deeper, more reasoned urge commanded him. When a man smells smoke in his house at night, he does not run away; he investigates. And so it was with Kaw.

He hopped forward cautiously toward the invader. A foot from its rough, curving side he halted. There, warily, as if about to attack a poisonous lizard, he steeled himself. Lightly and swiftly his beak shot forward. It touched the tip of a sharp spine.

The result left Kaw dazed. It was as though he had received a stunning blow on the head. A tingling, constricting sensation shot through his body, and he was down, flonping in the dust.

Electricity. Kaw had never heard of such a thing. Electricity generated chemically in the form of the in-

vader, by a process analogous to that by which, in dim antiquity, it had been generated in the bodies of electric eels and other similar creatures.

However, there was a broad difference here between the subject and the analogy. Electric eels had never understood the nature of their power, for they were as irresponsible for it as they were irresponsible for the shape of the flesh in which they had been cast. The spore plant, on the other hand, comprehended minutely. Its electric organs had been minutely preplanned and conceived before one living cell of their structure had been caused to grow on another. And these organs were not inherited, but were designed to meet the more immediate needs of self-protection. During the winter, the invader, studying its surroundings, had guessed well.

Slowly Kaw's brain cleared. He heard an ominous buzzing, and knew that it issued from the plant. But what he did not know was that, like the electric organs, the thing's vocal equipment was invented for possible use in its new environment. For days, since the coming of spring, the invader had been listening to sounds of various kinds, and had recognized their importance on Earth.

Now Kaw had but one thought, and that was to get away. Still dazed and groggy, he leaped into the air. From behind him, in his hurried departure, he heard a dull plop. More billions of spores, mixing with the wind, to be borne far and wide.

But now, out of his excitement, Kaw drew a reasoned and fairly definite purpose. He had a fair idea of what he was going to do, even though the course of action he had in mind might involve him with the greatest of his enemies. Yet, when it came to a choice, he would take the known in preference to the unknown.

He soared upward toward the bright blue of the heavens. The porcelain tower, the ant hills, and the low mounds which marked the entrances to the rodent colonies slipped swiftly behind. As if the whole drab landscape were made to move on an endless belt.

Kaw was looking for his mate, and for the thirty-odd, black-winged individuals who formed his tribe. Singly

and in small groups, he contacted and collected them. Loud, raucous cries, each with a definite verbal meaning, were exchanged. Menace was on the Earth—bizarre, nameless menace. Excitement grew to fever pitch.

Dust, beautiful and soft and forbidding, found the bird clan assembled in a chamber high-placed in a tremendous edifice many miles from where Kaw had made his discovery. The building belonged to the same gentle culture which had produced the blue porcelain tower. The floor of the chamber was doubtless richly mosaiced. But these were relics of departed splendor now thickly masked with dust and filth.

From the walls, however, painted landscapes of ethereal beauty, and the faces of a happy humankind of long ago peeped through the gathering shadows. They were like ghosts, a little awed at what had happened to the world to which they had once belonged. Those gentle folk had dwelt in a kindlier climate which was now stripped forever from the face of the Earth. And they had been wiped out by creatures who were human too, but of a different, crueller race.

Through delicately carved screens of pierced marble, far up on the sides of the chamber's vast, brooding rotunda, the fading light of day gleamed, like a rose glow through the lacework of fairies.

But this palace of old, dedicated to laughter and fun and luxury, and to the soaring dreams of the fine arts, was now only a chill, dusty gathering place for a clan of black-winged, gruesome harpies.

They chuckled and chattered and cawed, like the crows of dead eras. But these sounds, echoing eerily beneath cloistered arches, dim and abhorrent in the advancing gloom of night, differed from the antique yammering. It constituted real, intelligent conversation.

Kaw, perched high on a fancifully wrought railing of bronze, green with the patina of age, urged his companions with loud cries, and with soft, pleading notes. In his own way, he had some of the qualities of a master orator. But, as all through an afternoon of similar arguing, he was getting nowhere. His tribe was afraid. And so it was becoming more and more apparent that he

must undertake his mission alone. Even Teka, his mate, would not accompany him.

At last Kaw ruffled his neck feathers, and shook his head violently in an avian gesture of disgust. He leaped from his perch and shot through a glassless window with an angry scream that was like the curse of a black ghoul.

It was the first time that he had ever undertaken a long journey at night. But in his own judgment, necessity was such that no delay could be tolerated.

The stars were sharp and clear, the air chill and frosty. The ground was dotted sparsely with faint glimmerings from the chimneys of the crude furnaces which, during the colder nights of spring and fall, warmed the underground rodent colonies.

After a time the Moon rose, huge and yellow, like the eye of a monster. In that bloom and silence, Kaw found it easy to feel the creeping and imperceptible, yet avalanching, growth of horror. He could not be sure, of course, that he was right in his guess that the mission he had undertaken was grimly important. But his savage intuition was keen.

The Itorloo—the Children of Men—he must see them, and tell them what he knew. Kaw was aware that the Itorloo had no love for any but themselves. But they were more powerful than the winds and the movements of the Sun and Moon themselves. They would find a swift means to defeat the silent danger.

And so, till the gray dawn, Kaw flew on and on, covering many hundreds of miles, until he saw a low dome of metal, capping a hill. The soft half-light of early morning sharpened its outlines to those of a beautiful, ebon silhouette, peaceful and yet forbidding. Beneath it, as Kaw knew, was a shaft leading down to the wondrous underworld of the Itorloo, as intriguing to his mind as a shadowland of magic.

Fear tightened its constricting web around Kaw's heart—but retreat was something that must not be. There was too much at stake ever to permit a moment of hesitation.

Kaw swung into a wide arc, circling the dome. His long wings, delicately poised for a soaring glide, did not

flap now, but dipped and rose to capture and make use of the lifting power of every vagrant wisp of breeze. And from his lungs issued a loud, raucous cry.

"Itorloo!" he screamed. "Itorloo!"

The word, except for its odd, parrotlike intonation, was pronounced in an entirely human manner. Kaw, in common with his crow ancestors, possessed an aptitude for mimicry of the speech of men.

Tensely he waited for a sign, as he swung lower and nearer to the dome.

III

Zar felt irritable. He did not like the lonely surface vigil and the routine astronomical checkings that constituted his duty. All night he'd sat there at his desk with signal lights winking around him, helping surface watchers at the other stations check the position of a new meteor swarm by means of crossing beams of probe rays.

Angles, distances, numbers! Zar was disgusted. Why didn't the construction crews hurry? The whole race could have been moved to Venus long ago, and might just as well have been. For as far as Zar could see, there was no real reason to retain a hold on the burnt-out Earth. The native Venusians should have been crushed a century back. There wasn't any reason why this pleasant task shouldn't have been accomplished then—no reason except stupid, official inertia!

The sound of a shrill bird cry, throbbing from the pickup diaphragm on the wall, did not add any sweetening potion to Zar's humor. At first he paid no attention; but the insistent screaming of the name of his kind—"Itorloo! Itorloo!"—at length aroused him to angry action.

His broad, withered face, brown and hideous and goblinlike, twisted itself into an ugly grimace. He bounded up from his chair, and seized a small, pistol-like weapon.

A moment later he was out on the sandy slopes of the hill, looking up at the black shape that swooped and darted timidly, close to his head. On impulse Zar raised

his weapon, no thought of compassion in his mind.

But Kaw screamed again: "Itorloo! Loaaah!"

In Zar's language, "Loaaah!" meant "Danger!" very emphatically. Zar's hand, bent on execution, was stayed for the moment at least. His shrewd little eyes narrowed, and from his lips there issued yammering sounds which constituted an understandable travesty of the speech of Kaw's kind.

"Speak your own tongue, creature!" he ordered sharply. "I can understand!"

Still swooping and darting nervously, Kaw screamed forth his story, describing in quaint manner the thing he had seen, employing comparisons such as any primitive savage would use. In this way the invader was like a boulder, in that way it was like a thorn cactus, and in other ways it resembled the instruments of death which the Itorloo employed. In all ways it was strange, and unlike anything ever seen before.

And Zar listened with fresh and calculated attention, getting from this bird creature the information he required to locate the strange miracle. Kaw was accurate and clear enough in giving his directions.

Zar might have forgotten his inherent ruthlessness where his feathered informer was concerned, had not Kaw become a trifle too insistent in his exhortations to action. He lingered too long and screamed too loudly.

Irritated, Zar raised his weapon. Kaw swept away at once, but there was no chance for him to get out of range. Invisible energy shot toward him. Black feathers were torn loose, and floated aflame in the morning breeze. Kaw gave a shrill shriek of agony and reproach. Erratically he wavered to the ground.

Zar did not even glance toward him, but retraced his way leisurely into the surface dome. An hour later, however, having received permission from his superiors, he had journeyed across those hundreds of miles to the gully beside the blue porcelain tower. And there he bent over the form of the invader. Zar was somewhat awed. He had never been to Mars. For two hundred thousand years or more, no creature from Earth had ever visited

that planet. The Itorloo were too practical to attempt such a useless venture, and their more recent predecessors had lacked some of the adventurous incentive required for so great and hazardous a journey.

But Zar had perused old records, belonging to an era half a million years gone by. He knew that this gray-green thing was at least like the flora of ancient Mars. Into his mind, matter-of-fact for the most part, came the glimmerings of mighty romance, accentuating within him a consciousness of nameless dread, and of grand interplanetary distances.

Spines. Bulging, hard-shelled, pulpy leaves that stored oxygen under pressure. Chlorophyll that absorbed sunshine and made starch, just as in an ordinary Earthly plant. Only the chlorophyll of this growth was beneath a thick, translucent shell, which altered the quality of the light it could reflect. That was why astronomers in the pre-interplanetary era had doubted the existence of vegetation on Mars. Green plants of Terra, when photographed with infrared light, looked silvery, like things of frost. But—because of their shells—Martian vegetation could not betray its presence in the same manner.

Zar shuddered, though the morning air was not chill by his standards. The little gleaming orbs of the invader seemed to scrutinize him critically and coldly, and with a vast wisdom. Zar saw the shattered spore-pods, knowing that their contents now floated in the air, like dust—floated and settled—presenting a subtle menace whose tool was the unexpected, and against which—because of the myriad numbers of the widely scattered spores—only the most drastic methods could prevail.

Belatedly, then, anger came. Zar drew a knife from his belt. Half in fury and half in experiment, he struck the invader, chipping off a piece of its shell. He felt a sharp electric shock, though by no means strong enough to kill a creature of his size. From the wound he made in the plant, oxygen sizzled softly. But the invader offered no further defense. For the present it had reached the end of its resources.

Zar bounded back. His devilish little weapon flamed then, for a full two minutes. When he finally released pressure on its trigger, there was only a great, smoldering, glowing hole in the ground where the ghoulish thing from across space had stood.

Such was Zar's and the entire Itorloo race's answer to the intruder. Swift destruction! Zar chuckled wickedly. And there were ways to rid Earth of the treacherous menace of the plant intelligences of Mars entirely, even though they would take time.

Besides there was Venus, the world of promise. Soon half of the Itorloo race would be transported there. The others certainly could be accommodated if it became necessary.

Necessary? Zar laughed. He must be getting jittery. What had the Itorloo to fear from those inert, vegetable things? Now he aimed his weapon toward the blue tower, and squeezed the trigger. Weakened tiles crumbled and fell down with a hollow, desolate rattle that seemed to mock Zar's ruthlessness.

Suddenly he felt sheepish. To every intelligent being there is a finer side that prompts and criticizes. And for a moment Zar saw himself and his people a little more as they really were.

Unlike the lesser creatures, the Children of Men had not advanced very much mentally. The ups and downs of history had not favored them. War had reversed the benefits of natural selection, destroying those individuals of the species best suited to carry it on to greater glory. Zar knew this, and perhaps his senseless assault upon the ruined building was but a subconscious gesture of resentment toward the people of long ago who had been kinder and wiser and happier.

Zar regretted his recent act of destroying the spore plant. It should have been preserved for study. But now—well, what was done could not be changed.

He entered his swift, gleaming rocket car. When he closed its cabin door behind him, it seemed that he was shutting out a horde of mocking, menacing ghosts.

In a short while he was back at the surface station. Relieved there of his duty by another little brown man,

he descended the huge cylindrical shaft which dropped a mile to the region that was like the realm of the Cyclops. Thrumming sounds, winking lights, shrill shouts of the workers, blasts of incandescent flame, and the colossal majesty of gigantic machines, toiling tirelessly.

In a vast, pillared plaza the keels of spaceships were being laid—spaceships for the migration and the conquest. In perhaps a year—a brief enough time for so enormous a task—they would soar away from Earth, armed to the teeth. There would be thousands of the craft then, for all over the world, in dozens of similar underground places, they were in process of construction.

Zar's vague fears were dissipated in thoughts of conquest to come. The Venus folk annihilated in withering clouds of flame. The glory of the Itorloo carried on and on. . . .

IV

Kaw was not dead. That this was so was almost a miracle, made possible, perhaps, by a savage, indomitable will to live. In his small bird body there was a fierce, burning courage that compensated for many of his faults.

For hours he lay there on the desert sand, a pathetic and crumpled bundle of tattered feathers, motionless except for his labored breathing, and the blinking of his hate-filled eyes. Blood dripped slowly from the hideous, seared wound on his breast, and his whole body ached with a vast, dull anguish.

Toward sundown, however, he managed to hobble and flutter forward a few rods. Here he buried himself shallowly in the sand, where his chilled body would be protected from the nocturnal cold.

For three days he remained thus interred. He was too weak and sick to leave his burrow. Bitterness toward Zar and the other cruel Itorloo, he did not feel. Kaw had lived too long in this harsh region to expect favors. But a black fury stormed within him, nevertheless—a black fury as agonizing as physical pain. He wanted re-

venge. No, he needed revenge as much as he needed the breath of life. He did not know that Itorloo plans directed against the intruding spores from Mars were already underway, and that—as a by-product—they would destroy his own kind, and all primitive life on the surface of the Earth.

Kaw left his hiding place on the fourth day. Luck favored him, for he found a bit of carrion—part of the dead body of an antelopelike creature.

Somehow, through succeeding weeks and days, he managed to keep alive. The mending of his injured flesh was slow indeed, for the burnt wound was unclean. But he started toward home, hopping along at first, then flying a little, a hundred yards at a time. Tedium and pain were endless. But the fiendish light of what must seem forever fruitless hatred, never faded in those wicked, white-lidded eyes. Frequently Kaw's long, black beak snapped in a vicious expression of boundless determination.

Weeks of long days became a month, and then two months. Starved to a black-clad skeleton, and hopeless of ever being fit to hunt again, Kaw tottered into a deep gorge one evening. Utterly spent, he sank to the ground here, his brain far too weary to take note of any subtle unusualness which the deepening shadows half masked.

He scarcely saw the rounded things scattered here. Had he noticed them, his blurred vision would have named them small boulders and nothing more. Fury, directed at the Itorloo, had made him almost forget the spore plants. He did not know that this was to be a place of magic. Chance and the vagrant winds had made it so. A hundred spores, out of many millions, had lodged here. Conditions had been just right for their swift development. It was warm, but not too warm. And there was moisture too. Distantly Kaw heard the trickle of water. He wanted to get to it, but his feebleness prevented him.

He must have slept, then, for a long time. It seemed that he awoke at the sound of an odd buzzing, which may have possessed hypnotic properties. He felt as

weak and stiff as before, but he was soothed and peaceful now, in spite of his thirst and hunger.

He looked about. The gorge was deep and shadowy. A still twilight pervaded it, though sunshine gilded its bulging, irregular lips far above. These details he took in in a moment.

He looked, then, at the grotesque shapes around him—things which, in the deeper darkness, he had thought to be only boulders. But now he saw that they were spore plants, rough, eerie, brooding, with their little, lensed, light-sensitive organs agleam.

The excitement of terror seized him, and he wanted to flee, as from a deadly enemy. But this urge did not last long. The hypnotic buzz, which issued from the diaphragmic vocal organs of the plants, soothed and soothed and soothed, until Kaw felt very relaxed.

There were dead ants around him, doubtless the victims of electrocution. Since no better food was within reach, Kaw hopped here and there, eating greedily.

After that he hobbled to the brackish spring that dripped from the wall, and drank. Next he dropped to the ground, his fresh drowsiness characterized by sleepy mutterings about himself, his people and the all-wise Itorloo. And it seemed, presently, that the buzzing of the invaders changed in character at last, seeming to repeat his own mutterings clumsily, like a child learning to talk.

“Kaw! Itorloo!” And other words and phrases belonging to the speech of the crow clans.

It was the beginning of things miraculous and wonderful for Kaw, the black-feathered rascal. Many suns rose and set, but somehow he felt no urge to wander farther toward his home region. He did not know the Lethean fascination of simple hypnotism. True, he sallied afield farther and farther, as his increasing strength permitted. He hunted now, eating bugs and beetles for the most part. But always he returned to the gorge, there to listen to the weird growths, buzzing, chattering, speaking to him in his own tongue. In them there seemed somehow to be a vague suggestion of the benig-nance of some strange, universal justice, in spite of their horror.

And night and day, rocket cars, streamlined and gleaming, swept over the desert. Now and then beams of energy were unleashed from them, whipping the sand into hot flame, destroying the invading spore plants that had struck root here and there. Only the law of chance kept them away from the gorge, as doubtless it allowed them to miss other hiding places of alien life. For the wilderness was wide.

But this phase of the Itorloo battle against the invading spore plants was only a makeshift preliminary, intended to keep the intruders in check. Only the Itorloo themselves knew about the generators now being constructed far underground—generators which, with unseen emanations, could wipe out every speck of living protoplasm on the exposed crust of the planet. Theirs was a monumental task, and a slow one. But they meant to be rid, once and for all, of the subtle threat which had come perhaps to challenge their dominion of the Earth. Kaw and his kind, the rodents, the ants, and all the other simple People of the Dusk of Terra's Greatness, were seemingly doomed.

Kaw's hatred of the Children of Men was undimmed, more justly than he was aware. Thus it was easy for him to listen when he was commanded: "Get an Itorloo! Bring him here! Alone! On foot!"

Zar was the logical individual to produce, for he was the nearest, the most readily available. But summer was almost gone before Kaw encountered the right opportunity, though he watched with care at all times.

Evening, with Venus and the Moon glowing softly in the sky. Kaw was perched on a hilltop, close to the great surface dome, watching as he had often watched before. Out of its cylindrical hangar, Zar's flier darted, and then swung in a slow arc. Presently it headed at a leisurely pace into the northwest. For once its direction was right, and it was not traveling too fast for Kaw to keep pace with it. Clearly its pilot was engaged in a rambling pleasure jaunt, which had no definite objective.

Kaw, pleased and excited, fell in behind at a safe distance. There he remained until the craft was near the

gorge. Now there was danger, but if things were done right . . .

He flapped his wings violently to catch up with his mechanical quarry. He screamed loudly: "Itorloo! Itorloo! Descend! Descend! I am Kaw, who informed you of the unknown long ago! I would show you more! More! More!" All this in shrill, avian chatterings.

Kaw's trickery was naively simple. But Zar heard, above the noise of his rocket blasts. Suspicion? He felt it, of course. There was no creature in this era who accepted such an invitation without question. Yet he was well armed. In his own judgment he should be quite safe. Curiosity led him on.

He shut off his rocket motors, and uttered the bird jargon, questioning irritably: "Where? What is it, black trickster?"

Kaw skittered about defensively. "Descend!" he repeated. "Descend to the ground. The thing that bears you cannot take you where we must go!"

The argument continued for some little time, primitive with matching curiosity and suspicion.

And meanwhile, in the gloomy gorge cut in vague geologic times by some gushing stream, entities waited patiently. Sap flowed in their tissues, as in the tissues of any other vegetation, but the fine hairs on their forms detected sounds, and their light-sensitive cells served as eyes. Within their forms were organs equivalent to human nerve and brain. They did not use tools or metals, but worked in another way, dictated by their vast disadvantages when compared to animal intelligences. Yet they had their advantages, too.

Now they waited, dim as bulking shadows. They detected the excited cries of Kaw, who was their instrument. And perhaps they grew a little more tense, like a hunter in a blind, when he hears the quacking of ducks through a fog.

There was a grating of pebbles and a little brown man, clad in a silvery tunic, stepped cautiously into view. There was a weapon clutched in his slender hand. He paused, as if suddenly awed and fearful. But no opportunity to retreat was given him.

A spore-pod exploded with a loud plop in the confined space. A mass of living dust filled the gorge, like a dense, opaque cloud, choking, blinding. Zar squeezed the trigger of his weapon impulsively. Several of the invaders were blasted out of existence. Stones clattered down from where the unaimed beam of energy struck the wall.

Panic seized the little man, causing him to take one strangling breath. In a few moments he was down, writhing helpless on the ground. Choked by the finely divided stuff, his consciousness seemed to drop into a black hole of infinity. He, Zar, seemed about to pay for his misdeeds. With a mad fury he heard the derisive screams of Kaw, who had tricked him. But he could not curse in return, and presently his thoughts vanished away to nothing.

Awareness of being alive came back to him very slowly and painfully. At first he felt as though he had pneumonia—fever, suffocation, utter vagueness of mind. Had the spores germinated within his lungs, he would surely have died. But they did not, there; conditions were too moist and warm for them. Gradually he coughed them up.

He felt cold with a bitter, aching chill, for the weather had changed with the lateness of the season. Fine snow sifted down into the gorge from clouds that were thin and pearly and sun-gilded. Each tiny crystal of ice glittered with a thousand prismatic hues as it slowly descended. And the silence was deathly, bearing a burden of almost tangible desolation. In that burden there seemed to crowd all the antique history of a world—history whose grand movement shaded gradually toward stark, eternal death.

Zar wanted to flee this awful place that had become like part of another planet. He jerked his body as if to scramble feebly to his feet. He found then that he was restrained by cordlike tendrils, hard as horn, and warm with a faint, fermentive, animal-like heat. Like the beat of a nameless pulse, tiny shocks of electricity tingled his flesh in a regular rhythm.

It was clear to Zar that while he had been inert the tendrils had fastened themselves slowly around him, in

a way that was half like the closing of an ancient Venus Flytrap, carnivorous plant of old, and half like the simple creeping of a vine on a wall.

Those constricting bonds were tightening now. Zar could feel the tiny thorns with which they were equipped biting into his flesh. He screamed in horror and pain. His cries echoed hollowly in the cold gorge. The snow, slowly sifting, and the silence, both seemed to mock—by their calm, pitiless lack of concern—the plight in which he found himself.

And then a voice, chattering faintly in the language of Kaw the Crow: "Be still. Peace. Peace. Peace. Peace. Peace . . ."

Gradually the sleepy tone quieted Zar, even though he was aware that whatever the invaders might do to him could bring him no good.

Plants with voices. Almost human voices! Some sort of tympanic organs, hidden, perhaps, in some of those pulpy leaves, Zar judged. From the records of the old explorations of Mars, he knew a little about these intruders, and their scheme of life. Organs, with the functions of mechanical contrivances, conceived and grown as they were needed! An alien science, adapted to the abilities and limitations of vegetative intelligences—intelligences that had never controlled the mining and smelting and shaping of metal!

Zar, tight in the clutch of those weird monstrosities, realized some of their power. Strangely it did not affect the hypnotic calm that wrapped him.

Mars. These wondrous people of the dusk of worlds had survived all animal life on the Red Planet. They had spanned Mars in a vast, irregularly formed network, growing along dry river beds, and the arms of vanished seas. They had not been mere individuals, for they had cooperated to form a civilization of a weird, bizarre sort. Great, hollow roots, buried beneath the ground, had drawn water from melting polar snows. Those roots had been like water conduits. A rhythmic pulsation within them had pumped the water across thousands of miles of desert, providing each plant along

the way with moisture, even on that dying and almost dehydrated world. The canals of Mars! Yes, a great irrigation system, a great engineering feat—but out of the scope of Itorloo methods entirely.

And through the living texture of those immense joining roots, too, had doubtless flown the impulses of thoughts and commands—the essence of leadership and security. Even now, when Mars was all but dead, its final civilization must still be trying to fight on.

Strange, wonderful times those old explorers had seen. Cold sunlight on bizarre ruins, left by extinct animal folk. Thin air and arctic weather, worse than that of Earth in the present age. Death everywhere, except for those vegetative beings grouped in immense, spiny, ribbonlike stretches. Dim shapes at night under hurtling Phobos, the nearer moon, and Deimos, her leisurely sister. Zar did not know just how it had happened, but he had heard that only a few of those human adventurers had escaped from the people of Mars with their lives.

Zar's thought rambled on in a detached way that was odd for him. Perhaps Nature had a plan that she used over and over again. On Terra the great reptiles of the Mesozoic period had died out to be replaced by mammals. Men and the Children of Men had become supreme at last.

Succession after succession, according to some well-ordered scheme? In the desolate quiet of falling snow, tempered only by the muted murmur of the frigid wind, it was easy for Zar to fall prey to such a concept, particularly since he was held powerless in the grasp of the invaders. Tendrils, thorny, stinging tendrils, which must have been grown purposely to receive an Itorloo captive! Zar could realize, then, a little of the fantastic introspective sense which gave these beings a direct contact with the physical secrets of their forms. And in consequence a knowledge of chemistry and biology that was clearer than anything that an Itorloo might be expected to attain along similar lines.

Zar wanted to shriek, but his awe and his weakness strangled him beyond more than the utterance of a gasping sigh.

Then the mighty spirit of his kind reasserted itself. Zar was aware that most probably he himself would presently perish; but the Itorloo, his kind, his real concern, could never lose! Not with all the mighty forces at their command! To suppose that they could be defeated by the sluggish intruders was against reason! In a matter of months—when the preparations for the vast purification process had been completed—Earth would be free of those intruders once more. Zar's brown face contracted into a leer of defiance that had a touch of real greatness. Brutality, force, cunning, and the capacity for quick action—those were the tools of the Itorloo, but they had strength too. Zar was no fool—no shortsighted individual who leaps to hasty, optimistic conclusions—but in a contest between the Itorloo and the invaders there could be but a single outcome by any standard within Zar's reach.

In this belief, he was comforted, and his luck, presently, after long hours of suffering, seemed far better than he had any reason to hope for. The hard, thorny tendrils unquestionably were relaxing from about him a very little. He could not guess why, and in consequence he suspected subtle treachery. But he could find no reason to suppose that some hidden motive was responsible.

All his avid energies were concentrated, now, on escape. He concluded that perhaps the cold had forced the slight vegetable relaxation, and he proceeded to make the best possible use of his chances. Some time during the night his straining hands reached the hilt of his knife. Not long afterward Zar clutched his blast gun.

Zar limped stiffly to his flier, cursing luridly; while behind him in the gorge, red firelight flickered, and wisps of smoke lanced into the frigid wind.

Zar wished that Kaw was somewhere in sight, to receive his wrath, too. The ebon rascal had vanished.

Winter deepened during succeeding days. The Itorloo in their buried cities felt none of its rigors, however.

Zar had submitted to a physical examination after his weird adventure, and had been pronounced fit. And of

all his people he seemed to toil the most conscientiously.

The Venus project. Soon the Children of Men would be masters of that youthful, sunward planet. The green plains and jungles, and the blue skies of Venus. Soon! Soon! Soon! Zar was full of dreams of adventure and brutal pleasure.

Periodically the rocket craft of the Itorloo sallied forth from the cities to stamp out the fresh growth of the invaders. The oxygen-impregnated substance of their forms flamed in desert gullies, and along the rims of shriveled salt seas, where the spore plants were trying to renew their civilization. Most of them did not get a chance, even, to approach maturity. But because even one mature survivor could pollute the Earth with billions of spores, impossible to destroy otherwise, the purification process must be carried through.

Spring again, and then midsummer. The spaceships were almost ready to leap Venus-ward on the great adventure. The generators, meant to spread life-destroying emanations over the crust and atmosphere above, stood finished and gleaming in the white-domed caverns that housed them.

Zar looked at the magnificent, glittering array in the spaceship construction chamber of his native community with pride and satisfaction.

"Tomorrow," he said to a companion, a fierce light in his eyes.

The other nodded, the white glare of the atomic welding furnaces lighting up his features, and betraying there a wolfish grin of pleasure.

"Tomorrow," Zar repeated, an odd sort of vagueness in his tone.

V

Kaw had long ago rejoined his tribe. Life, during those recent months, had been little different from what had been usual in the crow clans for thousands of years. For purposes of safety, Kaw had led his flock into a desert fastness where patrolling Itorloo fliers were

seldom seen, and where only a few spore plants had yet appeared.

His first intimation that all was not well was a haunting feeling of unease, which came upon him quite suddenly one day just before noon. His body burned and prickled uncomfortably, and he felt restless. Other than these dim evidences, there was nothing to betray the invisible hand of death.

Emanations, originating in the generators of the Itorloo, far underground. But Kaw was no physicist. He knew only that he and his fellows were vaguely disturbed.

With Teka, his mate, and several of their companions, he soared high into the sky. There, for a time, he felt better. Far overhead, near the Sun's bright disk, he glimpsed the incandescent streamers of Itorloo vessels, distant in space. And presently, with little attention, he saw those vessels—there were five in the group—turn back toward Earth.

The advance in the strength of the deadly emanations was slow. Vast masses of rock, covering the upper crust of the planet in a thin shell, had to develop a kind of resonance to them before they could reach their maximum power.

By nightfall Kaw felt only slightly more uncomfortable. By the following dawn, however, he was definitely droopy and listless. The gradual, worldwide process of purification advanced, directed at the invaders, but promising destruction to the less favored native life of Earth, too.

Four days. Huddled in a pathetic group in a ruined structure of antiquity, Kaw's tribe waited. Their features were dull and ruffled, and they shivered as if with cold. Some of them uttered low, sleepy twitterings of anguish.

That evening, from a battered window embrasure Kaw watched the pale Moon rise. He was too weak to stand, but rested slumped forward on his breast. His eyes were rheumy and heavy-lidded, but they still held a savage glitter of defiance, which perhaps would burn in them even after they had ceased to live and see. And Kaw's clouded mind could still hazard a guess as to the identity of the author of his woes. Brave but impotent,

he could still scream a hoarse challenge inspired by a courage as deathless as the ages.

"Itorloo! Itorloo! . . ."

Some time before the first group of spaceships, headed for Venus, had been recalled to Earth, Zar, assigned to the second group, which had not yet entered the launching tubes, had collapsed against his instrument panels.

His affliction had come with a suddenness that was utterly abrupt. Recovering from his swoon, he found himself lying on a narrow pallet in the hospital quarters of the city. His vision was swimming and fogged, and he felt hot and cold by turns.

But he could see the silvery tunicked figure of the physician standing close to him.

"What is wrong?" he stammered. "What is it that has happened to me? A short time ago I was well!"

"Much is wrong," the physician returned quietly. "And you have not really been well for a long time. A germ disease—a type of thing which we thought our sanitation had stamped out millennia ago—has been ravaging your brain and nerves for months! Only its insidiousness prevented it from being discovered earlier. During its incipient stages the poisons of it seem actually to stimulate mental and physical activity, giving a treacherous impression of robust health. And we know, certainly, that this disease is extremely contagious. It does not reveal itself easily, but I and others have examined many apparently healthy individuals with great care. In each there is the telltale evidence that the disease is not only present, but far advanced. Hundreds have collapsed as you have. More, surely, will follow. It is my belief that the entire race has been afflicted. And the plague has a fatal look. Panic has broken out. There is a threatened failure of power and food supplies. Perhaps an antitoxin can be found—but there is so little time."

Half delirious, Zar could still grasp the meaning of the physician's words, and could understand the origin of the disease.

He began to mutter with seeming incoherence: "The

changing Earth. Reptiles. Mammals. Men— Succession. Nature—”

His voice took on a fiercer tone. “Fight, Itorloo!” he screamed. “Fight!”

Cruel he was, as were all his people, but he had pluck. Suddenly he arose to a sitting posture on his bed. His eyes flamed. If his act represented the final dramatic gesture of all the hoary race of man, still it was magnificent. Nor were any tears to be shed, for extinction meant only a task completed.

“Fight!” he shouted again, as if addressing a limitless multitude. “Fight, Itorloo! Study! Learn! Work! It is the only hope! Keep power flowing in the purification generators if you can. The old records of the exploration of Mars—those plants! Their approach to problems is different from our own. No metals. No machines as we know them. But in hidden compartments in their tissues it was easy for them to create the bacteria of death! They *invented* those bacteria, and grew them, breaking them away from their own substance. Some way, when I was a captive, I was infected. The thorns on the tendrils that held me! I was the carrier! Find an antitoxin to fight the plague, Itorloo! Work—”

VI

One year. Two. Three. The sunshine was brilliant, the air almost warm. The rusty desert hills in the distance were the same. Ancient ruins brooded in the stillness, as they had for so long. On the slopes ant hordes were busy. Rodent colonies showed similar evidence of population. In the sky, Kaw and his companions wheeled and turned lazily.

This was the same Earth, with several changes. Bulbous, spiny things peopled the gorges, and were probing out across the desert, slowly building—with hollow, connecting roots—the water pipes of a tremendous irrigation system. Like that of Mars, and like that of Ganymede, moon of Jupiter, in former ages. Saline remnants of seas and polar snows could alike provide the needed moisture.

Thoughts traveled swiftly along connecting roots. Little orbs and wicked spines gleamed. The invaders were

at peace now. Only the Itorloo could have threatened their massed might. There was no danger in the lesser native life.

The subterranean cities of the former rulers of Earth were inhabited only by corpses and by intruding ants, who, like the other fauna of this planet, were immune to the plague, which had been directed and designed for the Itorloo alone. The last race of men was now one with the reptiles of the Mesozoic. But all was peace.

Kaw screamed out his contentment in loud, lazy cries, as he circled in the clear air. He seldom thought of the past anymore. If the new masters were not truly benignant, they were indifferent. They left him alone. Kaw, creature of Earth's dusk, was happy.

The great surface dome where Zar, the Itorloo, had once kept watch, was already surrounded by crowded growths. The plants had achieved a great, but an empty, victory. For Earth was a dying planet. Within the dome an astronomical telescope gleamed dully, collecting dust. Often Zar had directed it toward Venus, goal of shattered Itorloo dreams.

But who knew? Out of the void to Ganymede the invaders had come. Across space to Mars. Riding light to Earth. Perhaps when the time came—when Venus was growing old . . .

Hotel Cosmos

VIEWED CASUALLY, THE building wasn't very remarkable. Just a beautiful, skyward sweep of glittering chromium, like many of the other structures of twenty-third century Chicago.

It wasn't till you discovered its nature that you received a kind of icy, majestic thrill. Its name, flashing in brilliant lights at night, was Hotel Cosmos. Within its

walls lay a haven for every kind of intelligent extraterrestrial creature who dared to cross the interplanetary and interstellar distances to the alien Earth. Few of those beings could have survived raw Earthly conditions for much more than a minute.

Old Dave Ledrack, known as "Easy Goin'" to his friends, paced quiet, green-lit corridors with the silence of a passing ghost. His round, red face revealed nothing of his thoughts; his footsteps on the thick carpets were steady and unhurried. His heart, beneath his neat, white uniform, betrayed not a trace of quickening in its beat, even though there now existed around him exceptional potentialities for trouble.

There always were potentialities for trouble here in Hotel Cosmos, as old Dave knew from eighteen years of intimate experience. When you banded together in one building beings of hundreds of diverse forms and backgrounds, and of as many widely separated conceptions of what is just and what is not, automatically you formed a brew that had most of the ticklish danger of a charge of hyperdynamium explosive.

And now, tonight, circumstances held a much greater threat than was usual. This was the beginning of the great Galactic Conference, a gathering dedicated to the readjustment of thousands of petty and major differences accumulated over many years of commercial relations.

It would not have been surprising, then, had Dave Ledrack felt cold twinges of uneasiness lancing through him. But his remarkable coolness was proved by the fact that such was not the case. Easy Goin' Ledrack's placidity remained unruffled. With possible hell and damnation all around him, he never turned a hair. Perhaps he only dreamed, half-amusedly, of some of the fantastic upsets of his interesting career. But let it not be said that he was not alert, too.

The aspect of all the corridors of the building was much the same. Their floors were heavily carpeted; the walls, of tooled metal, were dully shining in the subdued green glow of the lights. Their uniformity was broken at regular intervals by airtight circular doors, which resembled in a somewhat less massive form the portals of

bank vaults. Each door displayed a number, wrought in black onyx inlay, and mounted on each were several small valve-wheels for regulating and adjusting the temperature, pressure, and gaseous composition of the atmosphere of the room within. The twilight was eerie and soft, and the sweeping sameness of the halls suggested the interminable distances seen in opposed mirrors.

Such was the interior of Hotel Cosmos which was operated and laid out in a manner not markedly dissimilar from that of any hotel for humans. But the fact that it was meant for beings far from human, even in an intellectual sense, made one think of the vast gulfs between the stars; of dark steamy worlds, where slimy horrors sported and thought and toiled; of great, stark, un-Earthly mountains and deserts; and of a thousand other fearful and near-unimaginable things.

Old Dave, however, never allowed his imagination to trouble him.

Concealed in his right ear was a tiny ether phone receiver, part of the equipment of every member of the Terrestrial Guard Police, to which he belonged as a requirement of his position as Chief of Watch in the greatest otherworld hostelry in the Americas.

He listened now, to low, ticking messages, presented in intricate code, as he walked on through the quiet Martian section of the hotel.

"Space Liner *Ardis* coming in from Planet Five of Antares. Landing at 10:19 P.M. in fourth cradle of Civic Space Docks. 4-2-5 on board! 4-2-5 on board! Caution! Caution! This is Holman signaling. Attention, Ledrack! Attention, Ledrack—"

Old Dave grinned with faint benigance. John Holman, his capable, conscientious little boss, was worrying again, he could tell, from the tone of the message. But of course Holman had good and sufficient reason.

4-2-5—the code number assigned by the Space Travel Bureau to a visiting entity who must otherwise remain forever nameless on Earth. Dave had been warned before of 4-2-5's possible sinister purposes.

4-2-5 was reputed to be the greatest troublemaker,

and one of the most brilliant scientists, in the galaxy. But never once had his cold, inhuman cleverness permitted his numerous suspected depredations against law and order to be definitely pinned on him. Hence, he could not legally be denied entrance to Earth.

Planet Five of Antares was a hellish, hot, reeking place with an atmosphere so lethal that one breath of it would swiftly have killed a man. But 4-2-5's kind were not men. Their flesh was of a porous, silicious composition, breathing and living in a different way than any flesh native to Earth. Hideous, hard-shelled things, 4-2-5's kind crept through the shadowy jungles of their world, and dwelt there in a strange luxury, incomprehensible to a man in its repellent needs, but evidently satisfactory to them.

Slavery, piracy, and the brutal conquest of several neighboring planets of Antares had been attributed to them. But at their vast distance from Earth, all this information was vague indeed to the terrestrial populace in general. The one great threat to the successful continuation of 4-2-5's various wrongs was the stupendous fleet of the Interstellar League, headed by its Earthly unit. Earth had extensive commercial interests on Planet Seven, interests which she meant to protect if she could; and Seven was now dangerously involved with 4-2-5's purposes.

Old Dave Ledrack glanced at his wristwatch. 10:17 P.M. In another two minutes the *Ardis*, bearing its sinister passenger, would settle gently on its flaming retard-jets, and into its cradle. There would be brief customs inspections. By eleven o'clock the black transfer cars would come, bringing new guests for Hotel Cosmos. Among them 4-2-5.

Dave thrust his right hand within his coat, contacting a tiny transmitting instrument strapped under his armpit. Rapidly and silently he worked its key, coding out a brief message acknowledging Chief Holman's warning to be on his toes.

After that there was nothing for Dave to do but pace his beat and wait. He passed several times through the extensive and standardized Martian and Venusian sec-

tions of the hostelry, ignoring, during this interval, except for one routine tour of inspection, the rows of more adaptable cubicles, the interiors of which could be adjusted and conditioned to suit almost any form of living thing. Dave paused briefly beside first the Venusian and then the Martian recreation hall. The interiors of both, sealed away from all intrusion of Earth's atmosphere, were screened with frosted glass. But from them there issued, faint and disquieting, odd vocal noises reminiscent humorously of those of a zoo, but suggestive also of dim, nameless horror to the uninitiated.

Promptly at eleven o'clock the casketlike transfer refuges, used while moving the visiting entities from ship to hostelry, were wheeled out of the elevators and along the corridors to the entrances of the various rooms, each of the latter having been specially prepared for the individual for which it was reserved. Each refuge was supported on a bierlike carriage, and was tagged with the number of the occupant it protected from the hostile environmental conditions of Earth.

Dave Ledrack found the refuge marked 4-2-5, Planet Five, Antares, without more than what must seem a casual glance. Guardedly he watched while white-clad attendants lifted it through a circular door and into the air lock of the cubicle selected for its occupant. Now the door was closed and sealed behind it. There had been no sound or other evidence to betray the nature of the unhuman monster it concealed. But now 4-2-5 was free to emerge within the privacy of his carefully conditioned quarters, and proceed with whatever business was his.

Visitors from across space seldom emerged from their rooms, other than to go to the recreation halls, if such were provided for the particular type of creature they happened to be. The most important reason was simply that direct exposure to Earthly conditions usually held a promise of swift death. Instead, they accomplished their contacts with the terrestrial environment by means of radio-controlled proxy robots, usually provided by the hostelry itself. Martians and Venusians came to Earth in sufficient numbers to warrant the existence of recreation halls for them, which they reached

by mean of conditioned passages traversing the rear of their cubicles. But 4-2-5 was the only one of his kind now on Earth, and the presence of others was infrequent. Hence there was no place for him to go for recreation; he must remain confined to his quarters.

Now that he was delivered to his room without slipup, Dave had no further duty where he was concerned, except to keep careful but unobtrusive watch. Dave had no right or desire to pry.

After that, nothing special happened for about an hour. Nothing special, that is, that you could really put your finger on and say, "Here's trouble." But abruptly—so abruptly that the beginning of the phenomenon might have been time almost to the second, had he glanced at his watch—old Dave felt a wave of definite uneasiness sweep over him. It was about half past eleven o'clock then.

Dave Ledrack had thought himself to be one person without nerves; it was annoying now to find himself the victim of an unfathomable worry. He had no faith in the idea that anyone could really sense danger approaching, unless there was tangible though perhaps not easily discoverable evidence of it working on him from some quarter.

Checking up on himself, Dave found no such evidence, except the brooding quiet of green-lit halls, which was quite the normal thing here. The youthful attendants he met in his rounds looked strained and worried. When he greeted them they returned only surly nods, heavy with the spell of alien things. But Dave passed this off as something to be expected. And so, quite in line with his nickname of Easy Goin', he shrugged and grinned deprecatingly.

But putting his mind at rest wasn't quite as easy as that. Morbid suspicions began to creep into his thoughts—suspicions of a quality which he had never experienced before in his life. Meanwhile his imagination was keyed up to cold, nerve-tensing vividness. In spite of his natural inclination to coolness, he began to remind himself that all around him here were a hundred strange hells, encompassed by those little airtight rooms

where no man could live, and where, transiently, dwelt brilliant entities who would probably much sooner see the human race wiped out than not. Devils—hideous devils!

The Venusians, for instance. Pressure, moisture, heat! They spent more than half of their lives in the water. And they looked quite a bit like those abhorrent Earthly marine animals—stingrays. Dark, mud-hued hide; long, rigid tails; slow-moving, winglike fins that worked with a kind of horrible, spiraling grace, like the blades of an old-time seagoing ship's screw. And horrible, sullen, expressionless eyes, imbedded in deep folds of loose skin!

But unlike the rays, the Venusians had four short legs resembling those of a turtle, by means of which they could crawl out of the shallowly sunken cities of their planet and onto the dry land where most of the machines which their science had provided for them were located. And they had tapered, flexible organs around their mouths, serving them in lieu of hands.

The Martians. Gray, spongy monstrosities with great brooding orbs. They were even more repellent than the folk of Venus. As for those other beings from other solar systems—4-2-5 and his kind, for instance—there was something too nameless about them for a man ever to grasp. 4-2-5's people breathed corrosive fluorine instead of oxygen, for one thing, and deadly cyanogen gas was a normal part of the atmosphere of the world they inhabited!

Dave realized now, more clearly than ever before, that within a few yards of him in every direction were horrors eternally beyond the ken of humankind, yet deeply involved in the same mesh of a vast space commerce.

Dave was pacing through the Martian section, when a low buzz sounded behind him. He did not look back, for he knew that the sound originated from a small proxy robot.

But when the mechanism began to circle his head excitedly, the situation was different at once. The robot was a little flying sphere, about eight inches in diame-

ter. It had a single mechanical eye, and one flexible metal arm. More than that, besides its propulsion, radio direction, and auditory receiver units, it possessed only the capacity to speak, as its unseen guide, hidden in one of the rooms here, directed.

It spoke now in clear, clipped English, originating in the manipulation of some artificial device, rather than by means of living vocal cords. Few extraterrestrial creatures possessed natural capacity to reproduce the sounds of human speech.

"There is death," it said quietly. "I am X-4-3, Conference Ambassador from Mars. The Venusians, I think, remember the old war, in which our ether fleets destroyed theirs. Someone has tried to destroy me. The door of my quarters. Someone attempted to burn through the metal. Had I not heard a sound, and frightened the intruder away, heavy Earth-air would have rushed in and smothered me!"

Something maddening and irritable and mysterious in Dave's nerves, made him want to call the entity controlling this proxy robot a fool. But instead he inquired politely: "Room 18, isn't it?"

It wasn't far to room 18. Dave hurried there, with the proxy gliding along beside him. In the metal door was a deep, still-glowing scar made, evidently, by a small atom-blast.

Ledrack nodded with unaccustomed grimness. "Withdraw your robot," he ordered. "Everything will be taken care of."

"It is best that such should be true, Earth creature," the voice returned, with dark, murderous insults lurking just beneath its placid, artificial tones.

Dave saw the airtight outer valve of the room's air lock open to receive the proxy. Beyond, through the transparent inner valve, he glimpsed the dim-lit, metal room, where the great Martian ambassador himself sprawled—an abhorrent, spongy ellipsoid—on a rug of dark, heavy fabric. But when the automatically operated door closed, no opportunity was given Dave to report the attempted assassination, either to Karen, manager of the hotel, or to Holman, chief of the Terrestrial Guard Police.

Echoing from down the hall was a jarring concussion, followed by a ragged, slurring scream.

Dave rushed toward the source of the disturbance at once. It was just beyond the end of the Martian section, where there were great sliding doors, and where the Venusian section began. And here a part of the metal wall was blasted out. There was a sickening stench of fetid Venus jungles in the air, a few fragments of a Venusian bath tank scattered on the floor, and a torn body, smeared with thick, dark blood and now bereft of life. R-2-3, Venus ambassador, destroyed!

Dave, ordinarily so cool, felt a sharp wave of fury at that moment. He wanted to hurt someone—he didn't know whom—since the identity of the murderer was hidden from him.

What had thus far occurred, however, was only the beginning of pandemonium, which now seemed to break all around him. From far and near in the great building he heard human shouts of anger and terror, mixing with the buzz of proxy robots, the occasional low hiss of blast weapons. The effects of what was taking place could be unguessably far-reaching. Many of the entities now in the hotel were galactic celebrities. Titanic war hovered darkly in the background, as Dave realized at once. And since this was Earth, his people would be held largely responsible.

In his little ether phone, Karen, the manager, was shouting wildly for Dave, while at the same time police code was coming in, trilling Holman's message of warning: "Calling Ledrack! Calling Ledrack! Karen reports trouble! Investigate at once! We are coming! We are coming!"

Dave reached into his coat to tap out a brief phrase of acknowledgment. Further than that he didn't know quite what to do. A screaming fury was in his nerves—something that was like murder madness, urging him to kill and kill and kill! But no time was given him now to think out possible causes for this treacherous phenomenon.

He was cool enough to remember his duty first. As

an officer of the law it was his duty to attack trouble and try—at least try—to control it!

There seemed to be many scenes of trouble here in the hostelry, but the one far down the corridor of the Venusian section was the nearest. Four white-clad youths were down, screaming on the floor, while proxy robots wheeled and darted over them like angry hornets of gigantic size. No weapons were in evidence here, but the proxies, by hurling their own bulks swiftly, could strike furious blows against their human adversaries.

Old Dave—Easy Goin'—Ledrack, rushed forward, the pistol-like device in his hand flaming vengefully. Ragged bolts of energy lanced from it blindingly, and with each blast a proxy robot clattered to the floor in glowing, superheated fragments. At least Dave couldn't cause any real interworld complications here. These were only robots. The entities that ruled them couldn't be injured by their destruction.

The voices of the robots—all of them doubtless the proxies of Venusians—made no human sounds, but only hissed a kind of animal defiance, born of a thousand real and fancied wrongs of a petty nature inflicted in the past by Earthmen. Revenge now! Revenge! The remaining proxies hurtled toward Dave, like wickedly glittering projectiles, their camera eyes agleam, their metal arms extended like spear points.

The four youths who were in the employ of Hotel Cosmos, and who had been knocked over, were now scrambling weakly to their feet, their faces and shoulders streaming blood. But they were not too stunned to scream curses and exhortations, their faces twisted with fury and terror.

"Get 'em, Dave! Get 'em—! Dirty, stinking Venus folk— We ought to open all the valves of the rooms, and let 'em die in the Earth air! And those Martians, too! Damn 'em! And all the rest! By glory, let's do it! Let's! We will—"

Dave, armed as was no one else present, smashed the last of the small attacking mechanisms with a series of dazzling bursts of energy. But matters were getting rapidly out of hand.

Mingled with the other sounds of disorder and chaos,

throbbing and dinning throughout the hostelry, now came ominous hisses. Attendants were opening valves—putting a madness born of murder impulses into effect—preparing to drown alien beings in Earth atmosphere unsuited to their needs.

And Dave, gripped by the same strange power, found himself wanting to take part in the massacre too. Those filthy, unhuman demons! Down with them! Down! Easy Goin' Ledrack seemed to have been transformed.

But always some part of him must remain the same. Tact! Never before had he needed the capacity for soothing speech so much as now! War—sweeping the galaxy—wiping out races—shattering planets themselves!

"For heaven's sake, hold yourselves down, fellas!" he shouted to the attendants. "Put those valves back where they belong! Don't you understand what it'll mean if all this goes on—if a lot of these ambassadors and so forth are killed—especially on Earth and by Earthmen? We're up against something—some kind of science, it must be—that's stirring up our blood this way. And it's the same with the other creatures in the hotel. If you want to prove that you're real men, here's your chance! Get control of yourselves! And go around and see what you can do about quieting poor chumps who are going off the deep end. Remember there are cruisers and battleships from other planets out there at the spaceport, and that real hell can blow up at any minute!"

The attendants looked at him sheepishly then, and he knew that his words had had at least some effect. But he could not linger here longer. And so he hurried on along the corridors, beating down proxy robots, exhorting his own kind to caution, each time with waning success. His own nerves, excited and irritated in some hidden manner, and in a progressive way, seemed to be approaching the breaking point.

A terrific hubbub issued from the Martian recreation hall. Somehow Dave got into a lightweight vacuum armor, secured from an emergency supply closet. Thus attired, he traversed the air lock which led into what was, in effect, a fragment of old Mars. Low, sweeping

arches, Cyclopean in the dim illumination of radioactive lamps supported in quaintly wrought sconces. Deep, zigzag carvings in gray stone. Dave knew that the air now around him was cold and dry and thin, but protected as he was he could not feel this difference.

His attention could scarcely have been directed toward such otherwise intriguing details now. With sluggish haste, spongy, ovoid bodies were creeping toward the shelter of massive pillars and low exits, the while they uttered low moaning, rasping cries of terror. For proxy robots, probably controlled by Venusians, had come through the air lock. That the Martians were not smothering in an influx of dense terrestrial atmosphere was due only to the fact that the air lock was massive in construction, and though it could be operated easily enough in its intended manner, it was difficult to destroy or tamper with. Automatic safety devices prevented both of its doors being opened at once, rendering a free inward flow of Earth air impossible as long as the lock was intact.

Nevertheless the intruding proxies, though they were unarmed, were capable of serious damage inflicted with their own hurtling forms. Hissing sibilantly, they were hurling themselves against the Martians, smashing into horny, fibrous flesh.

Once more Dave raised his blast, shooting several of them down in quick succession to protect the seemingly helpless Martians. But two of the latter presently produced blast weapons themselves. Nor were these deadly devices now directed only against proxy robots, but at Dave too!

Disgusted, and furious with rage, he retreated to save his life. Back through the air lock he went, muttering savage imprecations.

Events for a brief spell after that were blurred in his mind. The greenlit halls echoed with crescendoing sound. Human figures and more proxies rushed past him. Soon he found his way to the section intended for interstellar visitors. Here, somehow, he got into difficulties with a powerful young man, provoked to the point of insanity. Dave fought the youth with bare fists that ached

to use the blast gun on anything that chanced to oppose him. The air reeked with noisome odors belonging to a dozen varied worlds. Victorious at last in his battle, but dazed, Dave slipped on something slimy and cold on the carpeted floor—the shattered shreds of a nameless entity from out in the interstellar reaches—a great scientist, doubtless, though of a nightmarish, octopoid shape.

Dave fell, and whacked his head against the wall. Half stunned, he got up, cursing and discouraged.

The sounds of chaos were still louder now. At dawn, worlds would probably be at war, provoked by the spell of fury that had suddenly seized their intellectual leaders, supposedly attending a peaceful conference on Earth!

Old Dave saw things then in his mind's eye—things to which what was taking place here was like a spark compared to a great conflagration. And the savage resentment and fear and loyalty which those hellish visions aroused within him stirred up in his mind a dim glow of hope. If he could act cleverly and quickly enough, perhaps graver trouble could be averted—or maybe he would just be committing another interworld atrocity.

4-2-5 of Planet Five, Antares! Old Dave had no conclusive reason to accuse this individual of responsibility for the hell that had broken loose. But Dave was sure that this chaos had not blossomed out of nothing. Someone, in some subtle way, had caused it for purposes of his own. And Dave had been warned about 4-2-5. Hence, though there was no proof, wasn't 4-2-5 most likely to be the wrongdoer? To say that he was, was a gamble, of course; but now there was no time for anything but a gamble.

Dave began to run toward the corridor where 4-2-5's quarters were located. As he approached the room, a dim intimation of how the Antarean was protecting himself from possible attack came to him, and with it a clearer belief in 4-2-5's guilt. For Dave's nerves grew more and more taut and strained as he advanced closer to where the Antarean lay concealed. It was as though old Ledrack was pushing his way deeper and deeper into a subtle aura of evil; unseen, yet no less powerful

because of that. The invisible radiations beat stronger and stronger upon his nerves and brain until the murderous fury within him seemed to destroy most of the coordination of his bodily movements, and to sear his brain with the fire of insanity. Whatever it was that 4-2-5 was using to stir up hell in Hotel Cosmos was also, by its disruptive effect on nerve tissue, an excellent safeguard against attack by living creatures when it was sufficiently strong.

John Holman's code buzzed once more in Dave's ether phone. It was blurred and scratchy with static—some sort of short-range radio-barrage, doubtless, to keep inimical proxy robots away from 4-2-5's refuge.

Dave was scarcely able to make out the message. "In the—Lord, what's the matter, Ledrack? We've got the hotel surrounded with men. I'll be with you—minute!"

Holman. Dave wouldn't have asked for a better chief than the capable, energetic little man. Only Holman was high-strung. Here in the grip of the sinister aura that pervaded this building, he would be a hopeless, homicidal maniac!

His teeth gritted, Dave leaned against the wall of the corridor for support, meanwhile struggling to tap out a message in the hope that at least an intelligible portion of it would get through the barrage of static that must completely distort the finer waves on which the proxy robots depended for guidance—at least within the immediate vicinity of 4-2-5's quarters. Anyway there were no proxies flying in this corridor.

"No! Don't come in here, Chief!" Dave signaled. "Stay outside and keep watch! Give me five minutes to work alone!"

The need for hurry did not allow him to communicate further. Instead he started forward again along the passage, fighting to control his twitching muscles and to think clearly through the murk of madness that was striving to disrupt his reason. It wasn't only courage that kept him grimly to his task. He did not realize that he was one man in a million, as far as emotional makeup went.

But he could see what had happened here, to other,

lesser humans. The passage rang with thick cries from a few men who writhed on the floor, their faces livid with emotions too strong to allow them coordinated action. Here, so close to the probable source of the aura—a matter of a few yards—they could only twitch and stare and scream, as if gripped by epileptic seizures.

Nevertheless, Dave kept going somehow, surging nearer and nearer to the focus of the weird spell that had thrust invisible fingers throughout the great other-world hostelry. Making those last few yards was like the final effort of a racer to reach his goal ahead of his competitors.

The door of 4-2-5's quarters. Old Dave didn't try to use his key to open it. He was sure that it was fastened on the inside. Instead, he took a little cylinder from the pouch of the vacuum armor he had put on, and drew its primer pin. One end of the cylinder began to blaze with the blue-white heat of atomic energy being unleashed. He touched this end to the upper rim of the door. Swiftly the cylinder melted its way into the metal, and sank out of sight. Dave stepped back, tensed, waiting for the time fuse to do its final work. A moment later there was a violent explosion, and the outer portal of the room's air lock was blasted to fragments.

Dave held his weapon, and now, with clumsy haste, he stumbled forward again, leaping into position. His pistol flamed, its muzzle directed through the inner glass valve of the air lock at the thin, disklike thing that sprawled on the floor of the room beyond.

In the instant before the blast of energy took effect, Dave Ledrack faced 4-2-5. The Antarean, believing that his defenses were insurmountable, must have been taken almost entirely unawares. Dave saw that his hard shell was covered with a second shell of a black material, obviously artificial, and doubtless intended as a protection against the subtle emanations he was using.

The inner door of the air lock, light in construction, shattered and crumpled at once. And assassination was accomplished with the same withering stream of energy.

But the small globe, supported on a tripod in the center of the room, still blazed out the invisible radiations

of madness, as Dave knew from his own feelings. Otherwise there was only a flicker of sparks about the tripod to betray the activity of the apparatus.

With a final surge of willpower, Dave scrambled and staggered into the metal chamber, from which was pouring a reeking, hot wave of cyanogen and fluorine gases. But his vacuum armor protected him from these poisons. His hands clutched a lever to which shreds of gray, alien flesh still clung—grasping organs which had been untouched by the destroying blast from his weapon. They were the grasping organs of a creature born in the region of another star, but in whose fathomless mind unholy ambitions, like those which come to some men, had surged restlessly, provoking sinister action.

Dave pulled the lever. The activity of the apparatus died out. And the veteran guardian of Hotel Cosmos crumpled to the floor, relaxed at last, that awful straining tension gone from his body. Slimy, murky, dim-lit—this place was more repellent from the human viewpoint than a crocodile's Stygian, fetid den. But Dave Ledrack was too utterly spent to care. Weariness and relaxation made him feel almost—well, luxurious. It was almost as though he could understand Antarean conceptions of luxury at last.

And human cleverness had contributed its bit to that luxury. All around, on the walls of the chamber, projected there in the same manner that a magic lantern projects a picture on a screen, were colored scenes which made this compartment look like a landscape of the dead 4-2-5's homeland. Haze. A great red sun. Bizarre vegetation coiling in the shadows of jagged hills that were at once hideous and beautiful. Such had been the efforts of Earthmen to make their guests feel at home.

Dave Ledrack's eyes were closed now. But his weariness seemed to help him to understand the recent past, and to realize that a safe ending of what had taken place had been reached.

4-2-5's objective was easy to guess. The Antarean had wanted to stir up trouble throughout the galaxy so that he and his people could continue their lawless ac-

tivities unmolested. With many peoples at each other's throats, there would be no strength in reserve to halt his piracy, and his conquest of lesser, neighboring worlds.

As to the means 4-2-5 had employed to create disruption—that was not beyond explanation either. Dave knew about the influence of the weather, and other natural conditions, upon intelligent temperaments. Excessive sunspot radiations had been blamed on Earth for various savage outbreaks among his own people. Perhaps 4-2-5 had only managed to isolate, and to generate in much stronger form, the particular radiation that excited living brain and nerve tissue.

But he was destroyed now. Tomorrow, in the vast Conference Auditorium, his plot would be laid bare and proven. Entities from many worlds would sit in judgment, seeing through the eyes of their proxy robots. Cruel they were, and unhuman—but they were reasonable, and few of them had any desire for war. Earth could not be blamed for the disruption and death that had taken place. Customs officials had doubtless seen 4-2-5's apparatus; but they had not known what it was, and at all conferences, according to interworld law, delegates were allowed much of the freedom of honor.

But now the guilty had been found out, and the huge fleet of the Interstellar League could work vengeance upon 4-2-5's people.

Dave was satisfied. There had always been danger in his strange job; but there was romance too—the thrilling romance of glittering stars, of limitless abysses, and of time marching on to greater and greater glory.

Dave knew that he had accomplished a task for which he was eminently suited. Had it not been for his placid nature, cool far above the average, he would have been unable to resist 4-2-5's subtle attack well enough to do what he had done.

"Easy Goin'," he muttered happily. "Easy Goin' Led-rack . . ."

Magician of Dream Valley

JACK VICKERS FELT a twinge of dread sweep through him as he reached the top of the pass and looked down into Dream Valley. Cupped in the mountains just beyond the western rim of Mare Imbrium, the Lunar "sea", the valley swarmed with Hexagon Lights, ancient and now vanishing miracles of the Moon. Tenuous as the fabric of an aurora, they winked and throbbed and changed their forms and their gorgeous colors like the ghosts of gigantic snowflakes.

Jack Vickers was a newscast reporter. He'd had some tough assignments during his career, and this one topped them all. Right now he couldn't figure out where all his former eagerness had come from—or gone!

"I want you to get the straight dope about this Magician of Dream Valley," his chief, back on Earth, had told him. "This queer old guy has become quite notorious among the men at Imbrium City. Not one of those men will go near him. His name is Athelstane—Clyde Athelstane, recently connected with the physics department of Columbia U. But now he's reported to be a regular sorcerer who can accomplish things that nobody else can understand. His original purpose in coming to the Moon, it seems, was to study the Hexagon Lights. So go ahead and do your stuff, Jack! The public eats up any info that's out of the usual rut."

Jack Vickers had accepted this order with a song in his heart. For he was young, and this looked like a real opportunity. He'd never been off the Earth before, for one thing.

Cold reality had put his enthusiasm on a less romantic basis. Imbrium City was tough and practical, and full

of men of a similar character—except for that Athelstane quirk of theirs. Sweeping around the ugly and eternally threatening squatness of the rocket fuel plant, which was beyond the little settlement itself, were the gray plains of a “sea” which, on the quick-cooling Moon, had never contained water in any mentionable quantity. The aspect of those gently undulating expanses of billion-year-old lava was too awesome now, under the grimly factual stars, for any preconceived idea of romance in connection with them to overbalance their depressing suggestion of eternal death.

However, Jack Vickers had a purpose, and he was not the type who quits easily. Presently, steeped in a new Lunar lore acquired from the talk of hard-bitten old Moon-colonists, he had sallied forth from the settlement.

His equipment consisted chiefly of a highly developed space armor. The thing was massive. Each foot was a miniature atom-powered tractor. A man within the suit could withdraw his arms from the sleeves of the intricate, versatile thing, and reach the food supplies contained in pockets arranged all around the spacious interior. There were air purifiers, of course, and water generators. The leg joints of the armor could be locked so that a man could sleep—if he could sleep in an erect position—while the little tractors on his boots carried him on and on.

And so, guided by the eternally glowing stars, young Vickers had started out on his mission, warnings, and even expressions of resentment at what he was attempting, ringing in his ears. The fuel plant, the vast slag heaps, and the atmosphere dome of the settlement, had sunk rapidly under the horizon behind him. The greenly phosphorescent pall of radioactive waste vapors ejected from the chimneys of the plant had been the last landmark of the colony to disappear.

Luna solitudes. Occasional Hexagon Lights, mysterious and haunting, dancing like will-o'-the-wisps in the distance . . . Jack had crossed to the rim of Mare Imbrium. Guiding his tractor boots carefully, he had climbed the rugged mountain pass.

And now he was looking down into the weird, crag-walled pocket that was Dream Valley itself.

Its entire expanse was in view, except where the inky, undiffused shadows masked most of the details of its opposite edge. But into those shadows the Hexagon Lights intruded now and then, quivering over the ash of long extinct volcanoes, and offering a little varicolored illumination. The jagged, uneroded barriers of the valley brooded moveless and dull gray, giving a suggestion of subtle evil.

Jack swallowed nervously, and his eyes blinked into the dazzling sunshine, as he searched for the sealed dwelling of the man he had come to interview. But nowhere in sight, as far as he could discover, was any manmade building.

"Damn!" Jack cursed softly. "This must be the place! I couldn't have gotten my directions mixed up! Unless those yarns about Athelstane being able to make things vanish and reappear again are true!"

Definitely uneasy, yet a bit disgusted with himself for the unwonted superstitious fear that had come over him, young Vickers stood motionless for a few moments. A host of writhing Hexagon Lights were gathered there below him, like a mass of phosphorescent vacuum, ingrained with a million winking geometric patterns that shone with all the colors of the spectrum. The sunshine gave those Hexagon Lights a kind of rainbow transparency.

Jack Vickers had never before seen a display of the great Lunar miracle that even dimly approached this in magnificence. Once the Hexagon Lights had been common all over the surface of the Moon, but no more. The manufacture of radioactive rocket fuel at Imbrium City was supposed to have something to do with their gradual disappearance.

Dream Valley! Hexagon Lights! Composed only of a soft, auroral luminescence as far as anyone could see, they altered their shapes and colors constantly. Now they were simple, diaphanous planes of a six-sided form. And now they took on all the beauty and geometric complexity of a snowflake expanded to colossal size.

Yet they were, according to accepted scientific opinion, no more than phenomena related to terrestrial auroras, being induced in the minute trace of Lunar atmosphere by incoming electromagnetic waves from the Sun. Some odd, natural condition, peculiar to the Moon, was supposed to give them their crystalline shapes by reflecting in some manner, and in enormously magnified size, the forms of minute ice crystals still floating in what little remained of the Lunar shell of air. At least, like ice, and no matter how much they changed in appearance otherwise, they always retained that fundamental hexagonal form.

Jack Vickers suppressed a shudder. The tweaking sense of unease that crawled along his spine made him want to get the distasteful things ahead over and done with as soon as possible. He searched the valley floor again for the dwelling of the Magician. Thus, presently, he spied a low, square structure which blended well with the general, somber hue of the ground beneath the diaphanous splendor of the Hexagon Lights.

"Dr. Athelstane's laboratory," he muttered. "I'm almost certain it wasn't there before. Still—it must have been! My eyes must have been tricking me, just as the eyes of those other few men who saw this place were tricked. Even on Earth there are desert mirages. Some parallel, though unrelated phenomenon here, evidently—"

Jack began to climb down the rugged slope toward the bottom of Dream Valley. His armor was massive, but the low Lunar gravity gave it little weight, and his tractor boots, though clumsy, were equipped with sharp lugs that gripped well the pumicelike rock.

Entering the level where the Hexagon Lights swarmed was somehow, dimly, like being immersed in water. There was almost the same sense of being enveloped and covered by a medium which had treacherous possibilities. Almost at once Jack Vickers' head began to ache dully. This was a disquieting symptom which the earlier colonists of the Moon had noticed, and which the present colonists avoided carefully. It was evidently produced by a too-close contact with the Hexagon

Lights. The result, perhaps of an emanation, which was thrown off from their ghostly forms.

Tense with nerve strain, Jack hurried as much as he could. Once on the valley floor, he set his tractor boots to top speed. Thus he rushed forward, straight through the myriad shapes of Hexagon Lights, as tenuous as a vacuum, but beautiful as a designer's most fragile vision—beautiful and cold, and apart from anything the newscast man had ever encountered before in his past life.

Feeling somewhat shaken, he reached the entrance of the laboratory structure. Beside the entrance there was a little push button. Jack pressed it to signal his arrival. Slowly, then, after a brief wait, the external valve of the air lock opened. Jack entered and the valve closed behind him. In another minute, after the compartment had filled with air, he proceeded to remove his space armor, leaving it standing rigid against the wall beside another similar armor.

"Hello, my young friend! I see you are a bit upset by my beauties, by my wonderful star-flowers! But it is only natural! They are strange, so utterly strange! When you become used to them you will love them even as I do! Nevertheless, I am glad you are here—very glad! I need help in my work. During several months I have tried occasionally to get someone to come here to assist me. But no, it was not easy to do! The people at Imbrium City are stupid provincials full of superstition unworthy of our age! You are not like them! I can see that you are not like them! You are educated! Cultured! You will help in the most wonderful research that has ever been attempted!"

The voice rattled on with the almost hysterical garrulity of one suddenly relieved from long solitude. Half startled, Jack Vickers looked at the speaker. He saw not a somber wizard, but a little rosy-cheeked benignant man in his middle fifties, who had entered the air-lock compartment through the now open inner valve.

But still, Jack could not forget that this was the Magician of Dream Valley. The man who, according to vague reports circulated at Imbrium City, had appeared

close to the settlement's atmosphere dome on several occasions, and had gone away again—without leaving any permanent tracks in the dust where his tractor boots had trod!

All talk, of course. Yet here in this little air-lock compartment, where metal gleamed dully, it was easy to fall into the grip of a dim fear that was like dark enchantment. Jack fought the insidious, creeping approach of that fear with all the willpower at his command. The memory of the weird Hexagon Lights was still vivid in his mind.

He smiled. "Perhaps I will help you with your investigations, sir—if you find that I'm qualified," he said guardedly, feeling somehow that in the almost pleading insistence of the little man there was—in some manner—a trap. "I'm Jack Vickers of Fortune Newscast. You, I take it, are Dr. Clyde Athelstane."

"You've come here specially to see me?" the savant questioned in obvious pleasure.

Jack had made no move to conceal his identity, for he had heard from fairly accurate sources that Athelstane really wanted publicity. So now he proceeded to carry his scheme of flattery through.

"Of course, sir!" he said. "You must tell me all about your work!"

The scientist beamed. "That is splendid!" he enthused. "Come with me!"

Athelstane led his guest into the comfortable, though compactly arranged living quarters.

"Sit down! Sit down!" he invited.

Jack dropped into a big easy chair, his outward calm fairly restored, but an inward turmoil troubling him as much as, or more than, ever. His head still ached furiously, and mixed with this physical discomfort was the consciousness of a thousand disquieting and mysterious circumstances that lurked around him. It was quite possible that Athelstane was a madman, wasn't it? Certainly it must be easy for one to lose his mind here cooped up in this tiny building, with the age-old vacuum of the Moon all around! Moveless crags, brooding and sullen. Ancient ash and scoria of long-dead volca-

noes. Almost nothing that moved except the Hexagon Lights. In Athelstane's faded blue eyes there seemed to be weird reflections of Lunar stars. And his whole body, ordinary though his appearance was, appeared to be wrapped in an impalpable aura of the fantastic.

Jack thought of the possibility of being murdered in some bizarre experiment here, and he didn't like the idea at all. But then—perhaps he was only allowing his imagination to run away with him.

Athelstane paced the floor restlessly. "Do you believe in conservation, young man?" he asked. "That is, the conservation of natural things—wildlife and so forth?"

"With reservations, yes," Jack responded at once.

"You agree with me then on one point," the scientist responded. "My beauties, my Hexagon Lights, are the greatest natural miracles of the Moon! They must be preserved from the extinction which threatens them. During the time that I have studied them, I have learned much. They are not quite what they are supposed to be. But it is true that they are basically phenomena of the ether, just as are wireless waves, X rays, cosmic rays, heat and light waves and so forth. The great difference between the Hexagon Lights and the phenomena with which I have compared them lies in the fact that they are much more complexly organized. That is what they are—organisms of the ether, just as we are organisms of matter! Ether has been much misunderstood. It has not been distinguished from an absolute vacuum simply because no absolute vacuum—separate from the ether—has ever been produced by men. Ether is not mere emptiness; it is a medium, more truly comparable to a solid than to a true vacuum. That we do not perceive its material properties is simply because we have not the right organs of sense to do so.

"Thus far, boy, I believe you follow me. And you know of course, why the rocket fuel plant, which serves half of the solar system, was established on the Moon. Manufacturing rocket fuel consists in taking aluminum, extracted from rock, lava, and so forth, and rebuilding its atoms, thus transmuting it into complex, heavy radioactive elements in which is concentrated terrific atomic power. The radiations incident upon such a reconstruc-

tive process would be dangerous on Earth, killing vegetation, and producing morbid sores on unprotected men and animals. In addition to this, there is always danger of a fearful atomic explosion. In consequence, Imbrium City was built on the deserted Lunar surface, where the fuel plant would not threaten the dense populace of Earth.

"Thus the Hexagon Lights were brought face to face with the promise of doom. For to them, with the fine balance of etheric forces that is theirs, the radiations of the manufacture of rocket fuel are far more dangerous than they are to humans. Gradually, gradually, they are being destroyed. And if there were to be an explosion at the plant—producing a wave of fearful etheric power, and throwing a thin shell of radioactive gases all around the Moon—they would all be wiped out in a few hours!

"Oh, don't you see, boy? I am a student of all the miracles of the universe! And now, when I find the greatest, the most thrilling miracle of all—it is about to be snuffed out of existence, even before I am given a chance to complete my study of it. This must not happen! I will not let it happen! Never! Never! Never! These rocket-fuel people must be driven from the Moon! They can establish another plant on one of the larger asteroids just as well. To drive them away is my first objective. With your help, Jack Vickers, I can accomplish it quite easily!"

Jack was a little dazed at this stunningly direct statement. With wonder and doubt and half-belief growing in his mind, he had listened to all that Athelstane had said, not without a certain sympathy. But he was sure, now, that his host's motives were backed up by reasoning faculties that were a bit blurred, making him the monomaniac champion of a beautiful, outré and perhaps dangerous, unknown.

"You're being rather drastic, aren't you, Doctor?" he fenced. "After all, the plant at Imbrium City represents an enormous investment, in which hundreds of thousands of people are involved to supply the financial backing. Our first loyalty is theirs, since they are our own kind—"

"Finance! Loyalty!" Athelstane almost shouted.

"How do you know that you do not match those stupid words against the very existence of living souls? Yes, I have reason to suspect it! The Hexagon Lights may have intellects even as we! Wait!"

The scientist pushed a heavy curtain away from a window, revealing the expanse of Dream Valley, and the forms of its strange inhabitants.

"Look!" he commanded. "Those geometric patterns, shifting and changing every second, are not the magnified images of microscopic ice crystals, I assure you. What, then, are they? What could they be? The idea signs of a language, perhaps? Or are they more than that? Maybe they constitute a kind of music—a music of light and design! Watch, and you will feel the beat of that music in your thoughts! You will forget the horror—which is only your human response to a wonder out of your experience! Then you will understand the universe more clearly, my friend! Perhaps you will sense, even as I do, the presence of a life and of a wisdom—call it science, if you will—that is beyond our ken! It may be that you think me a gibbering idiot; but if you relax and let your mind drift as it chooses, without prejudice, presently you will remember that mankind has made many transgressions against nature for the sake of greed which is as poisonous as fear! Trees—beautiful forests swept away to appease the gods of materialism! Think freely, Jack Vickers! Think, and you will know that, even at a great price, removing my star-flowers from the Moon would still be as truly horrible as stripping the eternal blue from the skies of Earth!"

It could not have been Athelstane's exhortations alone that swayed the youth. For underneath his veneer of romanticism he was hard and practical. The agent, then, which worked the change in him, must have been something more subtle and treacherous. He sensed that treachery dimly, and tried to fight it. But there was now a vagueness in his aching, throbbing brain that prevented concentration in all but one line of effort. He began dimly to resent the presence of Earthman on the Moon. At least Earthman who had built and were operating a huge,

threatening, rocket-fuel plant there. What if they were of the same human blood as himself? What matter if they were all killed? They deserved it, didn't they, for their selfish, grasping efforts to dominate a solar system?

Perhaps Jack Vickers was being mastered by some ultrahypnotic power which Dr. Athelstane had discovered and had learned to use. Perhaps the presence of those Hexagon Lights—flickering and trembling out there beyond the window in a thousand patterns of living fire—had something to do with the distortion of the newscast man's normal viewpoint.

His face stern, he turned toward the rosy-cheeked, amiable scientist. "I will help you fulfill your intentions, Dr. Athelstane," he said.

The little student of the Moon beamed joyfully. "Thank you, my friend!" he enthused. "Thank you! And now—shall we start at once? There is a certain device which we must finish constructing. It is more than half completed now. But you must do most of the remaining work. My hands are no longer steady enough. Never fear that you lack skill or knowledge, for I shall be with you always, guiding you, directing you. However, certain circumstances prevent the operations being carried on in this building. We must don space armor and toil out in the open."

Jack Vickers arose from his chair with a swift, mechanical animation. He knew that pain still lanced through his skull; but the presence of that pain seemed to be pushed far away from his conscious attention so that it no longer troubled him. He moved with deliberate, concentrated efficiency, taking no more note of his surroundings than was necessary to accomplish what he must do.

Presently, clad in a space armor once more, Vickers was striding out of the building, carrying a heavy box under his arm. Athelstane, similarly attired, followed him closely, giving sharp, precise orders through the communicator phones that operated by means of a cable which now joined the two spacesuits.

"Here is a good place. Set the box down. Open it. There are tools and supplies inside. The apparatus is partly assembled—"

Jack went to work. Never had he labored before with such feverish, calm singleness of purpose, setting intricate, though roughly made pieces of crystal and metal together and fastening them into place.

Around him, in the slowly advancing shadows of afternoon, trembled the Hexagon Lights—glorious, hideous, geometric. But he paid no attention to them at all. He listened only to the commands of Dr. Athelstane, the Magician of Dream Valley, the champion of the unknown.

He worked on and on, even after the dense, black terror of the Lunar night, two weeks in length, had settled down upon him. The lamp attached to the crest of his helmet provided adequate illumination.

He did not sleep until weariness had exhausted him. Then he did so in his space armor, its length sprawled upon the ashy ground. Food was within reach. There would be no need to return to the Athelstane laboratory building at all.

Sleep periods and periods of toil, with the Hexagon Lights seeming to look on like dancing ghosts, much more brilliant now, in the gloom. A tiny welder torch flaming.

Athelstane did no manual work himself; he only advised and explained and directed, like a guiding genius of this magical, silent place of ruined walls and saw-tooth crags.

It wasn't till the wing tip of the solar corona, first herald of the Lunar dawn, thrust a finger of white light over the horizon, that the wicked apparatus was completed. It was conical in form, plain and crystalline on its exterior, but housing a maze of carefully balanced parts that was a marvel of intricacy. Bizarrely suggestive of another science, there was something as wickedly threatening about it as the gaze of a demon of hell.

"We are ready," said Athelstane, who had long ago shed his benignant air. "Pick up the apparatus. We must go now to Imbrium City."

Vickers felt weak and wasted, but that unholy concentration of energy was still within him, and he obeyed without question. He strapped the conical device to the

small ringbolts at the back of his armor. Then, with Athelstane following him, he started out.

They climbed up the rugged slope, leaving Dream Valley, the haunted, the mysterious, behind them. They moved along the gloomy pass that wound down through the jagged mountains toward the undulating reaches of Mare Imbrium. And all around them, traveling like an escort of ghouls, was a host of Hexagon Lights, their forms changing constantly, their colors shifting from soft rose, through orange, yellow, green and blue, to softest violet, and back again.

Once the two men had reached Mare Imbrium, the going should have been easy and swift. But twelve hours out on its surface, the motor of one of the tractor boots of Jack's armor suffered a breakdown. It took two Earth-days to make tentative repairs, and after that it was only possible to continue on at half speed.

The journey was dragged out all through that blazing Lunar day, each moment of which seemed to take its toll of weariness and strain. By this time Jack's supply of concentrated rations was exhausted.

The Sun was setting when the phosphorescent green sky-glow over Imbrium City hove into view above the abrupt horizon. It was several hours more before the stupendous slag heaps of the fuel plant loomed like small mountains in the gathering shadows.

By then, Jack Vickers, after a month of unnatural, driving effort, was almost dead on his feet. And Dr. Athelstane seemed to be in an even worse condition. His voice, coming through the connecting phone line, had faded away to a thin thread of insistence and determination.

"Just a little farther we must go for the best and quickest results!" he was saying. "The Hexagon Lights will repeople the Moon swiftly, once the men are destroyed and the functioning of the plant gradually dies out. Then let human colonists try to rebuild their interests at Imbrium City! The Hexagon Lights had no adequate means of defense before—they had not developed, by a cryptic science of their own, the means to fight their enemies. But now they lack only numbers!

Madness is in the emanations of their forms—madness to men! You know that, don't you? You know that they are sentient beings, don't you? I have tricked you, my young friend! I have tricked you! On! On—"

Jack had long ago sensed the definitely sinister something which animated Athelstane, but he could do nothing about it now. There was a spell in his brain, his nerves, and his muscles, that was like a surging, unbreakable habit. He could only know now that his vague intimations of something nameless had had grotesque fact hiding behind them. Madness! He must go on and on . . .

The hovering Hexagon Lights were all but gone now, most of them having retreated from the lethal rays of the fuel plant. But a few, dim and colorless, still hung on grimly, as though they knew that the mission of these two humans was one of salvation for their kind.

Night was near. In the sky the huge, green Earth glowed, a mottled monster.

"Here, my friend!" Athelstane whispered. "Here is close enough! Set the apparatus of vengeance on the ground! Press the control boss!"

And once more Jack moved to obey. But then, from one of the smoldering stacks of the rocket fuel plant, there was a brief, brilliant puff of greenish smoke. Just a trifling irregularity of the functioning of the equipment below. The green halo in the sky brightened.

Jack heard Athelstane give a thin scream: "Quick! Act as I have told you, you fool! At once! I . . ."

The tenuous voice faded away.

Jack Vickers did not respond as he always had before. For a moment he felt dazed and empty, like a marionette when the strings are dropped by its operator. Utter exhaustion gripped him, and he sagged limply within his spacesuit. The driving force that had held him in thrall was at an end.

Then fear came—the fear of the unknown brought to him by reasoning that was independent at last. And in this compelling emotion there was a new driving force.

Jack forced himself to look around. He was alone. Athelstane, in his bulky armor, had vanished utterly!

So had the few, faint Hexagon Lights, as if they had been mysteriously snuffed out!

The newscast man didn't know what to make of it all at first. But the sharp, daggerlike terror that came with his release from a spell gave a keener edge to his wits. He noticed for one thing that the cable of the communicator phone was not dragging behind him as would have been the case had it been broken or disconnected from Athelstane's space armor. Instead—it was neatly coiled at the hip of his suit!

Almost instantly he patched the scattered fragments of evidence together, arriving at an incredible conclusion! A people beyond human dreams, wielding a miraculous science that was all their own! Vickers couldn't be sure as to how it had all been accomplished, but he knew now that he had been tricked in a manner far more subtle than he could have supposed!

His urges centered on a new objective. The Hexagon Lights! Back there in Dream Valley. Everywhere that they might be on the Lunar surface! They must be wiped out swiftly, before any further treachery could emanate from them! Young Vickers thought of the conical apparatus of mystery on his back, and wondered in what hellish way it was meant to inflict death.

There was only one means that Jack knew of to accomplish his purpose. It was a dangerous, destructive means. But when a threat of such vital significance loomed, you didn't think too much of the price.

He waited until the thick, astral darkness came, just to be more sure that his operations would not be interfered with by members of his own kind. Then he struggled on between the slag heaps. He climbed a stair over a massive wall. He worked a little service air lock that had been left unfastened. He entered the nearest building of the plant.

This was a sleep period, and there was no one about in the great room. But in a colossal, shallow vat a superheated liquid smoldered, giving off glowing radioactive vapors.

Vickers moved purposefully to a switch panel and moved a dial. Exciter rays poured down from a projector, striking the molten contents of the vat with in-

creased force. The viscous, lavalike stuff began to seethe. In approximately fifteen minutes there would be an eruption of atomic force—one whose radioactive rays would penetrate far and wide, whose gases, pouring out similar rays, would envelop the Moon briefly, insuring the complete extinction of the Hexagon Lights in a matter of a few hours.

Nor was there any possibility of preventing the explosion now, with the exciter beams turned to full as they were. In a moment the automatic alarm gongs would be ringing in Imbrium City. The populace would be rushing to underground refuges, shielded and safe.

Vickers hurried out of the building the way he had come, seeking the shelter of a vast pile of slag. The radiations of the eruption might burn him a little here, but he would be safe. Those radiations were not sure death to men as they were to the Hexagon Lights. Though, in the scope of science, there might exist other waves of the ether that would wipe out human life while scarcely affecting beings like the Hexagon Lights at all . . .

Two Lunar days later—almost two Earth months.

No one had discovered Jack Vickers' part in the disaster at Imbrium City. All evidence of his tampering had been blotted out by the blast. Now, the process of reconstruction was in progress.

But Jack himself was far away—once more in Dream Valley, which was stripped now of its eerie people. The vacuum between the towering, black shadowed crags was crystal clear with desertion.

Vickers had come back to penetrate the last doors of a grotesque, romantic enigma—the last doors that would ever be open to him or any other man.

Half fearfully he searched for the low, metal dwelling of Dr. Athelstane. But as he had expected, it was nowhere to be found.

There was no evidence of human intrusion here, except for the ageless footprints in the dust, and one prostrate space armor, around which were crude pieces of apparatus. Beyond the armor's face panel of darkened glass, Jack Vickers saw the withered visage of a little

man. That man had been a lifeless mummy for a long time, a thing of sunken eyes and shriveled cheeks.

"I think I almost understand it all now," Jack muttered. "The Hexagon Lights really were living entities—entities woven of the imperceptible fabric of the ether!

"This corpse was the real Athelstane. He came here to study the Hexagon Lights, but—they studied him instead! The waves they created beat upon his brain, and they mastered him almost at once, using a new projection of their strange science! Somehow they must have learned how to design the apparatus—the cone of death—even though, being so tenuously constituted, they could not fabricate material things themselves. Perhaps the science which enabled them to do this was entirely theoretical. Perhaps they had means of experiment and research both unknown and inconceivable to men.

"They made Athelstane begin construction of the cone. He worked with his own tools, making the needed parts with the aid of makeshift equipment that enabled him to draw the needed substances, metal and so forth, from the soil of the Moon!

"But Athelstane died, worn out, before the job was completed. Then I came here! The laboratory, and the Athelstane I saw and talked to, were both just myths induced in my brain by means of something which must have been a kind of telepathic projection of pictures, sounds, and other sensory impressions. Perhaps this hoax was used to help win my confidence. The Hexagon Lights knew all about Athelstane, and could duplicate his personality easily enough. Certainly, too, though I seemed to remove my spacesuit on entering the mythical lab, I did not do so at all, but only submitted to suggestion of some kind, and imagined I did!

"Well, I finished the conical device meant to radiate death to every man in the vicinity of Imbrium City! It was natural that the Hexagon Lights, being creatures of the ether, should employ etheric waves to accomplish their purposes. They lived and worked and died by such vibrations.

"When I approached Imbrium City with the cone, the emanations of the fuel plant became stronger and

stronger, driving all but the hardiest of the Hexagon Lights back. Then came that minor flicker from the vapor chimney. The emanations increased in intensity, and those Hexagon Lights near me were destroyed. Of course, the mirage that was Athelstane vanished with the minds that produced it.

"The Magician of Dream Valley! No wonder that vision of a man was called that! No wonder his perfectly tangible, though nonexistent, form left no permanent tracks in the dust! No wonder I did not see the laboratory when I first looked down into Dream Valley! It was not till my arrival was discovered that the vision was produced!

"What a story, if I could spill it all! Lord, what a narrow squeak it was! Those devilish, half-real ghosts of hell! Who knows what they might have done, even on Earth!"

Suddenly, though, Jack Vickers felt somehow a trifle sad. A unique and wonderful people had fought a valiant battle to live, and—had lost.

The Shadow of the Veil

GRUD LIFTED HIMSELF out of the waves. His ponderous bulk stood there in the surf, its massive, horn-plated head hunched down suddenly, its sloping, walruslike shoulders dripping brine. In the acrid volcanic murk that floated out to sea from beyond the crags of the coast, Grud looked like some legendary demon come to life.

But there was no one to observe except the great nautilus-squids that rolled on the beach with every surging beat of the ocean. Unless, of course, Ree-Jaar-Env somehow saw too . . .

Grud's gargantuan frame stiffened in reminiscence, and he paused momentarily, as if to seek concealment.

But no, that was not the way, now that he was trying to work up the courage needed to act on a wild plan. He must appear submissive. He must be careful as never before, even though to do so imposed a painful burden of self-control.

Grud let his huge, flipperlike paws, adapted both for swimming and for the handling of objects, dangle limply at his sides, in direct contradiction to the hatred and fury that blazed within him.

Ree-Jaar-Env was the black god who had recently come to Karud, Grud's world, oppressing, demanding tribute, showing at every turn that his magic was greater than any possible defiance. Death was his lash—death spat from the mouth of his image. Death spat, invisibly too, from the depths of the sky. There seemed no way to fight such a taskmaster.

Still, Grud was full of memories of the old peace. Not long ago his clan had dwelt comfortably there, in the seawashed caves of the coastal cliffs. They had hunted food in the blue depths. They had played their simple games together. They had reared their offspring. They had conceived and worshiped their own gods—the big blue sun that blazed through the mists, and Leedaav, the ghostly veil that shifted and waxed and dwindled there in the heavens, working an awful, periodic wonder.

Grud did not know the nature of Leedaav, the Veil. Astronomy was beyond his grasp. He was not aware that that whirling, silvery miracle was a cloud of cosmic dust that followed an immense planetary path around the giant blue sun, and just within the orbit of Karud itself. Perhaps that nebulous mass, many millions of miles in extent, was the wreckage of two planets that had collided. But to Grud's primitive mind, such things were inconceivable. He was unaware even that Karud was a globe, or that it had an orbit.

For the present he had forgotten that old divinity of fear, Leedaav, the Veil. It was time to go to the worshiping place to confer with Ree-Jaar-Env, who was far more terrible. If Grud delayed even for a moment, there was danger.

Moving erect on his hind feet, but shuffling awkwardly, for the land was not the natural habitat of his kind, he advanced along the beach toward the mouth of a gully which led upward among the crags.

When he reached the gully entrance, he heard a long, soaring hoot from up its dank, fern-packed throat. The sound was the cry of Ree-Jaar-Env. It was the same cry which had first drawn Grud's clan to an investigation that had found for them their devilish master. Several evenings before that hoot had first echoed over the hills and jungles and sea, there'd been a flash and a roar from the heavens, like the falling of a great meteor. Hours after that there'd been another flash and roar, ascending toward the stars. Minutes later, the cry had begun.

Familiar though that weird ululation was to him now, hearing it again still could cause Grud's cold pulses to quicken. Mixed with the sound was the savage, bubbling grunt of a colossal denizen of the inland marshes. Grud could picture what was happening up there behind the crags easily enough, yet fascination drove him to haste.

At an awkward run he advanced up the gully, where the broad feet of his kind, going to their worship, had worn a path through the thickets of tall, pale ferns. Long-winged dragon flies buzzed in the hot, golden air, but Grud, of course, paid them not the slightest attention.

He stopped at last behind the bole of a giant fern, and peered into the little glade ahead. Scarcely any vegetation grew there. The ground was just oozy mud, mixed with the rotting, oily stuff of dead animal flesh—the flesh of Grud's own kind, for the most part.

At the center of the glade, in ghoulish glory, amid the bones and the reeking stench of his dreadful sanctuary, stood the idol of Ree-Jaar-Env.

Grud had never seen a human being in his life, but that was what this black image, wrought crudely in painted metal, represented. It was not a portrait. The hands that had molded its clay pattern had been too unskilled for that. Nevertheless there was a certain ruth-

less brutality stamped into the heavy features and frowning brows.

At the other side of the glade hunched the swamp monster, ready for the charge. The animal looked a bit like a carnivorous dinosaur of Earth's Mesozoic epoch. Its jaws slavered as it opened and closed a mouth bristling with teeth, some of them six inches in length. Once again Ree-Jaar-Env, that towering black presence there, surrounded by the decaying evidence of its destructive might, had aroused a horny swamp lord to battle pitch. The animal arched its short, armored neck snakishly. Then at last it leaped.

Grud felt a sort of thrill at sight of that reckless, insensate audacity. But he knew the outcome before it became fact. The siren concealed within the idol still hooted. From the lips of Ree-Jaar-Env there flashed a thin jet of white fire. The swamplord burst apart like a smashed balloon. Tatters of flesh and bone and entrails flew in every direction, as the minute atomic bullet exploded. Like a solid thing, the sound of the concussion beat its way through the fern jungles to the tops of the distant, murky mountains, and surged back and forth again and again in echoes that mocked the futility of simple brute power, when pitted against magic.

Grud gave a brief start. His huge muscles trembled. Fear was in him, but he longed to hurl himself along the same path of fury that the shattered giant had followed. At least such action would express defiance; at least it would be an attempt, however futile.

But Grud could not let this impulse rule him. Not when there was perhaps another, better chance. He forced his fangs and great molars to relax their gritted pressure. He tried not to remember the odor of carrion, most of which had once formed the bodies of his comrades. Cautiously, almost cringingly, he advanced into the glade, aware that in the next moment it was possible that he might be stricken down. But probably the god would at least converse with him first.

Humbly, before the idol, he raised his paws in submission. Still, in spite of his attitude, pride showed in

him. That way, he looked like some outlandish Vercingetorix, facing the throne of a conquering Caesar.

The eyes up there in that coarse, broad face of painted metal surveyed Grud with a cruel glitter in their quartz lenses. Grud had never heard of radiovision or remote control, but he knew that through those eyes Ree-Jaar-Env saw him.

The divinity spoke, its microphonic voice ponderous and snarling, yet shrill when compared to the bull-roar of Grud's people.

"Three days have passed since the latest offering, Stupid One. That is too long a time."

The words, belonging to the primitive tongue of the Surf People, were crudely assembled, and faulty in pronunciation, but Grud could make no mistake as to their meaning. Once Ree-Jaar-Env had been unable to speak the language of the Surf People at all. Still, with great noises and bursting death, much of which came, not from the lips of this image, but from the inscrutable heavens, where his real self was evidently located, he had terrified his devotees into abject slavery. And with a strange force-magic he had jerked the necklaces of pearls from their throats, carrying them up into the sky. So they had known what this vengeful deity required in the way of tribute.

Pearls! Great, rosy pearls, the like of which had never been found on Earth. Grud could picture in his mind his clansmen down there on the dark sea floor, groping among the shells of the giant mollusks that produced these jewels, searching the ooze for more treasure, struggling against water pressures that they were scarcely able to endure. Somehow they had to find enough wealth to again appease Ree-Jaar-Env's lust. Unless . . .

Grud smothered the thought, for he could not be sure that the soul of the black idol could not sense his very purposes.

"Tonight, Ree-Jaar-Env," he grumbled, scarce daring to plan. "Tonight we shall bring you another offering . . ."

His promise ended in a hoarse grunt of pain. One of the small, movable tubes, the muzzles of which were just visible between the lips of the god, was aimed at him. From it a dart had shot out and had embedded itself deep in the scaly flesh of Grud's chest. Grud shivered as he plucked the tiny torture splinter of metal away. But the fiery sting of the formic acid which the dart had borne could not be so easily removed. Grud turned; he almost leaped frothing at his invulnerable tormentor. But he checked himself just in time . . .

"It is well, Witless One," said Ree-Jaar-Env, "that you remembered who it is that rules. It would have pleased me had you lost your sense completely. Now go. But here is another thing for you to hold in your mind: If the gift is not enough, I shall not be satisfied to kill a few of your tribe, and to spit darts of punishment into the bodies of some of the others. I tell you surely that the very ocean beside which you live shall boil, and that the cliffs shall fall down upon you!"

Grud of the Surf People turned away. He tried not to scowl, but even if that hideous, fanged visage of his had registered its most malevolent expression, it could not have betrayed adequately the hate that was his. Torture darts Grud had felt before, but in the stinging pain that now burned in his chest muscles, there seemed to be concentrated the anguish and grief of all the wrongs that had been done to himself and to his clan since the beginning of the black god's dominion. The urge of murder swept the last drops of fear from his mind like a hungry tide. Superstitious dread and the recognition of things probably insurmountable, could mean nothing to him in his present mood.

As he ambled back down the gully, he was visualizing, with the same vividness of imagination that children often display, just what would happen again tonight. His tribesmen would come here to Ree-Jaar-Env's sanctuary. They would bring the skin of a sea monster, formed into a sort of sack, and partly filled with pearls. They would deposit the skin before the idol. Then tiny lights of an unknown energy would flicker around the former, and it would lift upward, gaining speed magically, as if pulled by an unseen hand. The

skin would vanish toward the stars—toward the hidden lair, where the real Ree-Jaar-Env concealed himself.

But why shouldn't there be two skins instead of one? Grud took hold of that wild scheme of his with grim determination. No more did he waver, as the hunger for vengeance shrieked in every cell of his vast, coarse carcass. Poor primitive that he was, he did not know that ten thousand miles of frigid vacuum lay between himself and the object of his hate.

Tarl and Rebu would give him help. He might have to argue and challenge and ridicule, to raise their courage above their fears. But they would carry the second skin . . .

Richard Envers looked at the radiovision screen before him, and smiled a slow smile. He was handsome, maybe fifty, and his physique was broad and powerful. His face wore no signs of real cruelty. The game he was engaged in was only a business proposition to him. He'd ranged the interstellar regions for a long time, looking for a way to rebuild a broken fortune. Back home on Earth he had two daughters and a son who were clamoring for this and that, on a pretty expensive scale. And—well, a fellow didn't like to let the kids down, of course, particularly when it wasn't possible to see them more than once every few years, on the occasions of his rare visits at home.

"The sweetest racket that's ever been thought up, eh, boss?" said the little spindle of a man who stood beside Envers in the pilot compartment of the spaceship. "No danger to ourselves up here. No work to speak of. No exposure to heat and bugs and possible disease germs. Nothing to do but ride our gravity screens, round and round the planet, over the place where these water babies live, and make a big noise down below. Gosh, lucky we got those dizzy natives for stooges! It's a cinch we wouldn't get far if we had to gather those pearls alone. Good thing we saw our friends wearing those necklaces, when we landed. Binoculars come in mighty handy—"

To this enthusiastic speech, however, Richard Envers offered no response except an absent nod. His attention

was occupied by the view in the screen—a view radioed up from the television apparatus concealed in the body of the thing known to the Surf People as Ree-Jaar-Env.

Illuminated by a weird light—not moonlight, exactly, but something very similar—a horde of those grotesque primitives was visible in that plate of ground glass. It had been quite unnecessary for Envers to move the remote-control switch that would turn on the flood-lamps behind the eyes of the image of the god, far, far below, beneath the enwrapping gases of a dense atmosphere.

Envers noted with satisfaction that the Surf People still bowed humbly before the idol. He noted also that they had brought two bulging, oily skins, which at first glance was most satisfying.

The man, however, was not fooled for more than a moment. One skin was decidedly well filled, and it bulged in a manner that was all wrong for its supposed contents. Its shape was quite like that of a Surf Man, huddled up to occupy as little room as possible.

Richard Envers grinned at this transparent evidence of naive craft. "You see, Muggsie," he said to his companion, "one of the more ambitious boys from down under wants to pay us a visit. I guess maybe he'd like it quite a bit if he could take us apart and see what makes us tick, eh?"

Muggsie gasped. "Gosh, boss!" he said. "That's crust, ain't it? But after all, he don't know what he's up against. Ten thousand miles of empty space, and just a hide to cover him. Whew! And he's used to a hot climate, too! Glory! He'd be frozen stiff before the attractor beam pulled him more than a couple of hundred miles above the ground! What are you gonna do about it, boss? Give all those babies another good taste of hell?"

Envers seemed to consider briefly, glancing at the breech of the neutronic cannon nearby. "No," he said at last. "Not yet anyway. We'll just play dumb, as though we didn't smell anything fishy. Maybe we can figure out something real impressive to do with the corpse of our visitor. Meanwhile, though, we can't neglect the usual dose of devil-medicine. Savage psychology, you under-

stand. Helps keep the beasts in line. Fear is the only thing that will ever soak through their thick skulls."

Whereat, Richard Envers peered into a sighting device which was part of the radiovision apparatus before him. He jabbed buttons on the instrument panel, with no more show of emotion than if he were digging a hill of potatoes. From the speaker he heard the crash of a small atomic explosion. The idol had spat death again. Three Surf Men were killed. Their comrades were howling "Ree-Jaar-Env!" in hoarse, submissive terror.

But Envers reacted only in terms of commercial satisfaction. From time immemorial, on Earth, there had been men like him, neither cruel nor kindly. They had helped to build and to wreck empires.

Touching the switch of a microphone, Envers spoke a guttural command in the language of his wild subjects. Radio waves sent it winging down there to the receiver in the image.

The Surf People began to disperse. Envers pressed a lever. The attractor beam was now in action. The two skins pictured in the viewscreen leaped upward, and disappeared from sight.

Envers stretched luxuriously. "It'll be quite a while before the pearls and our bold native arrive here, Muggsie," he said. "I'm going to take a nap for an hour or so. You watch things—"

To Grud, the sensations of flight upward through the atmosphere were thrilling and terrifying, yet at first not entirely unpleasant. Then he began to feel cold. Presently his lungs started to ache, as the air thinned. At last he was in the grip of the unknown.

What did Grud do? What was there for him to do? He huddled up tighter, in that ballooning hide which was his only protection. And he prayed silently to the old gods of his clan—the blue star that was the center of this solar system, and most of all to Leedaav, the Veil. Grud, peeping through tears in the skin of the sea monster, saw that mass of dust shining, silvery and distant, just above the murky curve of the world he was leaving. That colossal ghost, reflecting light from its

sunward flank, was far off now, yet Grud could remember its strange might. . . .

He stared at it, and at the hardening stars, his deep-set, lizardlike eyes growing bloodshot because of decreasing atmospheric pressure. Frost glazed his lips. He struggled, but the attractor beam pulled him on toward the sky that was changing from nocturnal purple to brittle, gray-streaked black. His body was growing numb in the tenuous, frigid wind of his swift passage through the upper stratosphere. In the shadow of the planet, there was no sunshine to replace heat loss. Grud's chest expanded and contracted, searching breath, but it worked like the spring of a broken toy—without resistance. Grud's last movement, almost, was a tightening and then a relaxing grip on the handle of the great stone club that was to have been his tool of revenge.

Richard Envers, clad in a vacuum armor, was the one who jockeyed the two skins and their contents into the air lock of the spaceship. With a sharp knife he cut the now brittle and frozen rawhide of each sacklike wrapper. There were the pearls, beautiful rainbow-sheened spheres, many of them perfect. And there was the dead visage of him who had dared.

Frozen blood in great, dark nostrils. And a frozen look of pain on hideous, curling lips that revealed long fangs, coated with frozen saliva. Grud's corpse was bloated a little, and it was as rigid as a statue carved from oak. The loss of warmth may be gradual in a vacuum, but there had been time enough to congeal every trace of fluid in Grud's body. The only impassable limit of cold in the void is absolute zero, and the decline toward that point is steady. Grud's eyelids were tightly closed in a final effort at protection.

Richard Envers felt a bit sickened, somehow, at the thought of how terrifying this strange death must have been to the monstrous Surf Man, torn from a tropic world to a—to him—inconceivable, frigid destruction. It was almost the first time that Envers had ever felt any pang of regret.

Yet he shrugged it aside easily, and turned on the heat in the air-lock compartment. Pearls might crack if

the temperature was raised too abruptly. But the thermostats would take care of that. As for the body, it might be an interesting thing to examine when it thawed. Then, mutilated and once more frozen, it could be hurled back to the stamping ground of the Surf People—a grim example.

Nemesis crept upon Richard Envers while he was asleep. He had spent most of the short daylight hours playing chess with Muggsie Manners. Before turning in after nightfall, he had taken a brief look into the air-lock compartment, noting that all was apparently well.

Deep in luxurious slumber, he hadn't heard the shattering of the lightly constructed inner portal of the lock, nor the tumult in the pilot room that accompanied the murder of his assistant.

And now, in his narrow quarters, there was towering over him a vast, black bulk. The sound of the door being clubbed into a dented piece of wreckage had, of course, aroused him to quick wakefulness. But there was no weapon within reach. Why should there be any need for a weapon, here in the deserted safety of an untracked part of space?

Still hazy-minded with sleep, Envers looked in unbelief at the gigantic Surf Man looming there, beside the little collapsible metal stand which held his toilet articles.

There was no light in the room, except that which came through the small window. It was the shine of the Veil, which, in its slightly sunward orbit, peeped around the bulk of Karud, planet of Ree-Jaar-Env's worshippers.

Richard Envers, real self of the god, began to think very swiftly. There was nothing that he could do to save himself. Retreat through the doorway was effectively blocked. And it would take a wrench and minutes of work to unscrew the fastenings of that massive window, built to resist even the impacts of small meteors—even if there was time to get the vacuum armor out of its locker against the wall, and don it.

But before a huge flipper-hand descended upon Envers with crushing force, he almost had the answer to the question of how this giant, so recently congealed

and still, could be grimly animated again, now. Envers' association with this solar system had been too brief for him to have grasped even all of its simpler phenomena.

Now, however, he understood something previously unguessed. The Veil, and the planet of the Surf Men—they traveled around that Titanic blue star in tremendous orbits that were still only five million miles apart. And the Veil was huge in extent—

Richard Envers died with a bubbling gasp that followed a dull, ghoulisn thud.

His killer staggered from the room. He was dizzy from his recent exposure in space. His muscles ached from the effects of expansion in the voidal vacuum, and from the freezing and thawing of his flesh. But he did not think his revival wonderful. To him it was the natural thing. The great, coarse cells of his cold-blooded flesh were made to endure such treatment. Life is a stubborn wonder, that struggles, always, to adapt itself to environment, however unfavorable the latter may be. The condition of sudden airlessness had been new to Grud, in a way—but not too new. For when winter came to his tropic world, it was a winter of terrible dark—and cold that froze even much of the atmosphere. There was only volcanic heat to combat that cold, and it was far from sufficient.

"Loodah!" Grud roared in the corridor. "Loodah!" Freedom! And the sound echoed in ringing, eerie triumph through the chambers of that suspended, man-made vessel.

So, in frightened anger, he shuffled back to the pilot compartment. His massive cudgel rose and fell. Glass splintered. Metal crumpled and tore. Robot mechanisms tried to take control of the ship's wavering tumble. But they were smashed in their boxes before they could send the proper guiding impulses to rocket motors and gravity screens.

The craft nosed down toward a sea of cloud, white under the soft, slanting rays of Leedaav, the Veil. Grud shuddered, gripped by the sickening sensation of free-fall. His flat, webbed fingers reached out to clutch a stanchion for useless support. He sensed his own end,

yet in the shrieking clamor of disordered machines he read, too, the end of a black dominion.

The Veil. Again, as in the past, its shadow would come, blocking sunshine and warmth, turning a verdant world into a white, silent tomb. But Grud's people would sleep, then, in their caves, and they would awaken with the other life, when the shadow had gone by.

Grud knew nothing of the conditioning influences of evolution. He had never discussed suspended animation with a biologist. He thought of it only as a different kind of sleep.

Yet the lives of Surf People are long, and Grud was not too young to remember the most recent winter. The many days of gradually advancing twilight, the slow, inexorably strengthening chill. And the sensations of numbness and strangling pain that one tried to fight off, just before the slumber. Somewhat the same as the experience of that flight up into the sky—though much more gradual, and perhaps more dangerous.

"Leedaav!" Grud growled reverently. "Leedaav!"

The orbits of the Veil, and of Karud, the planet, were in the same plane. Their annual periods were not far from identical, and they moved in the same direction. Usually the two were far removed from each other, but at intervals they traveled side by side, like horses running neck to neck on a racetrack. Then the world of the Surf Men was in the dense shadow of an eclipse that did not pass away for more than one protracted year. . . .

The Lotus-Engine

"WE'VE GOT IT started, Milt! The sun-engine's running, after a billion years! Look! Darn it, look, Milt! . . ."

My pal, old Russ Abfall, was dancing up and down there, in that dusty valley on the surface of Io, first large moon of the planet Jupiter. I could hear his high, cracked voice through the helmet radiophones of my spacesuit. His normally small eyes seemed very big through the window of his own headgear, as he looked back at me along the cold, arid trail.

And his thin face was red with excitement, and maybe a touch of scare, too. Russ is past sixty. He's been a hopeful space rover for better than forty years. But now he was acting as tickled as a kid.

I didn't blame him, though I'm more phlegmatic than he is, and bigger—and red-headed and less than half his age. He used to say sometimes, that I—Milt Claire's my name, by the way—missed a lot of the pleasures of life by not letting my feelings go, enough.

But I was plenty thrilled just then, too—and a bit uneasy and tense. I realized that we were confronted by a mystery that might easily prove dangerous.

A big, ugly-looking machine was working once more there in that valley, after its creators, the humans of Io—large-chested, furry, and goblinlike—had been extinct for an inconceivable time—the victims of a water famine on their dying world.

The thousands of reflecting mirrors of that solar motor, mounted on their slanted, circular frame, were collecting the feeble rays of the tiny, far-distant sun, and concentrating them on the blackened boiler at the center of the frame. The boiler was made like a squatting image of one of those last natives. It had a great beard

carved out of iron, ruby eyes, long goblin nose and ears, and a strange, mocking, secret grin on its lips—a grin that was sinister in itself.

Steam, generated by focused solar heat, was turning a turbine, flywheel, and dynamo, the last shaped like a gigantic pocket watch. Condenser coils were cooling the spent steam, and returning the water efficiently to the boiler.

It was all a most interesting spectacle—interesting, with a secretive threat in it somewhere . . .

Russ Abfall and I had gone out there to Io in a rickety spaceship, *Sun Spot*, three months back. Our hope had been to explore that almost untouched Jovian satellite, and maybe find a deposit of some rich metal. Freelance space wanderers generally don't brave the rigors of near-dead worlds, except for the very human reason of making money. That was our idea, backed up by certain life-long dreams.

Our luck had exceeded our wildest optimisms. No, we hadn't discovered a mine. Instead, we'd located a deserted, underground city. Its galleries and chambers had been dug out of the sullen, almost airless hills, by those final Ionians. In it was a treasure trove of small, easily transportable relics. Bowls, beautiful vases, queer clocks. Odd, ornate lamps that didn't give light anymore, because the radium salts in them had worn out with age. There was a fortune in the stuff, selling to museums on Earth, and to wealthy individuals making collections.

But we had stopped our feverish crating of ordinary antiques when Russ had found that solar engine, all but buried by an ancient rockslide from the desolate mountains. On two Ionian days—forty-two hours long, they are—we put in protracted work shifts, digging the thing out of the rubble that had preserved it.

It must have weighed a hundred tons, even in that weak gravity. We could never get it carted back to Earth. It didn't look like a good financial prospect. But lots of times enigmas are more fascinating than filthy lucre.

"We'll never have any peace until we see whether the engine'll run, Milt," old Russ had told me. And I knew he was right. Though later I was aware we should have left well enough alone.

So we'd polished the reflecting mirrors of the sun-plant. We'd patched and repaired the leaks and dents in the boiler, turbine, and other parts. We'd filled the dried-out boiler from our ship's precious supply of water. We'd applied oil liberally, where necessary. Just at evening we'd got that huge, tip-tilted reflector frame turned around on its pivot, so it would face the sun at dawn.

And now, coming back from our ship in the early afternoon, we were flabbergasted to see that world-old engine already in operation, its throttle evidently opened by an automatic device!

Russ Abfall scrambled around to the dynamo.

"Is it really delivering juice, Russ?" I demanded, running after him.

"Yeah! Plenty!" he responded after a moment, pointing through a glass-covered peephole in its side. Peering there, I saw fat blue sparks of electricity playing steadily about some peculiarly formed metal brushes.

"But where is all that juice going?" I asked. "The Ionians didn't use electricity much. They had those radioactive lamps to light up their digs, for instance."

Russ shrugged and pointed to the enamel-insulated wires leading out of the generator, and into a heavy iron pipe that went right down into the rocky ground, to some hidden destination. Tracing it to its end would be difficult, if we wanted to avoid the possibility of breaking an important part of the whole mechanism.

"We'll find out one way or another what's happening to the current," Russ reassured me. "Right now let's watch—here. There's enough to see."

He spoke briskly, but I could tell he was getting worried. As for myself, I felt an unpleasant tautening of the hide along my back, and the nape of my neck. It was like a premonition of disaster.

There really was plenty to see, just watching the sun-

engine itself. As the hours went by, a gear system became active, turning and tilting the reflector frame on its pivot and gimbals, keeping the great iron ring and its mirrors faced toward the sun, so as to collect all the heat possible for the boiler.

After a while I went to a grotto nearby—part of that last Ionian city—while Russ, who is a much better mechanic and scientist than I am, stayed behind to keep an eye on the solar engine. For hours and hours I walked down bas-relief-flanked passages, and through gloomy halls, searching for some sign of where that electric current was disappearing to; but long search by the light of my ato-flash revealed no trace of an answer.

It was there, in that dust and silence, and wreckage of quaint household fittings, that a definite wave of intense mental discomfort came over me. It was as sudden as a hammer blow. I hurried back to the surface, a vague suspicion in me becoming half conviction. It was already late afternoon.

Russ was walking around and around the sun-plant, his nerves and mind evidently responding to the same weird influence as were mine.

He had one arm drawn out of the sleeve of his space-suit. His hand, thus freed, was thrust up under the collar of his oxygen helmet, and this way he was smoking a cigarette.

"Something's happened, Russ," I grated. "But what?"

"I know it!" he returned, swinging around to face me. "I feel queer as the deuce, Milt! I'm all tense and tight inside; I want to do something, though just what it is I can't say. I've got to get these arms and legs of mine busy. I can't relax at all. It's like I was about ready to explode!"

The sun-plant. We both stared at it, accusation in our hearts. Russ was fingering the pistol at his belt, as though he wanted to fire a dynamium capsule at that ancient mechanism, and blow it to smithereens.

"Maybe," he said slowly, his voice shriller, even, than usual. "—maybe we ought to anyway shut this

damned thing off. That electricity the dynamo is delivering—it's going down there under ground. It's energizing something. It's making us feel the way we do. . . ."

"I suppose we should trace that pipe—that carries those wires—right away, Russ," I added. "We'll have to, eventually, I suppose, to see what kind of a funny apparatus they're hooked to."

Rocking on his metal-shod heels, Russ seemed to consider; but he vetoed what I had suggested, at last, just as we'd both vetoed it before.

"No, not yet, Milt," he said, barely audible, as though his heavy breathing made it hard for him to speak. "Some circumstance might turn up by itself, to explain everything to us. Meanwhile we can't take the chance of wrecking any important works. If we did, we might never learn the—truth. This seems to be big stuff, Milt."

That ugly, bearded image, which was the boiler of the solar engine, grinned its secret grin. The sun was dropping lower and lower in the dark firmament. It was already very close to the sullen hills. Soon, frigid darkness would come. Jupiter, as always, hung with just about one-fourth of its great gray-and-red-streaked disk above the horizon.

"It'll be sundown soon, Russ," I said, trying to reassure not only him, but myself as well—trying to ignore that increasing and nameless tension within me. "Then, deprived of energy to keep up steam, the engine'll have to stop."

I was right, of course. True to my predictions, the turbine and generator ceased turning at sunset. But the sinister spell that had come over Russ and me didn't quit! Somewhere, energy from the power plant must have been stored up, to operate whatever apparatus and force it was, that was acting on our nervous systems.

"I guess it's about time to do something about—all this!" Russ grumbled, his voice wavering.

"Yeah!" I seconded.

I was thinking, somehow, of all the skeletons I'd seen on Io—and mummies, too. White-furred bodies, dehydrated and preserved by the dryness. Everywhere those

old Ionians had died at their tasks. Digging canals and reservoirs to collect and hoard the precious water of the rare snows. The conditions under which they had lived, in those final days, must have been terrible. Yet many of the mummies still wore eternal and mysteriously happy smiles on their withered faces. The Ionians seemed to have perished in joy. But why? How? In that question there was a blood-chilling enigma.

Well, we started back for our ship, to get our blast-excavators. We were going to dig down and see just what was hidden under the solar engine. But as we hurried through the swift-gathering night, I heard a dim rattle behind me, transmitted by the tenuous atmosphere.

Startled, we looked back at the machine—the sun-plant—which was now a hundred yards away. The whole frame of it was turning around slowly, majestically, a black, bizarre silhouette against the still-lighted west. It was turning to face the east—to wait for the dawn. Gears were moving it. As to where the power came from—well, I could guess on that point. An electric generator is built just about like a motor, and can serve as one, if electricity is fed back to it. So I figured juice was coming up along those wires that led into the ground—enough stored juice to revolve the dynamo and work the gears, turning the ring, and the reflector of the power plant east.

At sight of that eerie, automatic motion, Russ gave an inarticulate gurgle. We both knew then, that with its efficient steam condensers keeping the boiler always full, the engine could run every day, indefinitely, till it wore out. But we didn't get a chance to discuss the situation, or to act. Strange events happened too suddenly, bewildering us.

I can't say just what it was that reminded me, not of those final Ionians, but of their still more ancient ancestors, who had lived in the warm age of Io's youth. Maybe it was my increasing hatred of the starkness of my surroundings, and of the greater and greater menace in them.

I glanced along the mountain gorge, toward the small

desert plain beyond, where those last cultivated fields of Io had been. I expected to see, in the harsh, bluish twilight, only those dry irrigation trenches, and the twisted iron pillars that had supported the glass roofs of those hothouse fields, smashed long ago by infrequent meteor showers. Beyond that mass of rock there, the cigars shape of the *Sun Spot* should be resting, still hidden from view.

But—there was something else—collecting and forming against the picture of that dreary scene. Call it a kind of mirage—something that resembled a photograph superimposed upon another photograph by double-exposure. And the second of the two was becoming more solid, more real, every moment.

There was a lake there, on that dry plain—or there seemed to be. It was a beautiful lake ruffled by little moving wavelets. Along its shores were odd trees. Beyond them loomed a city wall, covered with vines. And rearing up over the rampart were high buildings topped by carved pavilionlike structures, ornate as Burmese pagodas. Over it all was a sky, soft and blue as if it belonged to a summer evening on Earth—except for the many moons that hung in it, not almost-airless moons like those of the present, for each was clad in the cloudy veil of an atmosphere.

And there was Jupiter, still three-quarters hidden below the horizon, but not streaked and cold anymore. It glowed with a dusky, luminous redness, and it seemed that I could feel its warmth.

I knew then, at least, what the mirage, or whatever you care to call it, represented. Primitive Io, long before the last days—when the whole Jovian system was new. I had thought of those times, and here, somehow, it was crystallizing before me. Real.

"Russ," I gasped. "Russ—I see a city—like the ruins of the most ancient cities here on Io. The ones whose foundations you can hardly trace! Down there on the plain at the end of the gorge!"

I pointed with an extended arm, while I babbled on, describing what I seemed to see. I was too bewildered to think of danger.

Russ, beside me, gave a nervous grunt. Then he stammered: "No, I can't make out—anything—Milt. But I feel damned—funny! . . ."

He paused there, as if startled. Pretty soon he gasped in sheer surprise. "You're right, Milt!" he grated. "I see it now—the city—the details filling themselves in, each one as you describe it. The lake, the wall, the vines! It's what you'd imagine one of those oldest cities to be—from the ruins . . . And I see a city gate. People are coming out of it—goblin people, very slender and pallid, and without the great lungs and chests of their descendants. They're like those original folk must have been! Except for their natural fur, white, and much less heavy than that of the last men, they wear no clothing—only metal ornaments. And I hear strange music. . . ."

Russ and I stood there, staring, at the mouth of the gorge. And—it was funny! I hadn't seen that gate my pal spoke of, before! But I did now! I hadn't seen the people either, or heard the music. But these parts of the vision were all there, now, clear and vivid! It was as though everything was imaginary, somehow, though it all seemed so real, and that Russ' descriptive words were helping my imagination to fill in the details. From what Russ had just said, it had been the same with him. He hadn't seen the ancient city at all, until I had described it to him. Apparently, then, I had reached the nameless stage of being able to observe the impossible, a moment or so ahead of Russ.

I was in a kind of drunken fuddle. The lake there, fascinated me. I saw goblin-folk wading into it, the cool water splashing around their thin knees. . . . Suddenly I was aware of a tremendous yearning, stronger than any perhaps more logical fear.

"Russ," I mumbled. "The lake . . . Let's go swimming. It's been so damned long. Out here on Io we never could—before. Dust, and skeletons, and cold stars. That's all we've been living with—for a month . . ."

Well, right then Russ Abfall began to swear at me. "You loony nut!" he shrilled at last in his cracked

voice. "Don't you realize this is all a fake—a mental phantasmagoria of some kind? It's one of the enigmas of a dying race—something they must have employed in desperation! You don't want to get mixed up any more than you are with something like that, do you? . . . That damned sun-plant—and whatever its underground wires are attached to! Visions! Hallucinations! Somehow that hidden apparatus causes them! And we can't even guess what kind of a hellish end this thing we've tangled with, can have! It must be like a drug—opium or hashish! It can't work like them of course—but . . ."

He stopped and stared at me. His tone was changed utterly, when he spoke again. "Milt," he said in wondering simplicity. "You've got a swimsuit on."

I examined myself quickly. Yep, it was true! My heavy space armor had apparently vanished. And I was clad in a one-piece outfit of blue cellutex fabric, common on Earthly beaches. Looking at Russ, through that antique dusk and its weird illumination, I saw that he was rigged out just as I was! We were two contemporary Earthmen on primal Io!

"You're ready for the water too, I see, Russ," I told him.

His confusion was almost humorous when he looked down at himself. He swore rather weakly. Then he wheeled about, as if to search for the sun-engine with his eyes. I looked too, but what I saw was—not a desolate expanse at the foot of the northern cliffs, but a dense forest. A soft mild wind blew against my body. And the stars overhead were pale. . . . The mirage or hallucination had closed in on me almost completely.

Russ' voice was a bit odd, and far away, when he spoke; but I was sure that it, at least, was still real. Sure because of the worry in it, and the momentary groping for fact.

"It isn't there, Milt!" he was stammering. "The sun-plant. I mean . . . At least I can't see it. Can you?"

"No!" I shouted, straining, so that I would be sure to reach him. "I see just trees . . ."

"So do I, Milt," he returned. "It's natural we'd imagine the same thing, there. Old Io. We both know the

archeology, Milt. How things were . . ." And then Russ sighed in capitulation. "I wonder if it matters—really," he continued. "Maybe you were right, Milt—about a swim. I've been a spaceman off and on for forty-one years. You get sick of things out here on these damned silent worlds sometimes—damned sick . . ." His voice seemed to trail away.

But I knew from my own experience just what was back of what he had said. Space. That awful nostalgia that grows on you. It was largely the humanness in old Russ, and the intriguing pull of the visions that had surrounded us, that had made him give up. And it was the same with me. We both knew that we were toying with something that justly should have made our flesh crawl; but we didn't care. I wasn't worried a bit. And I had the oddest idea that anything I wanted would happen.

Russ and I walked down to the lake together. Or anyway seemed to. Perhaps we were already going our separate ways, along separate dream channels, as our individual fancies dictated. We waded out into the water, mingling with those ancient Ionians. Their voices echoed around me, speaking a beautiful, liquid language. Or was it a language at all? Probably it was just a lot of pleasing sounds which my mind created for itself. But those ancients paid no attention to me, however—most likely because I wanted to think, alone—then. I swam far out from the shore, feeling the heady glory of that tropic night. . . .

Yes, I knew it was just a dream. But what did that matter? Pretty soon I began to wish that I wasn't on Io—that I was back on Earth instead. Almost at once, then, the scene around me, vanished. I was riding a San Francisco belt-walk—one I knew well. Ahead of me, in the morning sunshine, was the new Farwell Building, finished in 2314. Chet Robbins, an old friend of mine, was with me. He works for the Wenz Rocket Motor Company, and he likes magic.

"Got a new card trick to spring on the gang tonight, Milt," he was saying, his broad face all pleased good-nature. "It's a real honey! Boy, it'll make your eyes pop!"

I'd never been able to catch on to those clever stunts

of Chet's, and sometimes this had made me kind of mad. But now, in this dream, I was sure I had him. All I had to do was imagine—for instance—the Farwell Building floating up into the sky . . .

I saw that two-thousand-foot spire doing just that. I heard a rending of metal, as the aerial street-spans connecting it with other buildings, parted. I heard people scream distantly. And I could see Chet's face turn suddenly pale and foolish. He gasped, speechless.

"Never mind, Chet," I said, laughing. "I'll bring it down again." And I did. A moment later the Farwell Building was back in place on the ground once more, and the street-spans were intact. Chet was looking at me utterly flabbergasted.

It made me feel a little silly. This wasn't the real Chet Robbins at all. Petty revenge was out of place. So I shifted the scene again—I don't remember to what.

But it's easy to see what I'd started for myself. Anything was possible in my imaginary environment. I could imagine myself Caesar or Alexander the Great, if I wanted to, and my fancies would seem perfectly real around me. Historical accuracy would depend on my limited knowledge in each case, if history happened to be involved. For instance, I don't know much about how Caesar's Roman legions were organized, and their equipment is hazy to me—but still I could construct for myself a vivid living picture.

I didn't ever try Roman times more than briefly, but I tried countless other things. Pulled by a strong nostalgia, I relived fragments of my own life. I'd played football for California Tech, and I did so again, now. Saturday afternoons. Yelling crowds. Coach McKay giving us his hardboiled lectures. Fun and fight all over again. And then the training school at Vananis, Mars, where I'd learned to fly rockets. We'd had some nice blow-outs—our class—in that quaint old city, which twenty-five thousand Earth people had colonized, replacing the Martian race, dead in some ancient plague. Dances. Parties. The faces of friends.

Maybe it was all sort of silly. But it was relief from that lonely stay on Io, where not a real thing grew any-

more, except some rock lichens. And I could enjoy luxuries I'd never had before.

Sometimes I remembered—danger. But not till I was aware of the passage of time, as dream succeeded dream, literally in thousands. Weeks, maybe months, must have already been used up by now. And I'd never emerged from that curtain of rosy visions, which I realized was the result of a science of the mind developed by the last men of Io, for a purpose of their own.

And I wondered: "Where am I really? Where is my actual body? How is it feeding itself? What is it doing? There are air purifiers in its spacesuit, of course; but there are so many other things to consider!"

I didn't know how to answer these questions. So, in moments of panic, I tried to break the spell of dreams, and fight my way back to the truth. It was then that I discovered that I was in a trap. I couldn't get rid of those visions—or if it was possible to do so, it would require a tremendous effort. And I didn't seem equal to that, now. Still, it didn't seem to trouble me much. "What of it?" I kept telling myself. "What of it?" So my visionary magic carpet continued to function.

But I wondered about old Russ Abfall. How was he faring? Doubtless his situation was the same as mine. Doubtless he was lost in a web of dreams, too. What were they like? I was pretty sure I could guess. Old Russ, weary of the life of a space man, wanted to retire. He wanted to build himself a laboratory on Earth, and spend the rest of his days in research for the improvement of spacecraft. It had been a dream of his since he was a kid. He'd hoped to win enough money from his various ventures in out-of-the-way corners of the solar system, to finance his costly experiments. So doubtless, now, he was getting a kind of vivid if unsubstantial fulfillment to his ambitions, just as I was frequently imagining the success of that interplanetary tourist line I wanted to start, if I ever had the means. There'd be contacts, people, movement and color. I'd own ships. I wouldn't be just a space bum anymore.

Another thing about Russ. He'd had a wife once, when he was young. But she'd been killed, when they

were married a year. Killed in the smash of a rocket plane racer she was piloting. Rhoda, her name had been. Once in a great while, Russ used to rave about her. He'd show me her picture then. She'd been dark and snappy, and pretty. Perhaps Russ was imagining himself with her now, young again. . . .

I was on the bridge of a big Earth-Mars Liner, giving orders as its captain, when, finally, the break in the dream-curtain came. From out of nowhere, I knew that a hand was on my shoulder, shaking it with insistent violence.

"Hey, Milt!" someone was calling, in tones as faint as if they originated a thousand miles away. "Good night! We've got to snap out of this! If we don't, it's our finish, sure!"

It was Russ, of course. I knew that voice was truly his, and not another phantom. I couldn't see him, but I could tell how hoarse he was. When he stopped speaking, he began to cough. It was a hollow, horrible sort of cough, that made my blood run cold for a second. But terror starting up in me, caused me to make a mighty effort to win my way back to solid reality, and find out just what sort of a predicament we were in. I struggled furiously, using all the will I could muster. And the dream fought back.

But at last those instruments on the control panels of my make-believe space liner began to grow faint and transparent. So did the comfortable fitting of the bridge. Sleek chromium fittings, and soft dark rugs and chairs, turned to ghosts, hovering at the vanishing point. And around me, maintained only by force of will, was grim fact!

I was in a deep, vertical shaft—a sort of well. Jagged walls of stone were around me, towering up toward a circle of daylight, far aloft. I was clad in space armor again. Russ Abfall was there beside me, leaning weakly against the wall of the pit. Io it was, the real Io, though I'd never seen this excavation before.

Instead of feeling languid and comfortable, though in tiptop shape, as I had a moment ago, I felt rotten! I was sick, and worn out with work and half starvation. My

hands and arms—my whole body, in fact—were so emaciated they fairly rattled inside my space armor. Still I didn't get the significance of all this—quite. Though I was pretty certain that, weak as I was, I could never climb out of this pit. I'd starve here—die of thirst.

Naturally I looked to Russ for explanations—because he's smart, figuring things out. "What's it—all about, Russ?" I grumbled thickly, still battling to keep those comfortable visions out of my tired brain—visions I yearned for now in this hellhole, as I had never yearned for anything before.

Russ Abfall, probably because of his age, was in even worse shape than I was. His face, in his oxygen helmet, looked like the face of a corpse in a coffin. But he came through with the answers. He was too tired to be excited anymore. But he spoke, swiftly, tensely, in his cracked and now hoarse voice, aware that we couldn't hold onto real things for long.

"You know what reverie, or daydreaming is, Milt?" he asked. "Naturally you do, but let me give my own definition: It's a mental mechanism which enables one to escape from something unpleasant. If you've a routine kind of job that you don't like, you generally do it while thinking about something nice.

"The phenomenon that has tricked us is just a kind of reverie, enormously improved by artificial means. To understand its purpose here, you've got to understand the position of those last Ionians. The climate was bitterly cold. They had little food or water. The future prospect was hopeless. But still they wanted to keep going as long as they could—getting as much out of life as they could.

"Some genius of a scientist found them the means. But in some respects, it's an old trick to us on Earth. In a crude way, drugs like opium and hashish accomplish the same thing—produce dreams of strange beauty and vividness.

"But agents other than drugs might do this far more perfectly, without, in themselves, putting one's body out of kilter. We're both sick, but from different causes.

"The brain responds to quite a number of stimuli. When one has a fever—when one's brain is being

thrown off balance by heat—there's a tendency toward the hallucinations of delirium. Sunspot radiations have long been believed to cause mental and emotional excitement, producing wars and other forms of mass and individual violence. Music—sound waves, enriched by tone and mathematical rhythm—soothe the mind and emotions, generally.

"We must be dealing with a form of radiation here, Milt. Something that beats on the nerve and brain cells, The sun-plant, you know, and that concealed apparatus its electricity is fed into. It detaches the visionary part of our minds from fact, and allows our imaginations to roam, free, while the mechanical portions of our brain, and our bodies, can go on with unpleasant tasks.

"That's the way I've doped it out, Milt. It's beautiful and insidious. But of course the mess we're in isn't the fault of the old Ionians—or their intention. We just got tangled with the Lethean influence they used on themselves, probably at the very last. We monkeyed with their sun-plant—and so, liberated again what might be called the drug of a hopelessly doomed and dying race."

Russ Abfall stopped speaking. He was panting heavily. My will tensed against the blur of visions trying to envelop me once more. I was looking around. Some of Russ' explanation, I had worked out myself, when I had pondered in that dream region.

I saw the walls of that deep well around me, gray and stark. Tools—blast excavators, which we had brought from our ship—were lying in the thick dust. We'd been digging here, perhaps for months. In the wall of the pit, chinks were cut, one above the other—a kind of ladder, going up and up. We'd been out of the pit often, going back to the ship for supplies, driven by some perhaps subconscious urge like sleepwalkers. We'd been working here, using up our strength until we were no longer able to climb out of that deep hole which we'd been digging deeper from some ancient Ionian beginning. We'd even rigged up a system of buckets and cables to remove the dust our blast excavators knocked loose from the rock.

"Digging down for water," I grumbled. "Subterranean water which can't be there anymore. The Ionians wanted water. The urge to get it was stamped in the

radiations of their reverie machine and—we got a dose of it too. . . .”

“I think so,” Russ commented.

“But,” I asked, “what was it that snapped you out of the dream world in the first place? Did you just realize and fight your way out or—?”

Russ raised his right arm. I could see, even with the spacesuit sleeve around it, that it was badly swelled. “A falling rock dropped on my wrist,” he told me. “And the pain was strong enough to get through to me. It almost woke me up, so to speak—showed me how things were. And I was scared enough to use every bit of will I had, to go the rest of the way. . . .”

Well, what were we to do now? Starvation and death in that pit were staring us in the face, if we couldn’t climb out of that hole. We tried doing just this, using that crude ladder of chinks. But we could do only a few steps before dizziness and the weakness in our muscles overcame us, and we had to drop back. Then, impelled by a forlorn idea, we staggered around, half awake, searching for some sign of that Ionian reverie machine. We blasted into the walls with our excavators, but we found nothing tangible to smash—to fight. But in the dust under our booted feet, we stumbled on more mummified Ionian corpses, each elfin face smiling a happy smile which we understood now. Maybe we’d be like that soon—mummies. The tools of those Ionians were beside them—complicated, sharp-ended rods, which may have employed some powerful principle. But they were useless now.

And as we plied the disintegrating flame of our excavators, our wills grew tired.

The strain of hanging on to cold, uninviting facts was too strong.

“T’hell with it!” Russ croaked at last. And then he muttered a name—“Rhoda.” His young wife, of long ago.

“No, Russ!” I grated. “Don’t slip! Try not to—think—”

But my voice trailed off—and I was somewhere else—reminiscing. I was a kid again, reading a book.

There was sunshine on the piano keys in the living room.

And my brain was saying: "What's the difference? The Ionian scientist who made the dreams possible was a great guy. His invention can give a beautiful, quiet death. Better than feeling starvation creeping on you, anyway. Better than seeing this hole, and that circle of stars, way up there . . ."

Like that. I guess anyone can understand how it was with Russ and me, all right. We were exhausted physically from the strain of constant work. And Russ had been chasing an ambition in the void for more than forty years, seeking the funds to set up that lab he wanted. No one could criticize that tough old bird for lack of nerve because he had crumpled. The trial had been too long and too hard. Besides, there was Rhoda, whom he could reach only in fancy.

But suddenly I wanted things real, myself. The real Earth, and not these empty phantoms. I wanted the real people I had known. It would be the same with Russ, if he had the chance. And he was my pal.

So, after a little while I gained some strength back. I didn't know whether it would accomplish any good, but I brought my will into play again, for all I was worth. The well materialized around me, with its gray, volcanic stone. I felt as ill as before. And I thought desperately: "What'll I do? What'll I do?"

There was adrenalin in the emergency pack of my spacesuit. I'd of course remembered all the time that it was there, but I hadn't thought that injecting some of this powerful gland extract into my blood would do much good. Nor did I think so now. I just hoped.

Everything was swaying and blurred around me. But I got out the emergency pack. Filling a hypodermic syringe with that powerful, treacherous fluid, was no snap, since my fingers were trembling like castanets. And always I had to keep those visions out of my eyes, and those softening dream-sounds of music and wind and water, out of my ears. It was like balancing on a tight-rope, when you're a novice.

Grimly I unfastened the wristband of my spacesuit sleeve, exposing part of my arm to the cold half-

vacuum. Quivering, I jabbed the needle home, and pressed the plunger. Then I fumbled to refasten the wristband.

Russ was lying there, half imbedded in the dust, like a drunken sot. I kicked him in the ribs to try to bring him around, but it was no good. So I had to doctor him without his assistance. Never before had I had to fight so hard to concentrate on a purpose. But after some minutes I got an adrenalin shot into him too.

By the time I was finished with him, the gland extract was beginning to take effect on me. My heart was pounding until I thought it would burst itself wide open. But otherwise I felt a little more competent. Maybe that was an illusion produced by the adrenalin. My arms waved crazily, as if to push back, by physical action, the mental phantasms of Ionian mind-magic, still hammering in my imagination. They seemed to cling around me like smoke, trying to develop solidity again.

Suddenly, though, I was more sure than ever that all my efforts were going to fail. I was certain that the adrenalin wouldn't do any good—that I couldn't have taken enough to have the needed effect of combating the weakness in my body, and that, still, I had injected too much into my veins—enough to kill me.

Then I heard Russ in my helmet phones. I looked around. He had staggered to his feet, braced to that extent by the adrenalin.

"What—?" he stammered thickly.

"I gave you a shot in the arm," I told him. "Now come on—quick! Let's try again to climb out of this hole!"

"How?" he questioned. "Don't be dumb, Milt! Don't be crazy!"

But he came forward anyway. I put his foot in the first step of the chink ladder, and boosted him—one step up. Oh, it looked like a futile business, all right! He slipped on that first chink, and whacked his shin. He cursed with the pain of the jolt. I was nearly thrown off my feet, as his body came down upon me.

Then, however, all at once, his face took on a furious, mad brightness. "That's it, Milt!" he growled weakly,

coughing a little. "That's our one chance! Get angry—think of things to make us angry. Concentrate on hating! It's wonderful what emotions like that can do to strengthen an enfeebled carcass! Come on, boy! Hate! Hate Io! Hate the cold of it, and the loneliness! Hate the circumstances that are killing us! Hate those damned dreams! Hate the sun-plant, working up there! We've got to smash it! Let your blood boil with just that one idea! Don't think about life or death. Think of the fun we're going to have, blasting that ugly contraption to bits! Come on Milt! If it's the last thing we do . . ."

Like half-starved cats we clawed our way over the lip of the well. Madness was in us, filming dreams tried to enfold us again. We were exhausted there on the cold plain among the hills. But our job wasn't finished yet. We couldn't delay, because if we did we'd slip back into the clutch of that Ionian mind-magic that had enslaved us, making us work beyond our limits. And if we did slip, there never would be another chance. We had to hang on—somehow.

We hardly knew where we were. We didn't remember being in this spot before. Getting oriented properly took more time, there in the confusing labyrinth of passes between the hills and mountains. But our tracks in the dust, made when we were like sleepwalking robots, finally offered a solution. Following them, we found our way to the sun machine, a quarter mile distant.

The thing's flywheel still spun steadily. Peering at it with blurred, wobbly vision, I saw the secret grin on the face of the boiler image. Then Russ and I raised our pistols. As twin dynamium capsules struck the machine, there was a thin, distant-sounding, though mighty, explosion. Iron, reflector fragments, and bits of the generator, boiler, steam condenser and turbine flew in every direction. And there was a white puff of steam that expanded quickly into rainbow frost crystals there in the weak sunshine.

It wasn't quite over even yet—for there was that unknown thing underground, and still active, for it stored electricity. Without speaking, we fired more dynamium

capsules, until we had a hole fifty feet deep blasted in the crust of Io. In it there were just a few pieces of metal and other materials that could tell little about the miracle that had been concealed there, throwing off strange radiations. Bits of wire, there were. Some pitchy, insulating substance, and glass. The latter may have been part of a storage battery.

Russ gave one look down into the hole. Then he sagged to his knees and rolled over on the rocky ground. When I tried to rouse him, he grumbled sleepily: "All over, Milt. Beat it. Nuts!" In the next instant the plucky old devil was snoring, and I had to drag him back to the ship as best I could. I was sleepy as hell. Maybe we'd slept on our feet before, but it couldn't have been quite natural sleep.

I guess that's about all. Our trade in Ionian relics was a financial success. We're back on earth. Russ has the lab he wanted all these years—testing new spacecraft principles. And I'm negotiating to buy some ships for my interplanetary tourist line. . . .

Prodigal's Aura

AT THE JORGENSEN farm, it had been present for quite a while. The gnome on the parlor bookcase—molded in clay by a Venusian native—held some of it in his sly grimace. The translucent blue vase, made fifty million years ago on Mars, gracing the dining-room table, added a haunting reminder of its existence.

But now, on this twentieth of December 1983, it leaped back into full life. Mattie Jorgensen—Mrs. David Jorgensen, that is—brought a letter in from the mailbox by the road. From the paper of the envelope itself, coarse in texture, and made, certainly, in a new factory on Mars—from the fiber of great lichens that

thin dry winds had once blown against—the aura expressed itself as a faint pungence.

The odor was smoky and bitter. Directly or indirectly, it caused Mattie's motherly eyes to water, when she had got back into her kitchen after a brief tussle with the Minnesota winter.

She looked again at the exotic stamp—blue with a white rocket on it, and with a five-dollar value and the legend, *Interworld Mail*, printed across its top. And out of this bit of cellulose, ink, and distant reality, there seemed to ooze more of an intangible and restless essence. No less was this true of the postmark: *Belt Center, Vesta, Asteroids*.

The elixir or poison that was here, did things to both her thoughts and her expression. In her ruddy face, surprised pleasure fought with a worry that saw the future as a suddenly treacherous thing, full of trials. Her look became at last one of good-humored grimness, and she tore the letter open. The handwriting that she read avidly, though in ink, was of such a nature that it was suggestive of having been rough-hewn out of wood with a hatchet. And Mattie's scared premonition was fulfilled:

Dear Sis:

Hi-ho, and be of good cheer—but hide all the valuables. Am comin' home for Christmas—

Down at the bottom of the page of nonsensical banter, was a signature that looked like the vapor trail of a rocket gone nuts.

David Jorgensen, Mattie's husband, tall, baldish, blond, big, very serious of manner, and very much in love with his new barns, his blooded cattle, his wheat and corn crops—in short all of the benefits of a philosophy of dogged and cautious industry—had just come into the house after finishing up with his late-morning chores. Now he paused to pour himself a cup of coffee, before washing up.

Mattie drew a deep, tense breath. Her smile was elfin—and a bit sad. She spoke in a small voice, and with an air of resignation and timidity—half feigned, of

course—but still unbecoming a person of her usually forceful nature:

"Dave—he'll be here tomorrow evening."

Possibly the thing that had spread insidiously through the very atmosphere of the house, had the preliminary effect of sharpening both David Jorgensen's extra-sensory powers and his suspicion.

"*Who'll* be here tomorrow evening, Mattie?" he inquired.

She fluttered the letter feebly in her husband's direction. "Him," she answered. "My baby brother. Augie—" Then, after she drew another vast breath, her words rushed on, as if to soften the shock of fact with explanations:

"I guess it's natural enough for Augie to want to come visit his home folks—especially at Christmas. Even if we haven't had a letter from him in over a year. Ever since you said no about that . . . that—"

Mattie's voice was stopped dead in its tracks. Now the force that had intruded into a peaceful, well-ordered family, had assumed some of the quality of an electric flash. It kindled the fires of fury in David Jorgensen's pale eyes.

"Ever since I said 'No!' to his latest request for a loan, Mattie," he growled with measured clarity. "What was his Big Scheme that time? A vaudeville troupe to entertain the space-weary asteroid miners, whom he said could pay a hundred bucks per ticket without even noticing? No. That was before. That first time he got into a crap game out there—with *my* thousand dollars! Yeah! While somebody else cleaned up with his idea—if it *was* his."

David Jorgensen paused to replenish the raw material from which lectures are made. He was determined to say what was on his mind, all at once.

"I *had* my lesson!" he went on. "That last time he wanted me to finance his promotion of a new sport in the Asteroid Belt. 'Space-Jumping' was the corny name he cooked up for it. Blasting from one asteroid to another in a spacesuit fitted with a shoulder jet. 'A million times more fun than skiing,' he wrote, if I remember. 'Good for a new kind of vacation trade in the ex-

panding Domain of Man.' Yeah! I wonder how more businesslike people made out with that notion, when I showed sense and turned him down? And now—excuse me. Mattie—I'm not bringing up any of the classic arguments against in-laws, but the best word in any language for adventurous ne'er-do-wells, is *no!* I won't have August Larsen on my farm, mooching, disturbing my peace, gumming up my affairs, and putting silly dreams into the heads of my children! I'll see that he stays in a hotel in Ridge Falls—though I'll probably have to pay the bill myself. Even standing on pure uranium among the asteroids, that elephantine baby brother of yours could never keep a nickel in his pocket!"

Thus the storm raged. But into David Jorgensen's heart had crept cold doubt of his ability to stick to his own antidotes for trouble. That was what had reddened his cheeks, and had made his negatives so vehement. Now he saw more defeat in the sudden angry pursing of his wife's lips; he saw it in the inviolable custom of family hospitality, and in the eternal one-sided struggle between sober haves and brash and forward have-nots. Inwardly, he entrenched for a siege.

His mouth grew hard and tired. His thoughts went way back to the grinning eight-year-old—yeah, Augie—who had bounced hard apples and slingshot rocks off his head when he was well past thirty. And back not so far to a much bigger Augie playing Christmas music on the accordion, and saying that the places he meant to go to were brighter than the star on the tree. A crazy, harebrained, romantic young hellcat who didn't know that a bigger Tomorrow could be built mostly by the same solid virtues as Yesterday. Yet—gosh, how could you be sure? Those guys always had an advantage. Something they didn't deserve . . .

David Jorgensen's weary look softened his wife's angry expression to a smile. "Aw, Dave," she teased gently, "don't be stuffy! We'll manage. And it'll be fun to see Augie again."

"I'm *not* stuffy!" David Jorgensen growled with emphasis. "But why does he have to come now—just when I'm trying to get George Munz to sell me those

hundred acres for a reasonable price? Isn't handling that old skinflint enough? Him wanting thirty thousand—cash! And now I'll have less cash! Worse, I won't even be able to concentrate my mind on ways and means to make Munz more human!"

Dave's tone was plaintive. It had the sound of incapable woe.

After an early lunch, he was glad to leave Mattie to her own worries, and to her stepped-up cookie-baking. He was glad to climb into his sleek new ato, and drive to Ridge Falls, and away from the farm, the mood of which seemed now to be charged with the bleak energy of uncertainty. It was like breaking free, a little, from tension.

The ato was a rakish dream, mostly of blue plastic. It rode the blast-cleared rubberized surface of the highway, between mountainous snowdrifts, with all the swift and silent smoothness of a magic carpet, or a passing cloud. Steam, in a sealed-up system of boiler, turbine, and condenser, was the medium that turned its wheels. But the power, of course, came from the radiation-screened heating unit. Atomic, it was. Its heart was an alloy chunk, containing fissionable elements. It separated into slotted, forklike halves. To get heat, steam, and power, you pushed a little lever that keyed them into union. Then their combined bulk surpassed a critical mass necessary for a low chain reaction. Separate, they were individually below that mass, and gave no heat, except enough to keep the water and antifreeze mixture from congealing—if the climate ever did produce a sufficiently low temperature.

The motor, then, was as simple as that. Its parts were closed in, out of sight. It would last for years, without lubrication or refueling. David Jorgensen thought of these facts, and that the ato was one of the things that was his. Such knowledge was like a bracing force to him—a reassurance that his way of life was right.

Ridge Falls looked bleak under the winter sunshine. Brittle snow crunched under his feet, as he walked to a bar, where he knew he'd find George Munz.

"Hello, George!" he greeted genially, believing this a

good opening for the further discussion of a tough business matter.

"Hello yourself, Jughead!" Munz echoed, using Jorgensen's ancient school-days name. Munz's manner was also good-humored. In fact his face, withered like an old apple, seemed but the flimsiest of masks for a vast joke. His thin elbows were bent double casually behind him, as he leaned backward against the mahogany, as if to enjoy some fun that had elements of savagery.

Still, against this cruelly defended front, Jorgensen had to attempt an attack.

"George—" he began softly.

"Shame, Jughead!" Munz mocked. "No bargaining now—please! Don't you know it's almost Christmas? And ain't you got enough to think about at home? Hear you got a letter—from outer space, Jughead."

David Jorgensen gave a short, anguished gasp. The aura, the mood, the disruptive force, had not only taken over his farm—no doubt it was spreading insidiously through Ridge Falls, too, making him an object of pity and laughter—in addition to his other coming miseries. In his mind he seemed to hear the clump of great space boots, threatening his pride, his possessions, his self-assurance, and his dignity.

"A letter? Who told you that, Raisin Face?" he growled.

Munz shook his head slowly and sadly. "No manners. No manners at all, Jughead," he responded. "The letter? Oh—gossip. Stuff gets around. With space exploration only seven-eight years old, a letter from Out There is still kind of interesting in Ridge Falls. Maybe some bloke at the post office forgot professional ethics in a weak moment, and talked. Then the grapevine took up the news. What does Augie want this time? Or maybe he's even comin' to park in your spare room for a while. Huh? Make way for tomorrow, Jughead!"

Mustering all his willpower, and what little histrionic ability he possessed, Jorgensen snickered weakly, in the hope of blunting Munz's satisfaction in his pleasure, and in the accuracy of his guesses.

"You must have had a nightmare, George," he said.

"Well, I'll see you another day, when you've recovered from the effects."

Since there was no escape from circumstance, anywhere, David Jorgensen decided to go back home. The mood he was in was no good, even, for buying any more Christmas presents.

But on the way to his car, an old woman chuckled in his direction. A few steps farther on, the sheriff—Ridge Falls was the county seat—slapped him on the shoulder.

"Hello, Dave!" he greeted. "I hear there's news from your planet-trotting brother-in-law."

David Jorgensen was past making any denials. "You'll find out anyway, Frank," he stated hollowly. "Since August first left Earth, my joyful contacts with him have all been by mail. But now he's arriving in person, tomorrow night."

The sheriff slapped Dave on the shoulder again. "Well—that's fine, Dave!" he enthused. "Great lad, that Augie. Always was. Even though he used to pull some tricks around Hallowe'en and Fourth of July. A grand bunch, those hardy men who go adventuring in space. But they're human, I suppose; and they might want to kick the lid off some, whenever they get back to Earth. So kind of keep an eye on Augie, won't you, Dave? For his own sake. So he won't do anything he shouldn't."

David Jorgensen said, "Thanks"—which, of course, he didn't mean. No, not when he'd just been tossed another hot potato of responsibility on top of the mockery of the sheriff's other, perhaps well-intended, comments.

Jorgensen felt furious, bitter—and outclassed by a vagabond—by the family black sheep whose success was a vast glamour, and whose power was discord. And yet, for feeling as ungenerous as he did, Jorgensen felt like Scrooge, when he was sure that he had no reason to do so. He had always been a solid, kindly, generous member of society, hadn't he? Was there no justice—even in one's own mind?

On reaching home, he puttered in his largest barn for a while, just to keep away from his family. But it would

have made no difference had he gone into the house immediately.

When he finally entered, two of his children—Bob who was eight, and Maxene who was seventeen—had already arrived from their daily excursion to the consolidated school and high school. The bus had brought them home, as usual. Lloyd, who was nineteen, would arrive from the State University tomorrow. Lloyd, the sensible one, who meant to become a veterinary surgeon. For Bob, of course, there was no hope at all—when it came to the aura that had invaded the household. He was just a breathless, saucer-eyed pushover. As for Maxene, who was blond, beautiful, and usually bored—well, she'd been mainly concerned with ways and means of sifting a suitable husband out of her collection of boyfriends. She seemed businesslike about it. David Jorgensen had hopes that Maxene wouldn't be thrown off balance too much by the influence of August Larsen.

As for Bobby Jorgensen could almost read his younger son's mind by the petulant rapture in his face. Was it hard to see how something of the magic of Aladdin's lamp seemed to rise out of the very paper of August Larsen's letter, for him? Or how the demigods and heroes were stalking in his imagination, inspired by the thought that he would make friends with one of them? To him this must seem already to put a thrilling future into his small, chapped hands. He scowled fiercely from under his thatch of tow. No doubt this meant that he felt the cold silence between worlds, the thrust of rocketships, the harsh, glamorous loneliness. Wonderful! No doubt he chopped his way through rotting Venusian jungles, and saw the rusty, windswept desolation of Mars, with the ruins that had been half fused to glassy lumps, ages ago. War was the way that its inhabitants, who had been nothing like men, had been wiped out. Jorgensen cursed the wild romanticism.

Certainly Bob's mind was among the asteroids, too—those fragments of a planet that had been blown up by splitting atoms at its center—maybe in a gigantic projectile. Bobby's spine would be tingling gloriously. He knew all about it from scientific picture books. Whole

chunks of landscape, miles in extent, had gone skyward with white-hot fire and the dissipating atmosphere. And the relics of the old civilization that had fought Mars were still on some of those chunks, preserved in the vacuum of space. Bob had said that Miss Harris talked about such things at school. And about how planets had been formed, with most of the uranium, gold, osmium, and other rich, heavy metals sinking to their centers, out of reach. But among the asteroids, all of this incalculable treasure was exposed—for those who were bold enough to go get it. Bobby no doubt knew, better than ever, that he was going there himself. He plainly felt like somebody favored by Jove—just because his Uncle Augie was coming to visit.

He stared at Dave with big, utterly awed eyes, and he said solemnly: "He'll be here, Pa. Till tomorrow is not so long to wait, is it?"

"No, not so long, son," David Jorgensen answered—because Bob was his youngest, and there was no other way.

Maxene was at the telephone—equipped with a visi-attachment over which, for feminine reasons, she did not always allow herself to be seen. And she spoke, now, with as much casualness as if today belonged to last year. She was talking to Clyde Winters, who was usually her favorite beau. Perhaps her father may have thought that her casualness showed real disinterest in what had happened at home. Or would such an idea on his part, be only the thinking of a tattered wish?

"Nothing much new around here, Clyde," she said musically. "It's really dull. Though my Uncle August is coming. Yes—from Vesta. You know—in space. Of course he's ancient. Almost thirty. A roughneck, I suppose. Would you like to meet him? Maybe we could save him an evening, and try to find him a similar roughneck friend from our own set. Barney Coombs, for instance—the lug who plays football, and is always talking about dull things like other worlds. We could bring him out here some night. Maybe we could duck out, ourselves. But it might be better to stay—for politeness, Clyde."

And David Jorgensen thought, with a certain admira-

tion, of the deviousness of the methods of a woman—even when she was very young. Manipulating her beaux, feigning disinterest in things which were uppermost in her mind—to *arouse* interest. Jorgensen knew now that Maxene was in Augie's camp, too. She was fascinated by the glamour of interplanetary distance. Almost like Bob.

When she had finished her phone conversation, she smiled slyly up at her father. "Clyde is a little cut-and-dried, Dad," she said. "Wants to carry on with his folks' grocery business. I mean to help change him. There could be a place Out There, for a girl, too."

David Jorgensen grunted under his breath. But Maxene kept on smiling at him. "You don't like Uncle Augie, do you, Dad?" she remarked. "And why do you hate the thought of people traveling to other worlds so much?"

"Listen, Maxie," he growled back at her. "I don't hate space travel! But I do object to reckless, improvident adventurers. They're like overgrown children that need to be taken care of. They put burdens on other people. They are inconsiderate! Without their monkey-shines, space travel would be a wonderful part of progress—"

Maxene became very patient and earnest. "Look, Dad," she said, "I love you. I wouldn't hurt you or be disrespectful to you for the universe—" She paused to emphasize a point which David Jorgensen knew to be not strictly factual. "But everyone has to ask himself blunt questions about his own motives once in a while," she went on. "Very few of us are really heroic, Dad. Please don't misunderstand me, Daddy. Practically everybody has the same kind of emotional trouble now and then. To cure it, you have to recognize it. So here it is: I think you fear and resent Uncle Augie—because you wish you had the courage to be different, like he is. To do the wonderful things that he has done. Face it, Dad. Make peace with yourself!"

Maxene's tone was pleading. It was almost lugubrious. For a second, David Jorgensen didn't know whether he was going to start screaming or not. But

then a leaden tiredness seemed to shove its way into his heart.

"I give up!" he groaned. "I honestly give up!"

August Larsen, "baby" brother of Mattie, black sheep, and adventurer extraordinary for all of the region of Ridge Falls, Minnesota, arrived the next day at the Jorgensen farm, two full hours ahead of schedule. Instead of coming by regular plane, he had rented a Fly-It-Yourself in Minneapolis—a helicopter—which he landed skillfully right beside the Jorgensen house.

It was then that the tense and excited mood that had intruded into the even pace of David Jorgensen's life, went fairly mad. Mattie, Bob, Maxene, and two of Maxene's boyfriends—still managing to look silent daggers at each other—all rushed out into the winter afternoon, even before the blades of the helicopter had ceased to turn.

Lloyd Jorgensen was the first to step down from the craft. His rather prim face was a bit pale. "Surprise, folks," he said weakly. "Uncle Augie picked me right off the campus. Brought me along. Insisted. Here he is—"

David Jorgensen felt a little dazed. He guessed it was the same with everybody—Mattie maybe not so much, because before she even kissed her own returning son, she went and kissed her lug of a brother, cool as you please.

"Hello, Augie," she said, "I'm glad you could come."

He laughed with an easy and brash assurance, swaggering in a new suit that was too small for his shoulders. "That goes ten times double for me, Mattie darlin'," he said. "Hey—there's my boy! Bobby! Only three years old he was, when I left Terra. Seems he'll have the makings of a husky space man. What's the matter, lad? Go bashful on me? And here's Maxene. Boyoboy! A real lady!"

David Jorgensen saw that his youngest son, who could be so shrill and eager, was completely awed before this tin god of his—this brass idol. His gaze was down, his lips were sullen and petulant. And it wasn't much different with Maxene. Her regular way to greet a

long-lost relative or friend would be to throw her arms violently around his neck, with appropriate exclamations of joy.

But here her exuberant boldness was gone. And she gave the returning hero a limp and timid hand, and said: "I hope you will be happy with us, Uncle August."

The "Pleased to meet you, sir," spoken by Clyde Winters, the grocer's son, and repeated by Barney Coombs, the football-playing junior space enthusiast, sounded more spineless and subdued. David Jorgensen felt the disgust rising in him. Couldn't the younger generation make at least a little better showing of personal integrity before this space-hopping ne'er-do-well, this phony? What was special about him, except that he was an unduly swaggering, self-important boob? Did comet's tails sprout out of his shoulders for wings? And was it so much to have chopped one's way through the steaming forests of one far planet, walked on the deserts of another, or to have gained some firsthand knowledge about the wreckage of a third? What was the matter with people's reactions, anyway?

Last in line of the impromptu reception committee, David Jorgensen gripped August Larsen's hand with a mitt of equal size, met his hooded gaze with something of about equal power, and then conformed with the others, like a fool.

"Well, well, well, Augie!" he greeted. "You finally remembered us!"

David Jorgensen hated himself for this. But it was a fact that one *had* to be polite and hospitable. And what was that strange, unbidden flash of pride in him? Pride for Augie, who would ask him for a loan any minute now? Maybe. Though it couldn't make sense. And what was that probing of travel-scarred luggage, with his own eyes? Curiosity for things unknown? Half of David Jorgensen felt silly in a bitter way.

"What's everybody so stiff and formal about?" August Larsen laughed. "Maybe it's the cold, huh? Dave—give me a hand with Pandora's Box, here. Got to get it into the house—"

With Augie around, of course there had to be a mi-

nor mishap. Nothing could go smoothly. It was the way his life was. As David Jorgensen gripped the handle of the heavy trunk and hoisted lustily, the ancient leather, doubtless dried out in the arid chill of Mars, or weakened by some subtle radiation of the uranium mines of the asteroids, broke in his hands. And the trunk thumped heavily down on its bottom. A crack, glued together with plastic strips, parted. And from inside the trunk there dribbled thin streams of brownish dust. A little of it clung to the brittle snow. But most of it was wafted away quickly by the swift, cutting wind.

Augie said, "Should have some new luggage." Then he brushed the darkened snow with his glove, and pressed the plastic strips back into place.

David Jorgensen eyed the disappearing brown dust suspiciously. "What was that, Augie?" he demanded, half wary, but not knowing that in that dust there now lurked Nemesis.

Augie was scowling and silent for a second—maybe it was worry. "Oh, nothing, Dave," he said at last. "Just some stuff I had to smuggle to Earth between the bottom and the lining of my trunk. Too bad I've lost most of it. Because I thought I might make tests. Easy, now, with this old thing. Gently, Dave. That's it—"

In the house, there were cookies and hot punch for everybody. But there was a lot more. For part of the far distances had intruded, here. Bobby fussed with the valves and controls of the spacesuit that his uncle had brought along to show the folks. No doubt each patch on its battered, folded skin, and on its metal parts, rubbed shiny with use, had a story of its own.

Leave it to a kid like Bobby, losing some of his bashfulness, now, to say: "Uncle Augie—you're like a hunk of Mars and Venus yourself, aren't you? 'Cause you ate food that grew there!"

"Sure!" Augie answered. "Sure, Bob. Say—what have we got here? The vase and the clay monkey I sent long ago . . . Shucks, throw 'em away. I got better, now."

First there were hundreds of photographs in color: Of strange desert sunsets, with stone ruins looming; of

buildings that no beings with human shape could ever have lived in; and of the asteroids. Part of the surface of one showed rows—like an unplowed cornfield in late autumn. There was even some kind of stubble, blackened and charred by the dehydration that had to go on in space.

"You've all heard about things like this," August Larsen explained, looking like an old Viking after a long voyage. "Part of the surface of the original planet, preserved for millions of years after the explosion. It must have happened very quickly. The flash of terrible heat was too brief to cause as much destruction of small things as you might think. The atmosphere of the planet dissipated into space at once. So everything was kept in a vacuum. There's even an old village in the background of this picture. And bodies have been found—dried and mummified by space. Not human, of course. Blackened and crumpled up. But still with fabric and ornaments on them. Here's a picture of one—"

Mattie and Maxene shuddered visibly. Bobby stared. Clyde Winters, Barney Coombs, and Lloyd Jorgensen leaned forward like yokels, their mouths agape.

Augie smiled at them engagingly. "A wonderful region, the asteroids, fellas," he said. "But not just for archeologists. Take a modern view. Here are more photos. The mines. Full of practically pure metal, the way it is at the center of a planet. And the new settlements, all roofed by transparent, airtight, flexible plastic, self-sealing against the few small meteors. Only the strays from out of the Asteroid Belt itself, are dangerous. The others move at about the same speed and in the same direction as the Belt does, since they are part of it. So their relative velocity is almost nil—and harmless. So the settlements are like big plastic bubbles, with air sealed inside. Water and air are produced out of the rocks, and from the frost of moisture that was frozen into the surface soil by spatial cold, after the planet exploded. Farms thrive again, under plastic—producing Earthly crops to feed the colonists. Towns are being built. Prices are a hundred times as high as here. But who cares? Everybody makes money. To everyone out there, life is a Great Experience."

Augie was spreading it on thick—broadcasting the old come-on to eager and gullible ears. David Jorgensen even wondered if he himself was getting gullible—if the old High Romance wasn't taking hold of his aging and sensible blood, making him foolish—making him angrier at himself and his brother-in-law. He was glad for his son Lloyd's growing frown of disbelief, directed at his uncle.

"Oh—don't look at me like that!" Augie chuckled. "I'm a proven wastrel—and not a good example, though I can get along, now. Any kind of game works. I've been a miner. I've entertained with my accordion. I've belonged to a security group, rescuing people cast adrift in space when the shoulder jets of their armor burnt out. Now I'm delivering all these photographs to an outfit that wants to ballyhoo colonial projects. Great place, the Belt, for rugged souls—even for girls. Want to see mine? Here's her picture. Her name is Rose Mahoney. And how is that for a pair? Irish and Scandinavian?"

The eyes were cool and blue. Her hair was dark but it had copper glints. Even Lloyd perked up and took notice.

"She's out there now," Augie revealed. "Works in a lab. Used to work in an office—out there, too. Hear that, Maxene?"

Maxene's gaze grew pensive. Funny how everybody listened to this jerk—this etheric lug without substance. More propaganda material he didn't need. But he had it. Nothing much. Some otherworld fossils for Bob. And a metal ball that always rolled away from light. A flawed asteroid diamond—when there should have been plenty of flawless ones—for Mattie. A huge and rather beautiful opal for Maxene. A rough lump of osmium and gold alloy for Lloyd. But the glamour of the distance and of the ages gilded the gifts, and thanks were starry-eyed and profuse.

Augie ate wonderfully at supper. And afterward, as he played old Christmas music, David Jorgensen almost forgave him for many things. Maybe it was an old mellow mood. Maybe it was the fact that Augie hadn't yet

made a touch. Maybe it was his giving of presents days ahead, saying, "Christmas starts now, folks." It might have been even David Jorgensen's own gift, a kind of flashlight, ages old, left by the dead people of the Asteroids. It generated brilliant cold light, just from the warmth of his hand!

But Dave's sudden charity toward Augie, soon began to show fresh doubts. For one thing, Augie drew him aside and said: "Dave—Mattie told me. George Munz is being difficult. Bet I could talk sense into him. Anything to repay past favors to you, Dave."

That with a cocky and self-assured grin. Yeah—when Munz looked upon August Larsen as a screwball. Oh, sure!

And the next morning, Bobby's arms were covered with a red rash—an allergy, the doctor said. Probably some taint brought from Mars. But it didn't make the kid any less enthusiastic.

"Gee, Pop, I got interplanetary itch," he yelled gleefully.

It was no lie. Dave decided that his whole cockeyed family had it, figuratively if not literally. His plans for his children's futures seemed to be vanishing into the thinness of outer space. You could see it in the dazed, adventure-struck looks on their faces.

The phone was ringing constantly. The Civic Entertainment Committee of Ridge Falls wanted August Larsen to give a talk about his off-Earth experiences. Augie's response was, "Why, sure!" given with engaging aplomb.

"And we can bask in the reflected glory, Dave," Mattie teased.

David Jorgensen said nothing. Oh, no—he didn't mean to be sour. But to reflect the glory of Augie was something he was suspicious about. Besides, it just rubbed him the wrong way, somehow.

Dave got through two more days of confusion. Bobby and his allergy stayed home from school. But it didn't prevent him from collecting a black eye from a neighbor kid, whose perhaps envious parent had made a remark about Bobby's hero.

"Billy Wall said his Pa said that Uncle Augie is a dope. I licked him."

Yes, this was a mere trifle among the general hulla-baloo. For one thing, there was a heated phone conversation with Mrs. Wall, relating to the possibility of whether Billy's rash was "some horrible extraterrestrial plague—very contagious."

Dave Jorgensen wound up by telling the shrieking neighbor woman that he hoped it was all she claimed, so that she wouldn't be disappointed.

And Maxene had a falling-out with sensible Clyde Winters; in favor of the more adventure-conscious Barney Coombs, of course.

Ah, yes—just trifles. David Jorgensen's view of himself was that of a sad and subdued lurker in the background—a sort of unpaid janitor, who picked up after a bunch of maniacs. All he got was maybe a sympathetic look, now and then, from Mattie, who, in a much lesser degree, shared his lot.

Dave was still worried about Augie's not mentioning some new solar-system-shaking scheme or project. It was unnatural. And sometimes, in spite of a considerable success as a speaker with the townsfolk of Ridge Falls, he looked downright worried.

It might have been a tipoff, for trouble.

David Jorgensen made contact with first-class trouble on the morning before Christmas Eve. Out in the snow, beside the house, and helicopter, in the exact spot where Augie's trunk had cracked open, he saw two tiny bluish green globes or capsules. Something weird about them made his spine tingle. He took off a mitten. Then he put it back on. It was safer not to touch strange life directly. He pulled at one of the capsules. It came away from the snow, showing a single pulpy root. He squeezed the capsule gently. Its skin was leathery and thick. But the little globe wasn't frozen.

David Jorgensen winced with mental pain, with fright, and with fury. He plucked the second capsule from the snow as if it were a monstrous thing that infected the whole Earth—which might well be the case.

He thought of what everyone had heard about the

plant life of Mars: Adapted, by countless ages of evolution, to an extreme climate; possessing thick skin, full of dead-air cells, as a protection against the nocturnal cold; and generating its own tissue heat, as warm-blooded animals do. Such things could thrive even in a Minnesota winter.

Dave got a tin can from the garage. He put the two tiny alien growths in it. Then he scouted across the windswept front yard. He found a clump of the plants at the edge of a spot of dry grass blown clear of snow. But this was only the beginning—farther on there were more clumps, and isolated growths. Beyond the highway was the whole open field. Dave, working with the same feverish haste with which he might have attacked a fire in his barns, soon had the can full of Martian plants.

The scrape of footsteps behind him caused him to turn about like a startled cat. Sure. It was Augie, grinning down at him.

"The seeds I had sort of got out of hand, when the bottom of my old trunk cracked open, didn't they, Dave?" he chuckled. "I meant better things for them."

David Jorgensen didn't say a word. Circumstances had got to be too much for just talk—even very loud talk. His big fist lashed out like a hammer. Augie didn't move quite fast enough to keep the blow from grazing his cheek. Dave's knuckles left red welts. For a second the setup looked as though there was going to be one of those special fights—big Viking against big Viking. Dave had topped fifty some years ago; but he was all tough beef and bone.

Augie's expression was a curious mixture. His pale eyes showed surprise and sadness; then the battle-light flickered in them joyfully. But it was pushed aside with regret, as his massive arms clinched with Dave's. Something amused took its place. Something peace-seeking, and assured. Dave did not, in his fury, see all of these swift and slight transitions; but he sensed some of them, and he saw that final look. It made him feel like a child, or like a cranky old woman, throwing a tantrum.

"Hey—Dave!" Augie half-crooned and half-chuckled. "Simmer down, will you!"

"Simmer down!" David Jorgensen stormed. "Simmer

down when, because of your complete nincompoopish lack of responsibility, I'm in a jam with the whole Department of Agriculture? When it could mean more than fines and jail, with crops all over the world ruined? You don't care if you're wrecking civilization, do you? Don't you know that all Martian plant life is carefully banned on Earth? That growing so fast, and being so hardy, it would become a weed pest the like of which has never been seen before? That it could bring terrible plant diseases? By golly—you've got cheese for brains!"

You had to give Augie Larsen credit—he looked guilty for a moment. Then he brightened. "I know, I know, Dave," he said, "but I'll fix things—somehow. Dopey laws! Well, it's almost Christmas Eve, Dave. It should be nice, for the kids and Mattie. Can't we let the whole matter drop till the day after tomorrow?"

"In an emergency, you talk like that!" Dave hissed.

Yet his verbal outburst had blunted the edge of his first anger and fright. At least he was no longer urged toward mayhem. Ingrained respect for law and order and the general welfare did a mighty battle with his natural consideration for the happiness and peace of his family, especially during the holiday season. David Jorgensen was in an anguish of indecision—which added to his crescendoing tribulations.

Just then Mattie, looking worried, appeared at the back door of the house. "Dave!" she scolded. "Why are you shouting?"

Augie stepped on his foot. "Politics, Mattie," Augie said. "Plain old politics. Don't look so doubtful, Mattie."

"All right," Dave growled grimly to his brother-in-law, and in a low tone. "At the risk of my freedom and all I possess, fathead—I'll hold off till midnight. A few dangerous hours, then you and I will drive into Ridge Falls to rout out the county sheriff. This danger has *got* to be reported to the proper authorities, so that measures can be taken against it."

Augie shrugged. "Unwise," he commented. "Still—if I must be incarcerated, I suppose I must, Davy."

So the Jorgensens and friends went to church and then had their Christmas Eve, with Augie making old music. All was bright with tinsel and good cheer, except for the black load of worry and of ill-will for a certain party, hidden in David Jorgensen's heart. But he presented a new trunk to Augie with a certain sarcastic flourish.

"You may need it to store your stuff in for quite a while, Augie," he said with a wide grin, under which barbs of meaning lurked.

Later, as she handed him a wedge of pie, Maxene paused to hug her father. "Oh, Daddy!" she chirped. "Isn't it a marvelous, special Christmas Eve? Clyde and Barney have figured out our difficulties! Clyde insisted to his father that they might need grocery stores even among the new settlements of the asteroids. So he'll be preparing himself for the next couple of years, to go, too! If there's a triangle, we can figure that out later!"

Bobby, still very red, rolled on the floor and made gleeful hisses to match the manual maneuvers of a toy spaceship.

Then Lloyd, supposedly the sensible son, and still the oldest, approached Dave and said: "Dad—I suppose they will need veterinary surgeons in those colonial places, too. Of course I could take some courses at the university in another direction—rocket theory, for instance; or business administration. I hope I have your blessing for what it must be obvious that I intend eventually to do. Because I am determined."

David Jorgensen wanted to flare up violently against the insidious glamour of exotic mystery and distance that August Larsen had brought into his home, to cause him so much anguish, and now to threaten it with empty chairs. But now he was no longer equal to the effort. Briefly a kind of peace came over him—of exhausted will. Beyond that, he found a little more in the fact that his children seemed so happy. It was like acceptance of defeat. It was a strange calm; and for a while he almost relaxed.

But at eleven-thirty his grim eyes sought Augie's. There was no forgetting the necessity and the hard duty, and the probable trouble for all, which lay just ahead.

Augie shrugged. "Dave and I have got a little errand to do, folks," he said. "Might as well go, now. I guess we'll be back right away."

They drove the short distance to Ridge Falls, the county seat, in a few minutes. The sheriff they found at his home, still up, his family around him. Dave drew the sheriff and Augie to the kitchen.

"Tell him, Augie," Dave ordered. "You remember Augie, Frank."

August Larsen didn't balk for more than a second. Briefly, he seemed to listen to the Christmas program coming from the television set in the living room, while the sheriff shook his hand rather diffidently.

"Hello, Frank," he said at last. "I spilled some Martian seeds into the wind on Dave's farm. They scattered quite a ways, and have sprouted. What do we do? And what's the penalty?"

The sheriff's eyes flickered, now showing a kind of hound-dog eagerness.

"Hm-m-m," he grunted. "Augie, you always were a hot one. So I been lookin' those obscure crimes up in the law books. It's bad. Twenty thousand dollars or a five-year sentence, or both."

David Jorgensen gulped. If there was any paying of that kind of money to be done, in behalf of this improvident relative, he knew that he'd have to do it. And it would take all of his cash.

Augie looked suddenly a bit gaunt. Otherwise, he didn't flinch. In the mounting of his own blood pressure, and desire, again, to do his brother-in-law bodily harm, Dave still got an odd impression from looking at Augie: that here was a big reckless lug with nothing much but his own strength and further recklessness to get him out of a stew; yet, he was still cool, and somehow in command of things. It brought a little sickish sense of injustice and confusion into David Jorgensen's heart. The picture was warped, somewhere. Where did the cautious, thoughtful, considerate guy get his break?

"The law, as it still stands, specifically mentions Hellas Apples, doesn't it, Sheriff?" Augie remarked.

"It specifically includes and emphasizes them as being dangerous and forbidden," the sheriff growled.

Augie's heavy blond eyebrows came together like caterpillars kissing. "Ah, the law," he chuckled. "Well, suppose we grubbed all of those young plants out of the snow, and burnt 'em?"

"Quite a job, my boy!" the sheriff stated satanically. "You'd have to get every last one, so there would be no chance of producing more seeds. And there must be plenty, widely scattered. You'd better get going, fella. Or somebody's gonna be unhappy."

"Good night. Merry Christmas, Frank," David Jorgensen said.

"Thanks. Same to you," the sheriff responded. "Guess I'll drive out to your place in an hour or so, though. Got to make out a report on this, for the Department of Agriculture. Besides—to tell the truth—I'm curious about this Martian plant life."

"You need a drink, Dave," August Larsen told David Jorgensen as they left. So, in a minute Dave found himself in a bar, staring rather vaguely at a stiff shot of whisky in his hand.

It was then that Augie took the opportunity to disappear. Dave set his drink down, practically untasted. He searched the lavatory, the phone booths. Anger blazed in him; then it crumpled back weakly, as if it, too, had been overworked. He felt almost like weeping.

Augie was nowhere in the street outside, either. Dave waited five minutes. Then wearily he walked to his apt, and started for home. There the lights were still on. He could see Clyde Winters and Barney Coombs through the window. So they were still around. But Dave didn't even go into the house. He went to his toolshed, where he procured an electric lantern. He thought of the ancient flashlight which worked marvelously by the energy of the heat from his own hand. Augie's gift, from the science of a dead race. But that it was Augie's gift was enough to make him never want to touch it again.

"Irresponsible, crazy bum of outer space!" he almost whimpered. Still, some family pride made him loath to think that Augie had actually ducked out at the crucial moment—like a coward.

He also procured a small can of kerosene—still use-

ful in this era for various cleaning purposes. Then he crossed the road to the snowy, windswept field. Might as well see right off how bad things were. Somebody had to try to fix things, after a fool's trick. Over him had washed a wave of understandable self-pity. Now he had to struggle to protect his property, his bank account, his family honor—and, possibly, the whole Earthly industry of agriculture.

He wondered how often steady, plodding men like himself—unnoticed and often despised—had had to pay with toil and blood for the airy casualness of spectacular people, who always had a crowd around them. Yet he knew that his resentment was like envy.

Feverishly he began to uproot tiny blue-green capsules. Soon he had a small pile. He poured kerosene on it, and ignited it. Then he went on gathering more of these infant plants from Mars. He wandered far from the road. He hardly noticed the first car that stopped there, nor the footsteps that came up behind him.

"Hi, Jughead!" a familiar voice greeted.

David Jorgensen wheeled about, unbelieving. "Raisin Face!" he grated.

George Munz snickered at him, his withered features derisive. It was as if he were enjoying the shock of his utterly unreasonable presence on his old ribbing mate. Then he laughed.

"Jughead," he said, "when someone comes to my house when I'm about to hit the hay, and invites me at one o'clock on Christmas morning to a hunt for Martian Hellas Apples out in the snow, and then drags what he says is a Hellas Apple plant out of his pocket, I get curious. I figure he's got something more than you got, Jughead. Maybe just a less dull type of stupidity."

A slow, aching pang of comprehension spread through David Jorgensen's brain. His soul, in its time of indignity, as he struggled to repair the effects of another's callous blunders, felt naked and shamed before his enemy.

"My brother-in-law!" he said. And no profane adjectives could have added one iota to the bitterness and loathing expressed by his tone. "What'll he do next?"

Get out of here, Raisin Face! Leave me alone! Just leave me alone—”

Munz just laughed again. “Uh-huh,” he taunted. “Your Augie sort of suggested that you were feeling very low, Jughead—that you were an object of pity, and that it was about time to stop pulling your leg about the price for those hundred acres. Of course he didn’t say right out that you were so bad off at all. But I got the impression that you were on the verge of suicide. Okay, Jughead—don’t say I’m not charitable. You’ve cried hard enough. You can have the land for twenty thousand.”

This kind of joshing seemed about to throw David Jorgensen into the mad-dog stage. He wasn’t the weeping skinflint that Munz was trying to make him out! He wasn’t! He wanted to scream that he wasn’t. But then a small spark of cornered-rat psychology came to his aid, reminding him that ribbing was a game, like chess—that you had to try to turn the tables on your opponent. As soon as he remembered all this, his wits came back, and he felt a lot better.

“Changed my mind, Raisin Face,” he growled. “Don’t want your stony burdock patch for any price. Thanks though for coming out in the middle of the night to help me weed my snow. Neighborly of you. So let’s see you work. By the way, where did you leave Augie?”

Munz looked startled and chagrined for a second. Then he forced a weak chuckle. “Oh—now you think you’re smart,” he drawled. “Even your brother-in-law is a hundred times as bright as you. I dropped him at the house—to get some help.”

David Jorgensen heard their voices now, Maxene’s mingling with Lloyd’s and Clyde’s and Barney’s.

“Martian plants! Holy cow—”

“Growing in winter—”

“Lead us to them, Uncle Augie. Oh—there’s Pa!”

David Jorgensen’s relief at receiving help, and at knowing that Augie hadn’t ducked out on duty, was tempered by the thought that the prodigal knew how to make a lark out of a dirty job. When, to his own mind, such an idea had never come. To Dave, it was like a

successful thrust at his own standards and philosophies. It puzzled him. It made him feel, in another way, frustrated and defeated.

Still, there was a threat from space, posed by these alien plants or weeds, that had to be crushed out quickly. It could be grim. There was no joking about that. Or about fines and jail sentences. The hours were long. The night wind was cold—in spite of a bonfire, and kidding and joshing, and Maxene's and Munz's going back to the house to bring refreshments, and the sheriff's arrival to watch, ending up with his giving a hand with the strange toil. A number of other people came out from Ridge Falls to help, too—on the tipoff that the sheriff had left behind with his family.

Toward five A.M., a television truck arrived from the city. That was something special to be in on, wasn't it? But even then Augie had pensive moments of seriousness, showing through his easy grin. And he worked doggedly, searching out and uprooting as many of the widely scattered growths from the oasis of Hellas on Mars, as anyone else, Dave noticed. Yet somehow it didn't give him as much of the satisfaction of a victory over a prodigal as it should have.

At six A.M., Augie gave a rueful sigh of relief, mixed with big-man's humor, and said: "I guess that does it. About the last of the 'invaders' is burned up, eh, Dave? Thanks, everybody. I figure I could manage to give each of you a hundred bucks apiece."

"Oh, no—we wouldn't hear of it, Uncle Augie!" Maxene, who was now the picture of bedraggled exhaustion, gasped instantly.

"Nuts, we had fun!" Barney Coombs chimed in.

"We'll remember tonight as long as we live!" Clyde Winters added.

The only odd note was contributed by Lloyd Jorgensen. It would have been a statement worthy of George Munz. But the latter character had been defeated by time, and unaccustomed toil, and was now asleep in his ato.

"I admit that tonight has been a wonderful experience, a foretaste of contact with other worlds, Uncle

Augie," Lloyd pronounced very earnestly. "Still, I could use that hundred dollars."

"Pay up, Larsen!" the sheriff laughed.

David Jorgensen was satanically proud of his son.

That Christmas day turned out to be a very sleepy one for the Jorgensens. Otherwise, it wasn't too bad, except for a faint uneasiness on Dave's part. The dust-like seeds were a little too heavy to have blown really far. Yet he knew that somebody would have to go daily around his farm, for quite a while, yet, to explore for possible Martian plants that had been missed.

He was also troubled by a vague conviction that, in spite of his material success, he'd missed a lot in life, and that it was too late to do anything about it.

Somehow the land that he could have had from Munz at his own price didn't seem worth the bother, now. Another strange thing that happened was that when he got up for supper, Augie paid him back a thousand-dollar loan of years standing—and with interest.

Dave knew that he probably didn't have much left. Yet Augie settled up so casually that it somehow made him feel overfed and greedy, though he was sure that he didn't deserve such a description. Even without the accusation in Mattie's eyes, he probably would have wanted to give the money back.

"I'm twenty-eight," Augie laughed. "Time I steadied up, Dave."

"I guess you'll be getting married out there, Augie," Dave said, "to your Rose Mahoney. You take this dough back, Augie."

But then Mattie did another feminine switch. "Oh, no, Mr. Santa!" she warned. "Half is plenty!"

An hour later there was a visiphone call from Minneapolis. Television wanted August Larsen to deliver some talks about other worlds. And, yes—would the Jorgensens, on whose farm the Martian seeds had been spread, make one more appearance?"

Augie left for the asteroids in a little over a month. With a wave and a grin he went out beyond the sky, to

the region of bigger tomorrows, from which he had emerged.

But long before that, a lonely, discarded feeling had come over David Jorgensen. Maxene still lived at home while she completed her final months at high school, but her thoughts were far away. And who could change that, after all? Bobby's Martian rash faded, but only his body seemed on Earth. Lloyd was back at the university, his plans reaching out toward the stars. The infection that Augie had brought, was deeper than an allergy, and far older than space travel. Dave had given up. How could you fight a thing like that? Dave remained restless, glum, and unsure of his values. Sometimes he even dared to wonder if he *had* to stay behind.

Daily he explored his farm for strange growths, for the law still hung over him—and the dangers it was meant to guard against. Department of Agriculture inspectors still came to see him. A few times he ripped horny, gray-green things out of the frozen ground, and burned them to ashes, sighing with relief as if he had killed a deadly enemy. But the day came when he was sure that the taint was stamped out. It made him feel rather strange.

Maybe that was why, when in early February he went into his woods again, the goose pimples that rose on his flesh at what he saw in a place which he must have missed before, did not smooth out so soon. For a strange thrill had come into his blood, a kind of defiance, and a hope. Already he had been to the Ridge Falls library, reading books and scientific reports—searching. He didn't like the idea of breaking the law. More important, he knew that he had to be careful and responsible, while messing around with a danger that might affect farmers everywhere on Earth. Yet he'd found a dream and an adventure. And now, instead of hurrying for his blowtorch, he made his way back through the woods, and without even changing his clothes, hastened to town and the library again.

When he came back, he said to his wife: "Mattie . . . this afternoon . . . right now . . . I want you to take a walk with me."

"You look and sound like murder, you old stick-in-the-mud," she laughed quizzically.

"Some people might have called it worse," he replied.

Minutes later, deep in the woods, they stood before a hard-skinned, gray-green monster with pulpy leaves. It was ugly, yet in a way, beautiful. With his pocketknife David Jorgensen cut down one of the dozens of warty capsules that hung from it, and sawed through its hard shell, splitting it in halves. One of these he passed to his wife and, without a word, he bit into the cool pinkish meat of the other. Unlike the subzero air, its temperature was above freezing. It was sweet, but there was a very special tang to it. A tang from Mars—from the far, intriguing distance.

Yet there was another, stronger sensation in David Jorgensen's nerves. Thrilling. Alive. Something which gave him what Augie Larsen had. Something which restored a spark in himself, and took away the restlessness.

"Go ahead, Mattie—taste it," he urged. "It's good! These are Hellas Apples. On Mars the colonists eat 'em all the time. They could become popular, here."

Mattie looked very scared. "But . . . good night, Dave!" she quavered. "We've got to burn this thing down—or its seeds will spread its kind all over the country—and choke other plants out!"

Dave shook his head. "It seems not, Mattie," he told her. "Tests have been in progress for a long time—on Mars. The equivalent of an Earthly spring and summer climate—duplicated in laboratories—are against these Hellas Apple plants. Too warm and humid for too long. Besides, terrestrial soil bacteria, too active from April to October, would destroy them down to the last seed and root. This much has been proven—to have a basis on which to change a law. And now it has just been changed, Mattie. Augie must have known it might be changed, as, for a while, I've hoped it would be, too. Other, even tougher Martian growths remain on the danger list. But Hellas Apples may now be grown on Earth!"

Mattie eyed her husband with startled admiration. "Say—!" she exclaimed. "You old mossback! You aren't

considering planting those seeds still in Augie's discarded trunk, and raising a crop of this superfruit next winter, are you Dave? Get in on the ground floor with the swank restaurants?"

He grinned. "Those seeds aren't in the trunk anymore," he said. "Every last one of them is safe in an airtight bottle. And with most of February and half of March ahead, why wait for next winter?"

Mattie's eyes widened. She'd always known that she had a good man—steady, but full of quiet fire, too.

"Uh-huh," she commented knowingly. "You fool. I guess you don't envy Augie anymore now, though, do you? Having our piece of the far sky, with a little of the planets in it, is kind of nice at that. And not being left out of Tomorrow."

David Jorgensen chuckled deep in his barrel chest.

"According to an old story, Mattie," he said, "you'd still be rated as a little slow—for a woman. Tasting that apple, I mean."

The Restless Tide

OUTSIDE, IT WAS two below zero by his antique Fahrenheit thermometer. He had just looked. Frost made lace-work on the plastic windowpanes, the way some people would always think it should on New Year's Eve. But he remembered that some had liked the thought of Florida winters better. So, fifty years ago it had been different.

Yet had it been wholly right that palm fronds should rustle near New York on the first of January? It had been an enchantment then—a luxury, a miracle of the weather-control towers that increased the greenhouse effect in the atmosphere, enabling it to retain more of the Sun's heat. But time had changed the charm of that

to weariness. The crisp vigor of snow had become a nostalgia for the old. Now perhaps the memory of those balmy winds was a wistfulness once more. Forever there was a shifting tide in man. . . .

He stopped his nervous pacing across his living room. But this meant neither relaxation nor the end of thinking. He felt his big hands knobbing into fists. It had happened often, lately. Peace of mind had worn out with overuse, like the appeal of the frescoes now on the walls—bison and deer copied from a paleolithic cave to lend a primitive overtone to Brenda's latest choice of decor.

She sat there on the divan, looking up at him. She reminded him somehow of crystal. And in these last moments of waiting for another century to die he was very aware of her scrutiny. It was cool yet scared. Perhaps it showed contempt of him. But maybe admiration, too. It was fine-drawn and knowing, as with lifetimes of sophistication. Yet it was primitive. And somehow these last two qualities seemed the same. He felt far away from her, and out of step. Together they had seen so much that was different from the present. Was it right that he should almost hate her now?

Her smile probed and mocked him. Yet it was gentle.

"It's like counting off before an explosion, isn't it, Ben?" she said. "Four—three—two—one—zero! It's twenty-three hundred A.D. now, Benny-boy! On and on we go. Whither?"

Then he heard the New Year's bells. Iron pounding iron. Bronze beating bronze. From what shaggy progenitor did the thrill of clanging metal spring? Or had it been tom-toms hewn from hollow logs and headed with rawhide first? And could the tingling reaction be any less now, with all the refined comfort, safety, and diversion which a crescendoing technology could provide? Did the chromium towers of the cities, miles high, make any difference? Or the United World, having turned war into a myth? Or the laboratories that had mastered the mysteries of youth and age? Or the space liners going to the colonial planets? Or the culture? Or, perhaps most important of all, the deeper understanding of the human psyche—its side of gentleness, its fury, and

the points where its yearnings touched crude soil, in spite of itself?

No. In fact the appeal of the bells' beat became part of his sickness of frustration that had lasted too long. Ease was wonderful after hardship. For a while. Then boredom came. Besides, a man had to feed his pride in himself. Soon there was more to despise than the slight padding of fat over his stomach. It was only a symbol, removable by sports and by the simpler potions of medical science. Yet its taint remained, naming him: *useless, pampered fool* . . .

He chuckled. With all the skills and wisdom of his era behind him, he still felt hemmed in by the primal laws of nature. There was built-up force behind his words when he spoke:

"Twenty-five years of this are long enough, Brenda."

He was braced for his wife's reaction, which he knew would disagree. But she went into combat like one who makes a game of it, and has plenty of time. Her smile teased.

"Um-hmm, Ben," she said. "Cycle's end or beginning. Change is the wisdom and pattern of our civilization. And its spice. I know."

She shrugged. Already she had touched a little silver boss on the table beside her. The tinkle of ice mingled with liquid sounds and a soft whirring. How much should one hate the servant gadgetry that once had been things of pride?

Brenda offered him a glass, and picked up hers.

"One final time?" she said with mock dramatic elegance. "A toast. According to custom. To the new year—our first in twenty-five without convivial company. By your request, Ben. To Auld Lang Syne. To whatever you think that you want, now. New Year's is supposed to be especially an occasion for changes, isn't it? But I'm not quite ready for any wild adventures, Ben."

Her defiance was quiet and almost playful—yet definite. He knew his Brenda, yet he did not know her. How could you really grasp the skills, the deviousness, the simplicities of speech that were silken traps, and all the other tools that two centuries of living and learning

could give a woman? Such a fine weave of personality didn't used to happen. Yet, like everything, it still had flaws.

He kept looking at her, seeing what he'd seen thousands of times before. She'd allowed herself to age a little. It didn't have to occur, and it could be erased endlessly in the rejuvenation centers. But it was a style, now—part of an always restless and changing mode. So she looked, not twenty, but thirty-five. There was silver in her hair, and it was part of beauty.

And what she was blended with all that was around her, and its projections. Like everybody, she clutched at a richness of life that was now so much widened. In her, still, this took the form of soft beautiful things and moods matching. The curved and tasteful line, the chip of music. The luxury whose quiet swiftness bestowed a sense of power, wielded casually as some lesser god might do. He knew the appeal of all that. In a childish gaiety you became like an elf among elfin companions. But when you were through with the spirit of this, it assumed the fuzzy taste of an ancient hangover, infinitely extended. It omitted too much. And time was too long, now.

He wondered if women had greater resistance to this kind of boredom than men. Perhaps here they were more civilized. He could see how it was with Brenda. It was her job to design beauty. Then she had her social life, her tennis, and most of all, her house. Here were the elements of a woman's psychological castle—anciently, now, and forever. The peaceful, narrow nest; the place for children. It marked out civilized security against bewildering vastness. Yet it was to be defended savagely.

How old was the conflict between this kind of feminine stubbornness and man's nomad impulse, shaggy and improvident? Still, how often had men yielded their heritage to follow their mates' scheme of things, like tame lapdogs? How many of them had been grateful for this balancing force? And yet, in more mortal times, how many had entered the twilight of life regretting that they had missed so much?

"It isn't fair to you, is it, Ben?" Brenda said, as if she

probed his mind. Her motherly tease was tainted with hard sarcasm.

He gulped a third of his drink, then chuckled. "So you know what I'm thinking," he remarked.

"Um-hmm, Ben. More or less. Maybe even about The War—if that isn't too far back and too awful. But more likely about the memories from before twenty-five years ago. When we were helping to colonize and develop another world. Before you—we—got utterly fed up with that."

He nodded and grinned. "Right," he admitted.

For an instant his mind drew back recollections of that last great conflict of so long ago. The righteous rage against arrogance and oppression. And the heady thrill of being part of the might that opposed it. The longing to rip and blast it apart, and to spill the blood of the fools that supported it. Then the action that relieved pent-up drives. The thrills of swooping speed as one struck. The fear. Then the sounds. The roar that masked screams. The primitive crackle of fire.

But somewhere along the line the triumphant savagery had become mixed with revulsion. And before the glory of victory the flames had sucked him in, mauled him, torn him, in terrible surprise and pain that were like the end of the universe, until oblivion took him.

Such inglorious hell would have blanked out in his conscious memory, except that the doctors who had patched and spliced his body together again had also insisted that for the health of his mind he must not bury horror in his subconscious.

Then there were the long years of rebuilding the world—in the form of utopia this time. Those years were busy and great, for the tide had swung. The heart and soul of man was behind peace and plenty in a shape and a newness never seen before. But with its attainment, much of the novelty had rubbed off. So another cycle had started. He had pulled Brenda into it. Out beyond the Earth . . .

"Remember, Brenda?" he said. "The smell of cigarettes and sweat inside the helmet of a space armor. The deep blue sky of Mars. The ruins. It was a cold, dry little planet. But we and the others scraped up the thin

hoarfrost and snow with shovels, there at the south polar cap, to get water to drink. Our bunch put up one of the first twenty airdomes. We began a settlement, sealed away from the dead atmosphere. We worked like slaves with our own blessed hands, and loved it. We felt that maybe we were accomplishing something . . .”

“And then,” Brenda commented, “after seven Terran years with the colonial crowd, you swore that you’d never leave Earth again. That people struggled to build civilization, and that, by gosh, you’d become civilized at last! That you’d have a house, a garden, and work your hour a day at the controls of a factory, and that, aside from tennis and fishing, you’d spend all of your other time in cultural pursuits—studying, reading, writing—and maybe even learning to play the medieval lute! No, I’m not arguing, Ben. The proof of never being settled for long is too old.”

Sharp guilt dug into him. But his laugh tried to soothe the bitterness behind her humor.

“Right again, my lady,” he said. “Fumbling with that lute was golden rest and living during the first year. Later, so was guiding and scolding two small sons—born of your own body, Brenda, and not popped out of warm fluids in a gestation vat, as might have happened. But Nubs and Joe are men, now—flown from the coop like our earlier offspring. So that’s another reason—”

Her smile was like a thin, sharp wire. “Don’t go on, Ben,” she told him softly. “I’ve heard all that you’re going to say, before. And I accept the truths of psychology. Men are barbarians, apes, children. They fool with a dream. They cement a few stones together. Then they lose interest, and want to kick them over. They used to *struggle* for peace. But the meaning of *struggle* is grimed into our blood and bone, so we hear. It brought us up from nothing. Now, if its force isn’t sublimated, it could wipe us out.”

“All that is logic,” he offered.

“Of course it’s logic!” she answered. “Stiff, and true, I suppose. The only trouble is that I’m sick of logic, too! All right, maybe I’m scared to conform—to go out there into space again! But there’s more! Civilization was built up to be happy and safe in, wasn’t it? So why

all the crude lunging and melodramatics? Helping to spread human sway across the solar system is not for me, Ben!"

In her outburst, Brenda looked savage, herself. Strange, wasn't it? Her pale eyes glittered. Or was it the beginning of tears? She was being emotional—not using her head. Or perhaps with a deeper logic, even beneath her conscious self, she was using emotion as a tool. He felt his masculine clumsiness and guilt. A woman's hurt had power, even when it was partly a fake. Especially if, with the woman concerned, you had memories of a million moods close to the heart. A comradeship remembered urged one toward loyalty and a wish to restore nearness and agreement, didn't it?

Pictures crossed his mind. His sons as children, playing a tough game with toy pistols. That was an ancient part of boyhood, beyond criticism and irrepressible. Then there were the gatherings of his oldest friends. They loved peace; yet many of their most vivid reminiscences, gleefully told, were about The War. So there were paradoxes in human nature. While under streamlined living, and by the same technology that made it possible, planets could now be ripped apart and half turned to incandescent gas in a moment. If someone became sick enough of an existence that could seem pampered, tawdry, and monotonous. That was why there had to be an outlet for restlessness.

Yet the recognized means confused him, too. For did you tear a woman loose from her quiet mundane moorings, without concern, and drag her into the harsh distance? Even if it had happened before? A keen edge of experience and readiness could be lost completely in a quarter-century. So to take such a course was still a cruelty.

Feeling hemmed in and bitter, he gulped the remainder of his drink. More in experiment than in earnest, he said:

"Say I'm dreaming silly, gypsy dreams, Brenda. Suppose I drop the whole matter as hobo nonsense, stick around on Earth, and try to keep things as they've been. What's left? What happens then?"

She eyed him warily. For a divided instant she looked

numbly startled. Then her clarity came back, keen and a little mordant. She even smiled slightly.

"Should I tell you that you're cornering me without trying, and with the wish that it didn't happen?" she asked. "Is that what you want me to say?"

"No, I don't *want* you to tell me that!" he replied.

"But it's in your mind," Brenda said. "And you know what's left. Other hobbies. For example, you could make models of spaceships or even antique locomotives—like Dave Larkin. While I could freshen up life some by redoing the house, again. For excitement there are always the dream-recordings and broadcasts. Any adventure is possible, as real as real. You can be a Babylonian temple builder if you like, or a mid-twentieth-century prizefighter. Such visions are harmless, physically. But indulgence in them is restricted as a force of decay, for they lack the real satisfaction of accomplishment. At least, so goes the Big Argument, Ben. They are soporific, like old-fashioned dope.

"Then there are the synthetic gland-products and whatnot—which suppress any unrest or create any desired emotional reaction. But they're not on the open market, and even I wouldn't like to see you use them. So, since you can't take everyday living anymore, the idea of a future here at home isn't very appealing to you, is it, Ben?"

"No, it's not," he answered frankly.

She swallowed nervously. Her eyes sought his. They were anguished and harassed, and full of love. For a second she was almost the woman he used to know. Then she seemed bored. A pout was on her lips as she spoke.

"So maybe you want us to split up for a while, Ben," she said.

His nerves twanged like lute strings plucked by a rough hand. It hurt. And he felt the guilt of his own selfish desires. It was matched against both a certain reasonableness in what she had just said, and a selfishness of her own. So they shared a primitive fault.

Was he a very old-fashioned guy who saw here, now, the ancient flaw that was supposed to belong to the over-privileged classes of centuries ago—too much range?

On that basis, everybody had long since become over-privileged. But could anyone truly be that? Range was a wonderful thing to have, wasn't it? It was a boon once denied. Science and common sense claimed to know how to handle it. Yet many people could still be confused.

He tasted the brass of panic. Its essence again were his memories of Brenda, cool, feminine, and courageous, and at his side in mind and body, in other times. That struggled against the thought of divorce and parting. And the lump in his throat sapped his own strength.

"Shut up, sweetheart," he growled. "We're Ben and Brenda—remember? A pair."

Her startlement at this pulled her mask away, and showed that she had been frightened and pleading. "You want to tell me that you'll not run off, Ben?" she challenged with some cynicism.

"Maybe," he said. Thus he hedged and half yielded, still clinging to the fringe of good judgment.

The sweetness of emotion blurred her reason, too; and seeing an opening, she went gladly into his arms. For a few minutes they were like teenaged lovers once more, and it was beautiful. But had he truly expected it to last? He also had had centuries of acquiring alleged wisdom.

Her grateful look gave way to something vaguely pleased with herself, and yet puzzled. "You're a nice boy, Benny," she said once with a possessive chuckle. So the pretty bubble broke. How many men in all history had had that much recompense for being too soft and civilized in love? And how primitive and subconscious was Brenda's reaction of disinterest and petulance? It seemed to well up from inside her until what did her husband see but a spoiled, dissatisfied woman whose vigor had faded away? Here, again, decadence loomed, barring solutions in the direction of appeasement and gentleness.

Her pout showed more and more. Yet her eyes showed apology and scared regret. He saw the break coming. It was as if the poise of culture formed a crystalline shell around her that tried to hold her to a rigid form. Yet within this brittle restraint primitive power

was building up. No matter what she had said, there was an unrest in her that was the feminine counterpart of his own. In the end she overreacted.

Her lips pursed together, and she began to tremble. She pulled free of his arms. Her features twisted as if in pain.

"Your staying is no good either, is it, Ben?" she said. "You'd be miserable. So would I. Darn the righteous logic! But against it we're thick-headed idiots! I want—oh, who knows what anybody wants! I can't talk to you now. Will you excuse me, please? . . ."

She was gone, then, to her room. But he could imagine the private picture of her. It was classic: A woman fuddled, prone face down on the soft covers of her bed, seeking elemental relief in tears.

He knew what course psychology recommended. Yet a civilized taint in him revolted against it. He felt blocked on all sides. His fury was lonely and sour. He hated the house that he had built with such enthusiasm. He hated the wife whom he loved, and the million gadgets that, it seemed, had made their lives what they were. He wished that he was really some troglodyte, amid ash and the smell of offal, from a hundred thousand years back. He appreciated nothing. Time was too long, now; and though people had wanted to be close to immortal, in his flow of madness, he had lost his taste for the idea.

Something claustrophobic urged him out under the cold stars. Around him were a few other dwellings, and bare, winter trees. From beyond lighted windows he heard lilting music from new instruments. Snow crunched under his boots. Overhead were the bright moving specks of the tiny artificial moons that served as space-commerce beacons and as part of the weather-control system. The real Moon had set. So he could not see the blue blotches of the airdomes that roofed its cities.

To the southeast was the glow of New York, seventy kilometers away. It had been radiation-tainted rubbish once. But the phoenix story was no longer adequate to describe its new rise to magnificence.

Fresh from hardship in some far place, he knew that his blood would have thrilled to the spectacle of its co-

rona of light. But now his feeling was all the other way. To his present soured view, here were fifty million human grubs—critical, overstuffed, demanding, served by all the gifts of the ages, yet full of neuroses. Many years back, squalor and disease had been wiped out. Now there were not those things to fight, either. These people had only their confusions to struggle with.

Hating them now was like hating himself. In his wild unreason he wished that he could stamp his boot heels down on all of their silly faces. He wished that atomic fire would take them, force them back to vigor and courage, or blast them into the timeless silence.

These were his savage thoughts until he caught himself, and realized more than their brutality: many others would have sick vagaries like his own, and for the same reasons. Such driving notions could easily become a mass impulse toward destruction. Unless nerve energy was used up in other channels.

There was one single, solid antidote left. It was now a beaten track, known to everyone, and open all the time. It was the path he was urged toward, and knew that he would follow. Still, there was another mental mixup that he and countless others stumbled over repetitiously, almost as Brenda did.

It was the old perfection-hope—the idea that building a technology and a culture was like a mountain that humanity climbed gradually with Nirvana at the top. A place of constant and perfect happiness and satisfaction. A region where you gave no hurt, willing or unwilling, and received none. A land of superlative refinement and loveliness.

Yes, there was a mixup here, all right. For on one side the rejection of all this was already hot in his soul. It was in the milk-and-water words of description themselves. They stuck crosswise in the lusty crawl of human nature. The material elements of such a heaven were already actual. Yet it didn't exist. In the light of experience, you couldn't even imagine its existing, unless somewhere in infinite time people changed radically from what they had been for ages.

Still, on the other side of the confusion, that same phantom, stripped of all outline, yet beautiful and mys-

terious, kept its charm and inspired its yearnings. It was a paradox of man's being, a will-o'-the-wisp, or a figurative Bright Star. . . .

In five minutes, by pneumatic train, he could have been in the center of the City. In half an hour, by any of a dozen means of conveyance, he could have been on the other side of the world. But such wandering wouldn't have helped him in his painful restlessness. Instead, he was urged toward a neighborhood goal. He walked a few hundred meters to a large, low building. Inside, in the gymnasium among other physical-culture enthusiasts, he found Dave Larkin. Yes, the hobby man.

Dave Larkin and he were useful to each other in an odd way. He had nothing solid against Dave; yet something about the man's large eyes and thin nose afforded him the relief of instant irritation.

"I hope you're feeling as mean as I am, Dave," he said with a leer. "Go ahead—call me a name. A nice, juicy, rotten one."

Larkin, another good citizen, bristled in an interplay of taunting glee, fury, and anticipation of battle, coming out of dullness.

"I couldn't look at you without feeling mean, Ben," Larkin snapped. "In fact the sight of you urges me to vomit. You reek . . ."

He lashed out at Larkin and missed. An instant later he doubled over, as a fist smashed into his abdomen. Then, under the impact of a follow-up blow, a nova seemed to burst in his brain. His anguish was terrible, but his red rage was magnificent.

He flew at Larkin. The thin nose was bent over and flattened like an offending nail point under a hammer. Flesh scrunched under his knuckles. Blood spurted. For a moment he felt the savage thrill of conquest, relieving in him a little the poison of stagnation, which, in this age, could break up a planet.

Dave Larkin was supine, his glassy eyes turned toward the ceiling, his lips gory and mashed. "You damn fool, Ben!" he squeaked. "This time you're crazy!"

And the conqueror saw how he had known it would be, with himself. As other eyes turned on him in

amused and interested shock, he felt his shame for an outburst that had been childish and animal. But such shame at least brought humbleness and contrition. And compassion. Funny, wasn't it, how closely elemental violence was bound to compassion? For without violence and suffering, compassion—the mark of the truly civilized—had no use, and could not exist. To bring such good feelings to life nowadays, you almost had to use artificial means.

"Hell, Dave," he mumbled. "I didn't mean . . ."

He lifted Larkin up tenderly and with apology, while the others prepared first aid. These days missing teeth meant nothing. Replacement was simple.

Whole organs could be renewed from stocks cultured and grown apart from any human body. Life, animating protoplasm, was not as deep a riddle as had once been thought. And the forces that shaped form in growth could be directed. Besides, it was law now that for each person the entire body structure, down to the minutest wavering of a filament in a brain cell, or the slightest variation of its chemical composition, must be recorded periodically, as a pattern for repair in case of accident. It was even rumored that soon, with such data—impressed on tiny rolls of plastic ribbon that were numbered and stored away—an individual completely destroyed might be rebuilt again, without the loss of even the finest detail of personality or memory.

"Oh-oh," someone laughed. "Ben, you're overdue. Your tide has turned; the bug is peeking out. Better get back to things . . ."

His shame, now, was that of one whose madness is public knowledge. He felt fear, as of a disease. The future, with all its harsh strangeness after so long a rest, held less glamour now that it was close. But he was ready to act. There was no other way. Struggle and pride of accomplishment were gods. Change was the salt of life. More emphatically nowadays than ever, these old platitudes were the key to the health of society. At least that was the claim.

If Brenda had revolted against a narrowness here, and in fright was clinging to her possessions, still hadn't her subconscious contempt of him for weakness also led

him on toward what he had to do? Her primitive restlessness and lack of peace of mind were as clear as his own.

He went home and to her room. Maybe she only feigned sleep. He put his arms around her very gently and then tightened their grip. Their pressure was both dominance and protection. She gasped in surprise and anger, and her own strong muscles hardened against his.

"There'll be no fooling now, sweetheart," he growled softly.

His roughness was crude. The gentleman in him hated it. But perhaps she had been too long a lady. The ancient chemistry that had helped the race battle upward was still active in her as it was in him. She clawed his cheek and kicked and tried to strike him.

"Ben—you ape!" she yelled. "Who do you think you are?"

They killed some of ultra-civilization. But perhaps in grabbing control and responsibility, he performed an ancient service of man to woman . . .

Afterward, he sought to compensate for guilt with reason: "We live in wonderful times, Brenda honey. But we're still herded by circumstances. We can't rot, and we can't ignore the proud devils in our insides. We must tackle jobs big enough for our powers. That's the way to handle our advantages, instead of letting them handle us. In the morning we'll start what we have to do. . . ."

At the colonial offices where they made their applications and listed their old skills, Brenda was still sullen and scared. And even if good sense told her that it was not his fault, her primitive emotions could hardly be so reasonable. So he bore the weight of her hurt, wondering if they'd ever be close to each other again.

Yet there was some compensation. Adventure was back. The vagabond spirit was alive again. Glamour was marred by the tensions of reality; but did one want a dream or truth? The eternal quest for newness was on again. There was big work to be done, problems to be solved. His excited blood hammered like tom-toms.

He sent messages around the Earth and across space, telling his scattered children where their parents were

bound. Nubs and Joe, the youngest, were on Venus, not long ago almost lifeless, smothered with heat and dense carbon-dioxide gas.

On the space liner, Brenda and he enjoyed their last real luxury. But soon after the blue-white flames of fusing atoms hurled the ship from Earth, physicians and nurses took the thousands of passengers in charge. They were put to sleep for the rejuvenation refresher.

Warm liquid engulfed them. Cell-structure firmed, connective tissue tightened, obstructing deposits of minerals and fatty acids were dissolved. In a way it was like rewinding a clock.

The liner crossed the orbit of Mars, which was almost a lesser Earth now. Then it moved on, arcing wide above the path of broken fragments that were the asteroids, where the richest mines were located. Much later the ship passed Jupiter's orbit, though the giant planet was on the other side of the sun. Its many moons were no longer frozen. . . .

In sunlight enfeebled by distance, the liner continued on its way. Its passengers were returned to consciousness and activity. Their younger faces looked strained. For they were fresh from soft living on Earth. Sight of the hard stars of space was either too new to them or too old. Bright adventure tarnished some. So maybe here there were signs of another frustration.

Brenda and he were among the others, as the ship curved around colossal Saturn, only twenty thousand miles away. The Rings, composed of countless small meteors circling the planet at high speed, made the most splendid spectacle in the solar system. Yet it looked repellent and cold, and almost hideous. His feeling was that people could not belong anywhere near it.

Brenda was silent beside him, her lower lip trembling, her eyes bright with angry tears. Yes, he'd brought her into all this, hadn't he? Besides, he felt the first sharp regret for things left behind. Things he had hated so recently. He wondered who'd be living in his house now. And in spite of knowledge that he was following a proven pattern toward peace of mind, still he thought bitterly of the conflicts and contradictions in man. It was as if there was never anything to grasp and

hold for very long. It was as if life was a series of bright illusions that turned into the same stone wall as soon as you lunged at them.

The liner swung outward to Titan, largest of Saturn's numerous satellites. There it landed. Its passengers fell in line to disembark, and to meet the other thousands already here. The metal buildings of the camp were harshly utilitarian. Here was the frontier, the fringe of expanding civilization, where pioneering could go on and on. Here were the people who, tiring of one side of living, were reaching for something else. Yet in many sober faces, as in his own heart, he saw the question of what had been gained. It was homesickness for an idyll that had been given up for this.

Instructions and equipment were issued. There was time for rest. Then various courses of training began.

Titan was no longer cold and lifeless. Ten years ago the great air machines had been set up. Torrents of oxygen had already been wrested from the frozen strata of carbon dioxide, and from the silicates of the rocks—even the silicon itself was transmuted—to decompose the poisonous methane and ammonia gases of the original atmosphere, and to make breathing possible here without space armor. And there was artificial sunlight, now, supplementing the weak rays of the distant Sun. For a large manmade moon of a moon already swung steadily around Titan two thousand kilometers above its mountains and plains. The surface of this sphere was metal, kept incandescent by a slow atomic process.

Five hundred hours after the landing, Brenda and he drove an ato truck along a valley to an assigned area far out in the wilderness. Here a stream that had been ice for eons now flowed into a new lake. In the volcanic ash, seeds specially cultured for Titan had been scattered by planes. Along the lake, they had already grown into low bushes.

But the scene was still utterly dreary, matching his own bitter frustration and nostalgia. Once, in an effort to build Brenda and himself up, he preached a little from the philosophy of the times: "Life is movement, Brenda. It is restless and primitive. It is never crystallized perfection. The shifts and changes and surprises

are what we are designed to enjoy. The lifting from the dumps to the clouds. It's the contrasts that count. There's a rough drama in people. They have to accept the fact of it. . . ."

Now it sounded trite, silly—a feeble attempt to explain the relationship of man to a universe that was too enormous. Yet he had to believe it, didn't he?

But the barren gray hills spread around him. And the only sounds were the rustle of the wind and the lap of water. He had dragged himself out here. And Brenda—so used to other things. It was his doing, his fault. He had left the rich, mellow Earth for this.

"Let's get to work," he growled, because there was nothing else to say.

Brenda's face was set and grim. Toiling doggedly and without comment, she helped unload the truck and to bolt together the small, prefabricated dwelling. He wondered if, like a caveman's mate, she was enjoying a martyrdom to his folly. It angered him, for he wanted a friend, not a slave. Relationship of man to woman had many conflicting facets.

He found himself admiring her toughness and courage. From this beginning his feelings changed slowly, like a dawn breaking. The taste of his own sweat on his lips was a good taste. The ache in his muscles was satisfaction. The house was up. Here was reality, solid purpose, and toil with one's simple hands. It was like it was supposed to be.

Brenda was in coarse blue jeans, like she used to wear under her space armor on Mars. From a supply chest she had taken small, tinted curtains. She was putting them up on the windows, scowling with concentration, but humming absently to herself. Here at the end of a long journey, she was in a new home, a new castle of security. She was over the hump, too, and at peace. Domesticity had her in its primitive clutches. No—he wouldn't tease her, now, for her change of view.

"We'll go back someday, Brenda," he chuckled. "When the tide turns. Those days were wonderful, too. And they'll take on the charm of old times."

"Shut up, Ben," she ordered softly, and laughed.

It was as though she wanted to deny their past confu-

sions. He caught a motherly look in her eye, as if she thought him partly a child. Yet there was worship of strength, too, just for a second.

"So all of a sudden we're not phony anymore, Ben," she mused. "It feels good. Back on Earth I was trying to hang onto some small limitations too—to keep from getting lost . . ."

He grinned. Women were deep. More than ever he suspected that—subconsciously—she had challenged and egged him on, back into space.

They ate supper, cooked on a small atomic stove. "Tomorrow I'll start the garden," he said. "This'll be a settlement, soon."

It seemed that for now they had won a vast reward. Newness was all around them, and they were together again as pals and equals. They did not even have to talk to understand each other. They had the present, but they had rich memories as well. They had known contentment, luxury, pain, struggle, beauty, achievement. Life in past ages had never been so complete. It made a balanced and colorful mosaic, with a barbaric tone. Mystery, curiosity, and recklessness were in it.

For a while, with both the incandescent orbiter and the real Sun beneath the horizon, it was night. Clouds obscured part of huge Saturn. In the atmosphere, expanded and thin because of the low gravity, but rich in oxygen, lightning flashed and thunder rolled. Warm rain pelted down. But in the far third of the sky stars still blazed in the fearsome distance.

Lying in the darkness, Brenda spoke whimsically: "Ben . . . Will people always be half-wild nomads? Will they ever change?"

"How should I know?" he said.

Yet his mind clutched with both pleasure and fright at a far future which he could not imagine. Somewhere there the phantom of Nirvana still taunted him.

"People always reached for the stars, figuratively, Ben," Brenda pursued. "When all the useful worlds of the solar system are colonized and beautiful and crowded, I wonder if a way will somehow be found to cross the light-years to other systems. Will a shortened interdimensional path somehow be blasted across those

distances? Maybe that's utterly impossible. Or will the trip be made at a crawl of a few thousand kilometers per second, in ages of time? Or is interstellar space a barrier that will never be broken?"

He thought of the impossibility of remaining static, and of the need for a challenge that really matched increasing powers. He remembered how he had looked on New York before he had left Earth, and how senselessly he had beaten his neighbor. Mankind was like a rough, sturdy plant, growing, thrusting; crude but magnificent, and caught between rot and fire.

Somberness entered his mood. It thrilled and scared him. His throat tightened.

"I guess folks will have to reach the stars sometime," he said. "Or die."

Return of a Legend

PORT LARIBEE WITH its score of Nisson huts, sealed against the lifeless atmosphere, the red dust and the cold, was a shabby piece of Earth dropped onto Mars.

There, Dave Kort was the first wilderness tramp to be remembered. In warm seasons he'd plod into Port Laribee, burdened by a pack that only the two-fifths of terrestrial gravity put within the range of human muscles. He was a great, craggy old man, incredibly grimed and browned, his frostbites bandaged with dry Martian leaves tied on with their own fiber.

His snag-toothed grin was bemused and secret through the scratched plastic of his air-hood. He'd trade carven stones, bits of ancient metal, or oddities of plant and animal life for chewing tobacco, chocolate, heavily lined clothes, mending supplies, and new parts for his battered portable air-compressor.

He'd refuse a bath with disdain. And at last his rusty,

monosyllabic speech would wax eloquent—comparatively.

"So long, fellas," he'd say. "See yuh around."

The equinoctial winds, heralding autumn, would moan thinly like the ghosts of the Martians wiped out in war those ages back. Dust would blur the horizon of that huge, arid triangle of sea bottom called Syrtis Major—still the least sterile land on the Red Planet. At night the dry cold would dip to ninety below zero, Fahrenheit.

The specialists of Port Larabee, who watched the spinning wind gauges, thermometers, and barometers, and devoted monastic years to learning about Mars, said that they'd never see Dave Kort again.

But for three successive summers after he had quit his job as helper among them, he showed up, tattered, filthy, thinned to a scarecrow, but grinning.

Young Joe Dayton, fresh from Earth and full of Mars-wonder, asked him a stock question that third summer. The answer was laconic. "Oh—I know the country. I get along."

But at the fourth winter's end, Dave Kort did not return. No one ever saw him again, nor found among the ruins and the quiet pastel hues of Mars the dried thing that had been Kort. Somewhere drifting dust had buried it. No one had quite understood him in life. If any affection had been aimed at him, it was for a story, not a man. The man died but the story thrived.

Dave Kort had lived off this wilderness, alone and with sketchy artificial aids, for three Martian years—almost six by Earth reckoning. It was quite a feat. For one thing, the open air of Mars has a pressure of only one-ninth of the terrestrial, and above ground it contains but a trace of oxygen.

How Kort had turned the trick was not completely inconceivable.

In making starch from carbon dioxide and moisture under the action of sunlight, the green plant life of Mars produces oxygen just as Earthly vegetation does. But instead of freeing it lavishly to the air, many of those Martian growths, hoarding the essentials of life on a

dying world, compress their oxygen into cavities in stem and root and underground capsule, to support later a slow tissue combustion like that of warm-blooded animals, thus protecting their vitals from cold and death.

Despoiling these stores of oxygen with a pointed metal pipette attached to a greedily sucking compressor was a known means of emergency survival on Mars. Thus you could laboriously replenish the oxygen flasks for your air-hood. Simple—yes. But tedious, grinding, endless. Dayton could imagine.

Food and shelter were also necessary. But under thickets there is a five-foot depth of fallen vegetation, dry, felty, slow to decay in this climate, accumulating autumn after autumn for Martian centuries. In this carpet are those oxygen-holding capsules and roots, often broken, freeing their contents for the spongy surrounding material to hold. There too grow much green algae—simpler plants of the same function. There are the fruit and seed-pods of the surface growths, sheltered from cold. And there, the remaining animal life has retreated.

Fuzzy, tawny things that twitter; fat, mammal-like excavators that never care to see the sky, and many-jointed creatures that resemble Earthy ants only in their industry and communal skills. Above ground they build their small, transparent air-domes—bubblelike structures formed of hardened secretion from their jaws. There they shelter their special gardens and sun their young.

So, for a man able to borrow methods unlike his human heritage, there were ways to keep alive in the raw Martian wilds.

Once, Lorrington, the physician, said to Joe Dayton, "Kort must have burrowed, too—like a bear. Is that human? Of course the tip of the Syrtis Major triangle here at Port Larabee is far north. But even if he could have gotten all the way to the tropics, the nights are still bitter. Even so, the big question is not how he lived like he did, but why?"

Yes, this was a point which Dayton had often wondered about, frowning with thick, dark brows, while his

wide mouth smiled quizzically above a generous jaw. What had impelled Kort to a solitude far deeper than that of an old-time hermit or desert rat? Had he been a great child lumbering by instinct through the misfit fogs of his mind to a place where he felt at peace?

Dayton favored another explanation as the main one.

"Why, Doc?" he said to Lorrington, as they played cards in the rec hall. "The answer is in all of us, here. Or we would never have come to Mars. Where was there ever such a place of history, enigma, weird beauty, fascination to men? You can't be neutral. Hating Mars, you'd never stay. Half loving it, like most of us, you would—for a while. Loving it, you'd want a much closer look than is possible at Port Larabee, from which we sally forth like rubbernecks. Too bad that Mars is too rough for men, in the long run. Too bad that the Martians are extinct. Once there were even machines to maintain a better climate."

Other specialists were within hearing. They laughed, but they knew what Dayton meant. They'd seen the dun deserts, the great graven monoliths, dust-scoured, the heaps of rust. Being here had the charm of a quest for ancient treasure, marked by the mood of death.

Parsons, the metallurgist, said: "Funny, but I remember Kort's posture—bent, just like the figures in the bas-reliefs. Though Martian skeletal structure was far different. That sounds as if part of Mars sneaked into Kort's body, doesn't it? Hell, there's no pseudoscience here! Plodding through dust, and at low gravity, you just naturally develop that posture as a habit. Now call me nuts."

"You're nuts, Parsons," Kettrich, the biologist, obliged.

Not many days later, Frank Terry and his son came to Port Larabee. Bringing a seven-year-old boy—a bright little guy named Will—to unlivable Mars, marked the elder Terry at once as a screwball.

Was the mother dead or divorced? Was Terry a remittance man, exiled by his family? He seemed to have enjoyed the good things. . . . Such curiosity was bad taste. Forget it.

"We like the sound of the place," Frank Terry ex-

plained. "We thought we'd take some photographs, really get friendly with the place. . . ."

His listeners foresaw the withering of Terry's familiar enthusiasm, and his departure within a week. Except maybe Dayton guessed differently. The intellectual Terry was not much like Dave Kort. Yet perhaps a kinship showed in a certain expression, as if their natures had the same basis.

During the next Martian year, Dayton and the observatory crew saw the sporting-goods-store sheen vanish utterly from these two. They carried less and less equipment with each succeeding sally into the wilderness. Dried lichen, stuffed inside their airtight garments, soon served them as additional insulation against cold.

From their lengthening jaunts they brought back the usual relics—golden ornaments, carvings, bits of apparatus that had not weathered away. And the usual photographs of blue-green thickets, war-melted cities, domes celled like honeycombs, suggesting a larval stage in the life cycle of the ancients, and of country littered with shattered crystal—much Martian land had once been roofed with clear quartz, against the harshening climate.

Frank Terry became bearded and battered. Will ceased to be a talkative, sociable youngster. Still devoted to his father, he turned shy, sullen, and alert in a new way.

He had a pet like an eight-inch caterpillar, though it was not that at all. It was warm-blooded, golden-furred, intelligent. It had seven beady eyes. It crept over the boy's shoulders, and down inside his garments, chirping eerily. Except for his father, it was the only companion the boy wanted.

So summer ended, and the dark blue sky was murked by angry haze. Vitrac, chief scientist, said, "You're not going out again, are you, Terry?"

The kid gave the real answer: "Let's go, Dad. I want to. Besides, Digger is homesick."

The next morning, when the equinoctial storm closed in, the Terrys had vanished.

Joe Dayton led the search party. He found nothing. Mars is small but still vast. Its total surface equals all

the land on Earth. Since the first men had come, not one in a thousand of its square miles had been touched by human boots.

Wandering explorers found Frank Terry's mummy late that spring, in a deep part of Syrtis Major, with old ocean salt around it. When they brought it to Port Laribee it was not completely dried out. So Terry must have survived through the winter.

The boy must surely be dead, too. But stories drifted back to the port—of holes found in the felted soil, and of a small, heavily-burdened figure that scampered away at the sight of a man.

The general opinion was that this was pure romancing, to intrigue the tourists who came out that year in their bright, excited crowds, charmed by the Red Planet yet sheltered from it, equipped from shops recommended by the most debonair of space wanderers—if such existed. Many were eager to stay, girls among them, bright-faced, sure, with the thrill in their eyes and voices. Ah, yes—but how long would they have lasted in this too rich and rough strangeness?

Joe Dayton shrugged, sad that his opinion had to be so mean. There were soberer arrivals, too. Relatives of Port Laribee staff-members, mostly. Willowby's wife. Doc Lorrington's small daughter, Tillie, sent out for a visit. Among the tourists there were a few additional kids.

There was also the lost Frank Terry's elder brother, Dolph Terry, big, but prim beneath an easy smile. Also there was a Terry girl, Doran by name. She did not seem much like either of her brothers—the mystical wanderer, Frank Terry, nor the slightly stuffed-shirted Dolph. She was much younger than either of them, sun-browned, a bit puzzled at being on another world, not terribly pretty, but quick with good-humored shrugs and friendly chuckles whenever she could put aside her worry about her nephew.

Dayton had some belief in the tales from the wilderness. For he'd known young Will Terry. Besides, beneath the ineptness of kids, he recognized an adaptability beyond that of adults. So his work was cut out for him.

"After all, William was Frank's son," Dolph told

Dayton. "Frank was—what he was. But my sister and I are here to see that the boy is located. Perhaps he can still have a normal childhood."

"We'll do what we can," Dayton replied, smiling crookedly to dampen the man's naive and assertive air.

For the last half of the long summer the search went on; many visitors took brief part, ranging well beyond the short tractor lines which encompassed the tourist's usual view of Mars.

Dolph Terry was dogged, but clumsy and irritable. His sister's rugged cheerfulness and interest in her surroundings pleased Dayton.

Still, at the end—due as much as anything to sheer luck—it was Joe Dayton who captured Will Terry single-handed. It was almost autumn again. Joe flushed the scampering figure from a thicket. The boy's limp was to Dayton's advantage. He made a flying tackle, and the savage, grimy thing that was an nine-year-old human, was fighting in his grasp.

His crooned words, finding their way through the thin texture of two air-hoods and the tenuous atmosphere between, did not soften the ferocity of those pale eyes. Such eyes can be like a blank mask anyway—not unintelligent, but expressive of a different thought plane.

"Easy, Will—easy, fella," Dayton said. "You couldn't last much longer out here. Your compressor must be nearly worn out."

Reassurance failed. "Lemme go!" the boy snarled blurredly, his speech rusted by solitude. Helped by his father, he had learned the tricks of survival here. His dimmed past was so different from his present life that perhaps it seemed fearfully alien to him. As he bore the struggling boy to the tractor vehicle, Dayton had the odd idea that a Martian, trapped by a man, might behave like this.

He recalled old yarns of boys raised by wolves or apes. Here was the same simple loss of human ways—not by soul migration, but the plain molding of habit by a bizarre environment.

At the Port Larabee hospital, Will Terry was at first least disturbed when left alone. But his whimpers at

night reminded Dayton of the mewling of a Martian storm.

Dolph Terry cursed the waiting for an Earthliner and the lack of a psychiatrist on Mars. Doran had no luck either at making friends with Will. Meanwhile the tempests began.

But Doran had an idea. Visitors were still awaiting passage home, among them children.

"Kids are kids, Joe," she told Dayton. "They may be able to reach Will. I talked it over with Doc Lorrington."

She was right. Gradually, then more quickly, the trapped-lynx glare faded from Will's eyes as he accepted the scared but fascinated companionship of the other youngsters in the hospital. He still had Digger. At last he let the others pet the fuzzy creature. The strangeness dimmed on both sides. Kid-brashness returned. Perhaps in the whimsy and fantasy of children, that could accept even the humanizing of beast and beetle, Will and his new friends found a common denominator for his life on Mars. He became a hero. Doran and Joe overheard some of his bragging.

"Sure I can work an air-compressor. Dad showed me. He used to say that Mars was home. I'm going back."

One morning Will was gone from the hospital. It came out that a hospital orderly had been diverted from watchfulness for a minute by other children. Two airhoods, Mars costumes, and compressors were gone. Also another boy named Danny Bryant.

The complaint of Lorrington's own tomboy eight-year-old completed the picture: "They didn't want me along!"

That day the savage wind moaned and the dust trains across the sky were tawny. Danny Bryant's folks were near hysteria. In all the foolishness of boys, there seemed nothing to equal this. Dolph Terry seemed to wonder blankly what sort of wily thing his brother had sired and trained. The visitors who had been charmed by Mars were sullen and tense. The remaining kids were scared and solemn.

Doran's eyes were big with guilt and worry. "My idea caused the trouble, Joe," she told Dayton. "I've got

to do something. I've got to follow Will and bring those boys back. I can live out there if Will can."

Dayton eyed her thoughtfully. It did not seem like such a tragedy to him, except of course, for the Bryants. He could understand this love for the wild Martian desert.

"Marry me, Doran, and we'll go together," Joe Dayton said.

So that was how it was. Dolph might think his whole family mad. Vitrac, chief scientist, who performed the ceremony, might think so too.

Joe and Doran ranged far ahead of the other searchers. Sometimes, in the hiss of the tempest, they thought they heard the weeping of a child. So they blundered through dust drifts and murk, following what always proved a false lead.

The first night fell, a shrieking maelstrom of deathly cold, black as a pocket. An inflatable tent would have been a hardship for chill-stiffened fingers to set up in such a wind. They had no such burden. They burrowed beneath a thicket instead, into the layer of dry vegetation. For this there were no better tools than their heavy gloves. They dug deep, kicking the felty stuff behind them to plug the entrance, shutting out even the wail of the storm.

"The strangest honeymoon, ever!" Doran laughed.

Musty air was trapped around them, high in oxygen content. To enrich it further they slashed hollow root capsules with their knives. A little warmth was being generated in those roots. Above was the additional insulation and air-seal of drifting dust.

Joe could breathe here without an air-hood, and hold his wife close in savage protection and regret and apology for the soft, manmade luxuries that should be, especially now, and were not. Instead they were in darkness, under Martian soil and dead leaves. A grub's paradise. Ancient beings of the Red Planet might have lived like this when the need arose, but it was an existence far off the beaten track for humans.

"When we get back I'll make it all up to you, Doran," Joe kept insisting.

There was a fear in him—of conforming for too long

to the demands of this weird environment and of somehow losing a human heritage.

"I'm reading your mind, Joe," Doran laughed. "Don't worry. We both love the smell of coffee and bacon too much. And music, and nice furniture, and walks in the park. We're not like Frank was, or young Will perhaps still is. No, this will make us want such things more—tie us tighter to Earth."

At dawn they blundered on. During their third night underground they were raided while they slept. Some chocolate bars and other food concentrates disappeared. And a pencil of Joe's. Their two-way radio would no longer work. The chuckling, chirping inquisitive creatures of the Martian soil had crept into its case and broken it.

Thus the Daytons, out of contact with Port Larabee, did not hear how Danny Bryant staggered back, dazed, frostbitten, and half smothered, to his parents' arms.

The storm ended after five days. The small sun blazed in the steely sky, which seemed as brittle as frozen air. There was a sharp lifting of mood. Go back to Port Larabee? The Daytons were tempted. But they had not yet found the boys. Besides, they were far afield. And with much of their supplies used up or stolen, the work of mere survival consumed time and energy and slowed travel. So it was almost as well to push on, wasn't it?

It seemed that they were always using pointed pipette and compressor to refill oxygen flasks from the hollow parts of vegetation. At dawn they collected hoarfrost crystals wrung from the arid atmosphere by the nocturnal cold, for drinking water. They ate underground fruit and the starchy pulps of certain roots. Wary of poison, they tasted untried things cautiously.

Mars hogs that tunneled in an eternal blind search for food were fair game in the darkness beneath the thicket leaf carpets. Dayton had a tiny ato-stove that served for their meager cooking.

Weeks passed and a strange life pattern was set as the Daytons moved south, deeper into broadening Syrtis Major. Maybe it was a bit warmer. Some paper-dry

growths were still blue-green. More were brown from the winter dryness. Necessities were harder to find.

Sometimes, among the pastel-tinted thickets and low hills, there were patches of real Martian desert, red and lifeless.

Night followed exhausting day, and how welcome was the warmth of a burrow where one could nurse the frostbites acquired in the frigid dawn.

Several times footprints, large-booted but short-paced, led the Daytons on, only to be lost in rocky ground and lichen.

Twice Joe and Doran crossed the war-fused wrecks of huge cities. Fallen hothouse roofs littered the ruins. The piles of rust must have been irrigation pumps, spaceship ramps, climate-controlling apparatus.

In tower, storehouse, and avenue were the skeletons, with their odd, vertical ribs to house huge lungs.

Some devices still worked. Joe found a rod, probably of corrosion-resistant platinum. He pressed its stud and for an instant, before it became useless, it flashed fire that melted part of a fanciful wall carving.

The struggle to survive harshened further. Once it was bitter water, oozing up from some deep irrigation pipe, that staved off death by thirst.

Several times oxygen was obtained only by lying prone over a teeming colony of the chitinous creatures whose instinct was to roof with a protecting air-dome of gluten anything that promised to be food. These Mars ants—ordinarily to be avoided—admitted air to the domes they built from their deepest buried tunnels and chambers.

Often Joe looked at his wife, knowing that they both had changed. They were tattered, and a little like the bas-relief figures. They were Dave Kort, and Frank and Will Terry over again. Doran's teeth were very white in a face browned by sunshine filtered only by the rare Martian air. She was very thin, but there was an oblique charm in her features. Or had his very conceptions of beauty altered subtly, conforming to a now familiar environment?

Thinking back to Port Larabee and Earth itself was often like recalling substanceless dreams, so different

were such memories. And was the fading of revulsion for even the scurrying builders of the air-domes occasion for deeper fear because it represented the loss of another part of one's natural self?

Joe often worried. Others had been drawn to Mars too, eager to search out the mysteries of its past and people—all of this an intriguing fabric—but most Earthmen had the sense to realize in time that it was a graveyard world, unfit for humans. For to live the life of Mars you had to stop being human. Conditioning grimed into you like the red dust.

Nor was the trap just imaginary. The most frightening part was knowing that Doran was with child. Damn the pulse beats of life that had no regard for circumstances!

Joe could be glad only that she remained human enough to be pettish and optimistic by turns.

"We can't get back, can we, Joe?" she'd say. "But maybe it'll be all right. It's a long time, yet."

Should they try to hole up somewhere? That wasn't much good either. Even in spring there wouldn't be enough resources in one place to sustain life for long. They had to keep moving. So when again they saw those boot tracks, they felt free to follow.

Milder days came. At noon the temperature reached fifty degrees, F. The country brightened in pastel beauty after the vernal storms. There were gorgeous flowerlike growths. The tracks would vanish and appear again, seeming to mark no single trail but a series of excursions from somewhere among the hills to the south.

Once Doran and Joe heard a thin halloo or scream of defiance.

One of their two air-compressors quit beyond repair, making it twice the job to fill their oxygen flasks. This could be fatal now.

Soon after they entered the hill gorges there was a rockfall, too close to be a thing of accident or coincidence. Later there was a swift-dying flicker that turned a spot of dust incandescent.

Later that afternoon, amid blue shadows from towering monoliths, Joe met an attack as sudden and savage

as a bobcat's. The creature sprang down at him from a ledge, clawing, kicking, striking with a knife. Joe had a bad time until his greater strength won.

Doran helped hold her nephew down. Will Terry was battered, hardened, scarred—scarcely recognizable with his teeth bared.

But, oddly, Joe knew just what to say to soothe him.

"Will, you can see that we're like you. Maybe we don't want to be, but we are, now. We can't drag you back again to Port Larabee."

The kid relaxed a little. His pale eyes turned puzzled but wary.

"About the other boy, Will—Danny Bryant?" Doran asked.

Will's lip curled. "He was weak and dumb," he said, fumbling with unused words. "I took him back long ago."

"You did fine, Will," Joe said. "Now what have you found here in the hills? You've been camping in one place for a while. Show us."

Joe had to use harsh command against the sullenness still in the boy. He did so bluntly, driven by grim hope and need.

Thus, before sunset, Doran and he found something they needed.

"Dad wanted such a place," the kid said, half-proudly.

It was less than optimism promised—just a small, deep valley, pretty as a painting, but quietly forbidding, too. Joe had seen others almost like it. Martian growths clogged it, sprouting new blue-green leaves. The ruins were far less damaged than in the cities. There were countless little domes of the ant-creatures, indicating some underground water.

Nimble Will led the way downward and across the valley to a stout structure. It was not very unusual, just another relic in a region away from the fiercest path of war. Here might have been a last refuge, after the death of millions, the breakdown of machinery, and the rapid worsening of Martian climatic conditions. Crystal roofs lay shattered around the ornate central massiveness. But one wing with thicker glaze still stood—sealable.

Doran's eyes lighted as she and Joe and her nephew went into the deserted interior through the double doors of an air lock which some last, fleeting Martian had not closed.

Hardy wilderness plants had intruded into this hot-house but there still were troughs of soil, proving that this had been a garden sealed against cold, a place of fruit and flower.

"We might try to use this, Joe," Doran said, her voice thin in the heavy stillness.

He nodded. But his gratitude was tinged with scared and bitter overtones. He hurried to explore the central edifice, which must have been closed before the kid came, for the preservation of things inside was good. There were odd cylindrical cells, niches dark and dusty, cubicles piled with metal boxes. There was even what seemed a kind of machine shop.

And there was a valve which, from the footprints in the dust, Will had tried to turn. Joe accomplished this now with a levering metal bar. Out in the dry hothouse pool a spout jetted rusty water.

"The underground storage cisterns are intact," Joe was soon explaining. "I prayed there'd be some."

Joe Dayton was grateful, yet not happy.

Grimly he began again the bitter toil of survival, the others helping. Like bizarre harvesters they tore up great bundles of roots and stalks and piled them inside the hothouse. Briefly the blue sunset shadows were long, over that weird, beautiful valley. Then the dusk came, and the faint frost haze of the always frigid nights.

"We'd better hurry before we freeze," Joe growled irritably. "When we get a lot of this stuff inside we'll tramp on it to break the oxygen capsules. By morning there should be breathable atmosphere under this roof. Later, vegetation planted inside will keep it fresh."

Joe Dayton's mood now had a taint of despair. Forced to try to settle in this place, he felt more than ever trapped. More than ever he felt as if the souls of those eon-dead beings depicted on carved walls that Phobos, the nearer moon, now illuminated, had been crowding into his human flesh and brain to push his

own ego out. No, it was not witchcraft—it was simpler. Mars had shaped its ancient inhabitants. Now it was working on Earthly material with the same, subtle, ruthless fingers.

When the task in the hothouse was finished, Joe went with his wife and nephew to burrow again away from the cold, and to eat and to sleep, all in the manner which Mars compelled.

Joe wanted Doran and his child to keep their human ways. His child. That was his worst thought now.

His mind pictured Will—tattered, wild, strange in thought and feeling. He had lived his first years on Earth. So how would it be with a child *born* on Mars? Joe cursed into his furry beard—cursed the distance to Port Larabee which might as well not be there at all, so out of reach was it, so ineffectual, and so soon probably to be left deserted. Though bone weary, Joe did not sleep well that quiet night.

The next day, bathed and smiling, Doran still did not look quite Earthly to him. She was browned by Martian sun, but the real difference that had come into her strong beauty was a thing of multiple detail, like the mark of persons used to the sea contrasted with those born to the plains—but deeper.

Scrubbed fairly clean, Will remained an urchin of Mars. Also scrubbed, and shaved, Joe felt more comfortable. Yet he knew that basically this restored nothing.

A day later he was wandering around outside the hothouse, trying to plan needed agricultural projects, when a faint scrape of pebbles made him wheel warily.

"People! Rescue!" were his first eager thoughts. But then he saw that the three figures, two large and one small, were creatures attuned to Mars in the same way as himself, and as helpless.

Yet when old friends were recognized, in spite of the deep changes, Joe Dayton felt a joyous lift.

"Doc Lorrying!" he shouted. "Kettrich. And Tillie. Hey! Hey, Doran! Will! Come here!"

Dr. Lorrying's tomboy daughter, a bit younger than Will, showed a grinning dirty face through a battered air-hood and said, "Hi."

"We were trying to follow you most of the time, Dayton," Lorrington stammered. "We hoped to find you and Doran, and maybe the Terry boy. But our tractor broke down, and we had to live off the land. While we still had the vehicle there didn't seem much reason why Tillie shouldn't come along. We'd begun to give up hope of finding any of you alive."

Minutes were spent questioning and explaining. They all went into the sealed hothouse. Kettrich, the biologist, had even saved a little coffee.

"For a celebration, if we ever located any of you missing ones," he said to Joe and Doran.

Kettrich sighed and went on, "Chief Vitrac, Lorson, and a dozen others are the only old-timers left at the port. The others have all gone, with Dolph Terry and the tourists. Humans are about done with Mars, though I suppose a few will trickle out here from time to time."

With contemplative relish Doran sipped coffee brewed with crudely filtered water on an ato-stove. She smiled like any woman who has her man, and has found a place and a purpose.

"Not for humans," she mused. "That's one way of putting it. Still, it doesn't necessarily mean us. Let's face facts," she continued. "A natural selection was going on all the time. Thousands of people left, disgusted. A very few stayed grimly, or got trapped. On Earth I never thought much about Mars, but now I've been here so long. We're different, perhaps proudly so. Oh, we still like the things that Earth-people like, maybe more than ever. But the Old Ones here also had their comforts. We have Earth flesh and bone; we'll never be like them that way, and I'm glad. You can either say that Terrans are supremely adaptable, or that we are no longer quite human, and that there are Martians again. Because one *has* to be that to really live here, doesn't he? Mars won't be left wasted and sad. We're some of its first new people. Among the explorers there must be others. More and more will come. Gradually, through the centuries, we'll build Mars back toward what it was."

Dayton stared at his wife, then down at the ancient flagging, then at the others. Tillie tittered. She was as brown as Will Terry and almost as attached to the Red

Planet. Around her mended glove a fuzzy creature twined, chirping. Will and Tillie were children of Mars.

Doran's assessment of a situation in plain talk took away its dread for Joe, giving his Mars-love a chance. He began to feel at home. "Is my wife talking sense?" he asked puzzledly.

Kettrich and Lorrying had both been fascinated by this world, too—willing to devote years to it.

"Well, we can still radio Port Larabee," Lorrying chuckled. "But in any case we're stuck here for a long time. Meanwhile, there's food growing wild around us. There's water. There are tools, machines, and supplies to puzzle out. And a valley to reclaim as a start. Beyond that, the job gets bigger and more interesting."

Before sunset that day, Joe and Doran Dayton walked alone in the valley. The Earth-star was already silvery in the dark blue west. The hills were dun-hued and peaceful. The domes of the Mars-ants gleamed. Fantastic spring flowers wavered in the wind. Small dust whirls stirred among the ruins.

Joe Dayton looked forward, gladly now, to the birth of his child on the Red Planet.

"I hope that the Neo-Martians won't become so separate that they'll forget to be friends with Terrans," Doran mused.

Joe nodded as his arm crept around her waist. To him legendary history and present fact had merged. The wind's rustle was no longer the whisper of the dead past.

Afterword

FROM THIS DISTANCE of dwindling 1977, let me first look back to the simple, rural world of the 1920s in which I grew up. There were no TV programs for entertainment or instruction. None. Such a condition may even seem inconceivable to some people now. What could folks ever do to keep spare evenings from being blank? Television still belonged definitely to science fiction. Its realization—if it ever took place at all!—still lay an unknown distance of long decades in the uncertain future. Radio, too, was somewhat limited; I never succeeded in building a really workable receiver myself.

It was a world of chugging Model-T Fords and other primitive motor vehicles. More horses than tractors were still used for farm work. There was electricity, of course, but many country houses still used kerosene lamps for illumination; ours did. Had there been any television anywhere to look at, I think I would have run a hundred miles in sheer, unbreathing eagerness, just to behold the marvel of it.

Space travel? Come on! A few people were aware, though, that there was, for instance, an eccentric rocket experimenter named Robert H. Goddard. Some believed in such activities in varying degrees. I did—fully. To me, the only difficulty was that there seemed no way to arouse enough public interest so that the obviously terrific cost necessary to bring such tiny beginnings to their most logical outcome might be met. I had no means of foreseeing that a German war effort, directed primarily for a different and destructive purpose, and later a not-entirely-sensible competition between the two superpowers, would eventually meet the bill, and thus accomplish a solid first step for outward human journeying. But in those early days, the whole subject of space travel, to most persons, was about as reasonable and productive as making mud pies.

That world of then was calmer. Yet, as in the present one, there were serious menaces, and they were ancient, real, and grim. Schoolmates of mine had died smother-

ing deaths from diphtheria. Tuberculosis was still a major killer; it was in my own family, and in 1931 I lost my mother to it.

Shall I call this original environment and time of mine primitive, narrow, and barren? Often, wanting to get out of it, I felt furiously that it was. Actually, it was not nearly as bad as it could seem. I had to concede this even then. Beyond sufficient work to do, there was no dull, unfilled time. There was the quiet though never quite lonely pleasure of reading. Books from a limited, small-town library. But among them were encyclopedias which covered just about every known subject with a fair thoroughness. Astronomy, chemistry, physics, geology, history . . . Also there were special books which I acquired on my own, notably those relating to Egyptology, which has since continued to be a major interest of mine, along with world travel. And there were magazines, among them *Weird Tales* and *Amazing Stories*, for special inspiration and dreaming. While around me was an abundance of countryside, with all of its shifting moods of season, growth, dying, and renewal, for interest and study. The air smelled of such things, beyond any chance of missing them. Wind, rain, new-cut hay, manure, blizzard snow, sunshine, grain, earth, woods. In the spring, the nearby marshes swarmed with migrating redwinged blackbirds. Yes, I can wax nostalgic. Many nights, summer and winter, blazed with stars through a clear, country atmosphere. There was the whole universe, splendid and just beginning to be better understood by science. Very early I located the red spark of Mars, which, to this day, holds a particular importance to me. Just enough of its nature was known then, and theorized and romanticized about, to make me itch with longing to reach beyond all that distance to what was hidden.

So I think that my interest in reading and writing science fiction sprang from the need to fill all that was yet unknown and fascinating with some interim substitute for reality. I rated facts higher than any imagining. Yet when facts were missing, there had to be something plausible to take their place and relieve a stress. There was ample room for such filling-in. On other planets as

well as Mars. And in other ages. What would life be like on Earth, in a hundred—or a million—years? So, in due course, following and among other persons, I was compelled to try to do science fiction.

That early stuff of the 1930s, though perhaps crude, conveyed a certain consistent feeling. In those days there were so many things that, though speculated about as future developments, were still generally considered impossible. So, to read of and imagine doing what can't be done, seeing what has never been seen, touching the perhaps eternally too distant and strange, had an inevitable enchantment. Therein, I think, we reach the central keynote of the science fiction of then. It has been pointed out often by others.

The word for it is *Wonder*. This was frequently backed up by an optimism about outcomes.

I felt the wonder then. I still do. I continue to get a charge out of knowing that humans have actually walked on the Moon, that electronic devices are on Mars, relaying environmental data and close-up pictures; that little radio transmitters of a few watts' power—not much more than the energy equivalent of a candle flame—transmit complex signals successfully across hundreds of millions of miles; that a small robot device, having accomplished its main purpose of a probing flyby past Jupiter, is now drifting on through distance and the ages to the stars. I was conditioned to that wonder in a time when such things were almost unthinkable. The effect stuck. I think I am lucky in this. It is like retaining some elusive element of poetry.

But how is it for other people who came on the scene much later than I did? It is not entirely easy to grasp the viewpoint of those with so different a starting point. Some, I suppose, accept the remarkable developments that they were born to with a so-what shrug. Which is unfortunate. But there are surely many who find a deeper appreciation, in their own way.

Wonder has of course declined with familiarity. Moreover, innocent optimism seems to have all but vanished, as perhaps it should. Yet once the world spoke to itself with a quieter voice, its news having been largely by way of printed words, in newspapers. Now

there is a stridency; conflicting attitudes are shrilled out and dramatized audiovisually in a steady stream. No report or opinion is allowed to cool for a few hours; there must be immediate and perhaps overvivid communication, followed often enough by howls and protest gatherings of one kind or another. Belief in the future is shaken. There is solid reason for this, surely; we have lived for a long time with the nuclear threat. Other related points of complaint also have very real substance and importance: ecology protection, pollution, carcinogenic food additives, disposal or reprocessing of nuclear wastes, population control, dwindling of natural resources . . . All of these conditions and problems should have reasonable solutions, if approached calmly. Too often there is a kind of unreasoned hysteria—without a full and balanced assessment of the facts involved. Certainly, for instance, with so many suns blazing for billions of years with fusion power, there is no shortage of energy in the universe. Wonder has, to a large extent, been eclipsed and replaced by fear, which often seems to become phobia. Our present world seems truly to suffer from Future Shock, having perhaps arrived too fast to where it now is for many of its inhabitants to adjust easily. But one thing is certain; there never was anything like a fully safe world; it is unlikely that there ever will be. Nor are we, I hope, made of gutless and fragile fluff, unable to meet our problems. Perhaps science fiction will help show us the way. I think we do live in a potentially wonderful, exciting, forward-looking, constructive era; it would be better if there were less complaint and demand directed only at others, and more active, calm, and thoughtful participation in the substantive things to be done.

Maybe I shouldn't have gotten into this harangue. But I will let it stand.

Now let me go back to that age of innocence and unknowingness, and try to reconstruct how it was for me as an active writer, proceeding story by story as they appear in this collection. Most of these stories lie so far back in my memory, that I can read them now almost as if they were written by somebody else—which, if one

ponders the changes and modifications of the identity factors of any person over many years of time, may be nearly true.

"Old Faithful" was written just outside of Beaver Dam, Wisconsin, early in 1932, during the deepest part of the Great Depression. I remember the time and circumstances quite well in this instance. For the winter I had gotten a job in the hemp mill, across the fields from where I lived. It was one of the rottenest jobs I've ever had. The mill was a corrugated-iron structure, freezing cold near the outer walls, where steel rollers spun to crush the hemp stalks and extract the fiber, and torrid-hot near the dry kiln, where the sheaves of hemp were brought from the stacks outside, to melt out the frost and dry them for processing. One trotted back and forth from kiln to rollers to feed in the stalks. The air was full of black dust. Like everyone, I was coughing and spitting. I will make no point of socioeconomic unfairness, of the fact that the pay was 17½ cents an hour, first since the purchasing power of the dollar in terms of groceries was then far superior to that of the present, and secondly because the little company, operating at best under the marginal chance of a small profit in those times, quite likely couldn't have paid much more. And I was lucky to have the employment.

The pertinent fact, however, was that it was a miserable, uncomfortable, struggling existence, from which, for me, escape into dreams was compulsive. Mars was then my favorite place for this, and certain real factors heightened this inclination and the effect. At a ten-hour workday's end, I would slog home across the darkened fields. Was the grimy snow, extending away in shallow drifts in my flashlight beam, a polar part of that other world? It is interesting how longing to know more about something can translate ambient realities into dream elements that fit. . . . Half in fun, I might now, at this much later date, suggest another factor for my illusion. Yes, hemp—the large variety grown for its fiber—still is cannabis. Same leaf structure, same pungence, and no doubt it contains considerable of the same chemical agents as the smaller marijuana. At the mill, the extracted straw was used to fire the engine boiler. From

the smokestack issued an aroma like that of burning pot. So was I perhaps, in part, inadvertently hallucinating? . . .

Anyway, I needed my faithful Martian. I wanted him and his planet to be as real and possible as I could make them, according to what information and supposition were then current about Mars. Also I felt that he had to be a friend, not an enemy. And just as I longed to know about his world so he would long to know about Earth.

So, evenings at home, on the dining-room table—yes, by the light of a kerosene lamp—does this seem today a curious incongruity?—"Old Faithful" was painfully written out and typed.

Being by then a little doubtful of the shaky Gernsback publications, I sent the manuscript to *Amazing Stories*, which was also struggling to survive. I think it was well over a year before T. O'Connor Sloane, the editor, sent the story back with no comment that I remember. So I thought I had a dud, too much my own thing, and too much out of formula to interest any editor. It was only after I had sold several other yarns to the revived *Astounding Stories*, that I reread "Old Faithful," and, for the heck of it, sent it to F. Orlin Tremaine, who was then the editor. It was over a month before I heard—via correspondence with somebody outside of Street and Smith Publications—that Desmond Hall, then associate editor of *Astounding*, had said that the story was much liked. My check arrived shortly thereafter.

So such were the uncertainties about what has since become my best-remembered yarn.

"Derelict," done in 1935, the story of a troubled man, alone in space, and in grief, who finds a great, lonely, alien ship, deserted for unnumbered ages, I think springs in part from my losing a small Boston terrier, which was hit by a car and killed. The mood of stillness, lonesomeness, pain and readjustment are there. I was largely a loner in those days in Beaver Dam, and particularly so as regards science fiction. I was not then personally acquainted with anybody else who wrote it, or even read it more than casually. This separation from

any other colleagues was to continue for quite a number of years.

"Davey Jones' Ambassador" was done under pleasanter circumstances than "Derelict." I don't remember anything particularly mentionable from the time of writing it, except that I enjoyed doing it. Also I had wanted to try something other than a space story. When it was finished I went to Mexico for the summer.

As for "Godson of Almarlu"—any writer, competing to be among those whose stories are bought, of course looks for novelty that will grab the interest of the reader. This can include the particular nature of a menace to be used as a basis for danger and suspense. It would have been trite just to have some ordinary, intruding sphere come crashing into the Earth. So I wanted something different. Something invisible, perhaps, yet powerful enough, gravitywise, to pull even the orbits of great planets out of shape . . . How? Well, in 1936, nobody had mentioned neutron stars that I knew of. However, there was already a theoretical substance, Neutronium, which, in pure form was supposed to weigh sixty millions tons to the cubic inch. A small bulk of that stuff, difficult to see at any distance, would still have tremendous gravity. So there it was. Did I inadvertently discover the first neutron star, before anybody else? And shall I feel proud? . . . Other than this, I had become rather tired of big, brawny, competent, utterly virtuous hero-types. So let the hero be, not that, but merely somebody to get a necessary job of humanity-saving done, unpleasant though he might be in some of his personal traits. Let the virtue lie with the dead race that had prearranged this rescue operation ages in advance. There was a haunting quality in this notion that intrigued me very much.

About "A Menace in Miniature": I suppose that everybody, at one time or another, fantasizes about becoming very small, enjoying this point of observation and experience, and perhaps realizing certain advantages, while also becoming aware of the changes in effect that natural laws show in regard to very small objects. For instance, a human of dust-grain size could float in the air. I did a much more complete visualiza-

tion of such things as part of a novel, *People Minus X*, which was finally published in 1957 by Simon and Schuster.

Then, "Seeds of the Dusk": I had been fooling around with the idea of a plausible vegetable-culture that, in its rather passive way, could win, perhaps after other cultures had defaulted. I had also the thought that there must be cultures in the universe that were quite different and incomparable with our own in most outward aspects; concepts such as cities, machines, or moving about in any ordinary way would not apply to these beings. Their cultural exchanges with each other would be invisible and inaudible outwardly, being along direct physical channels that would convey thoughts and images in their totality, and without the clumsy incompleteness of gesture signals or vocal speech. They would not work with hands, but by manipulating life, inventing what devices they needed, and growing them under control as parts of themselves. To make up for their own deficiencies in activity and movement otherwise, they would have an introspective sense, quite unknown to humans, by which they would observe and understand every process going on within themselves—physical, chemical, and biological; thus they would have a tool for experimentation and study quite superior to any means of our own. In this story, idea and mood—Earth in its final age—developed together. I liked the blend. Evidently others have liked it too, since "Seeds of the Dusk" is my most anthologized yarn. Incidentally, it was written at 1003 Bourbon Street, New Orleans, very early in 1938. I mention this whimsically, because no doubt this old house will continue its long existence, since I am fairly sure that its pre-Civil War origin subjects it to landmarks preservation, particularly since it is in the Vieux Carré, the old French Quarter. (I hope I am not wrong about this outcome, though I have not seen the place since!) I occupied the huge room on the lower floor, front. There were seven mirrors in it, an ornate fireplace, and a pair of double doors, which, if both fully opened—which they may never have been since 1860!—might have allowed the passage of a full load of hay without even scraping the sides. Often at

night I dreamed of passing tornadoes, because the streetcar whined and growled its way past in the narrow street just outside my windows. May some shadow of my one-time presence and visionings continue to haunt that ancient Creole mansion, along with its other, more romantic memories of antebellum balls, elegant gentlemen, and beautiful ladies in hoopskirts, incongruous though my part may be!

I have only the vaguest recollection of writing "Hotel Cosmos"—perhaps I was still in Beaver Dam. Again, as always, there was an attempt at novelty of idea. And if you imagine contact and commerce among many diverse, interstellar peoples, wouldn't such a lodging place be a logical requirement?

"Magician of Dream Valley" was also written in New Orleans, about the same time as "Seeds of the Dusk." If wildlife preservation has become much more emphasized since 1938, most of its elements and arguments already existed then. So I was not all that forward looking. Remembering perhaps the brutal demise of the passenger pigeon, I merely added my portion of protest and regret. Any radioactive process was already known to be dangerous, of course, though the release of atomic energy on any serious scale had not yet been accomplished.

"The Shadow of the Veil" was done in Paris, after my wanderings had begun. Searching, as always for new ideas, I had been fooling with novel arrangements in the format of other solar systems. So why not a mass of cosmic dust in a planetary orbit, one which, periodically, at long intervals, would shadow the surface of another planet, plunging it into semidarkness and deep cold? The inhabitants would have to adapt to this cycle, giving them an advantage over intruding humans. Being generally sympathetic to the different and oppressed—in such cases where this is a valid condition—the side I took was automatic.

"The Lotus-Engine" was finally assembled in Paris, too, from scribbled notes and fragments I'd jotted down and stuffed in my rucksack, during a summer of youth-hosteling around in France, Switzerland, Italy, and Hitler's Germany. The connection with this experience may

be hard to find. Actually, I wearied of trying to join up a scattering of ideas, and the story became much simpler than I had originally intended. I think the seed notion of the yarn was my rather symbolic mind image of this strange, primitive solar engine, put into operation anachronistically, after ages. There it worked again, for its ominous, mysterious purpose. So the balance of the story was a figuring out of the intent and its soothing effects. Perhaps even a terrible and pointless struggle of a people can be made to seem beautiful, if a bright dream is used as an inducement—though the dream may be false.

"Prodigal's Aura," written in 1951, belongs to my spotty return to science fiction, after a long hiatus which started with the American part of World War II. I spent most of those war years in the Pacific, first digging storage tunnels in the mountains as a civilian employee of the U.S. Corps of Engineers, and subsequently as a marine blacksmith at Pearl Harbor Navy Yard, since my carcass had been adjudged too damaged for military service. Though I had, then, a strong preference for physical rather than desk work. "Prodigal's Aura" came, I guess, from some very humanistic memories of distant Christmases, plus, perhaps, a remote recollection of an uncle who had gone around the world with the Fleet, after the Spanish-American War. The brief visits of this adventurer could, during my childhood, throw the household into a tizzy. By the time I did this story, my writing intentions had become much more human and intimate. I liked the change.

"The Restless Tide" is, in many ways, my favorite short story. To me it presents a basic, fundamental quality of mankind, cyclic in nature. There is first an enthusiasm for something, which endures for some time after its objectives have been attained. But then familiarity brings boredom and restlessness, even hatred of the thing or view once favored. Till there must be change. It scarcely matters if the reasons for the original favoring remain valid; arguments will be found to rationalize them away convincingly. It may be that primitive biology recognizes periodic change as a progressive force. Though perhaps we are truly caught between rot and

fire. In this story, civilization has recognized the enduring primitiveness of the human soul, in spite of every smoothing, gentling influence. So a means has been contrived for achieving a periodic balancing of forces and impulses in a workable and humbly sensible manner.

"Return of a Legend," done in 1952, involves yet another of my versions of Mars. A little yarn of somewhat misfitting persons seeking a new place in a harsh but intriguing scene, it is one of my last stories before I closed down shop on science fiction. Like the man in "The Restless Tide," I had been too long at something, and needed a radical change. Steadier employment, with a regular paycheck, had become a glamorous concept to me. I wanted to be a more ordinary citizen. So I became involved in technical writing.

Except for one faltering—in 1958 when I spent three months in the island of Ibiza, off Spain, and wrote a novel, *The Planet Strappers*, which Pyramid published in 1961—I stayed away from science fiction for years.

Then in 1973, while my late wife, Frieda, was ill with cancer, an impulse came to me again. So in spare time I wrote *Eden Cycle*, a novel. I think it is the best I have ever done, though others may disagree.

Now retired from formal employment—at the last, I was eleven years with a manufacturer of sonar equipment for submarine detection and tracking—I find myself in a new phase. I look back a little. All in all it has been a pretty good life. Lots of contrast and changes. Not very well structured or planned on a personal level. But perhaps better, in outcomes, even, than a restless individualist deserves. Upsy-downsy. With no way of having foreseen the present, or for that matter, foreseeing tomorrow or next year. I still like to travel—I've just now returned from a 7000-kilometer overland reacquaintance with South America. So far I've not gotten to Antarctica. Who knows?—maybe I'll make it, yet!

And I find myself refreshed for my First Interest. I'm trying to write science fiction again.

Wish me luck?

Raymond Z. Gallun
August 11, 1977

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