

OCTOBER 1936

20¢

# ASTOUNDING

## STORIES

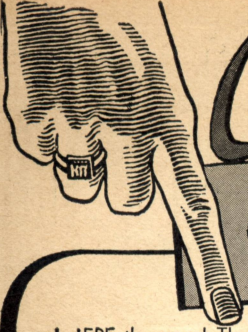
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of  
**ALMARLU**  
By  
Raymond Z. Gallun

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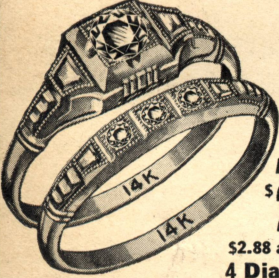


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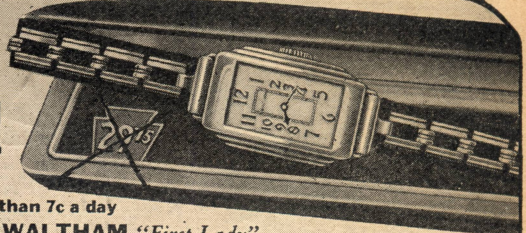
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**LF-4 . . . The WALTHAM "First Lady"** — An extraordinary value! Lovely baguette type, rectangular, white chromium finished case. Factory guaranteed, dependable WALTHAM movement. Link bracelet to match. Designed to sell at \$29.75. Now only \$19.75. Only \$1.88 a month — less than 7c a day.

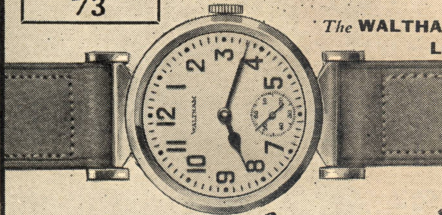


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who could talk  
to the  
Superintendent

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AST-1

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VOLUME XVIII  
Number 2

# ASTOUNDING STORIES

OCTOBER  
1936

A STREET & SMITH PUBLICATION

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# Read what happened



**YES!**

I'll take your training. That's what S. J. Ebert said. He is making good money and has found success in Radio.

to these  
two men  
when I said:



**NO!**

I'm not interested. That's what this fellow said. Today he would be ashamed if I gave you his real name.

## I will Train You at Home in Spare Time for a GOOD JOB IN RADIO

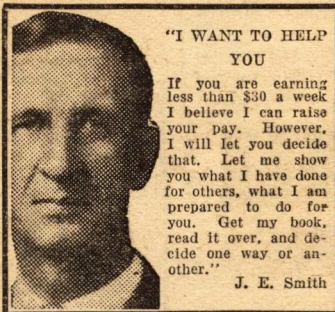
These two fellows had the same chance. Each clipped and sent me a coupon, like the one in this ad. They got my book on Radio's opportunities.

S. J. Ebert, 104-B Quadrangle, University of Iowa, Iowa City, Iowa, saw that Radio offered him a real chance. He enrolled. The other fellow, whom we will call John Doe, wrote that he wasn't interested. He was just one of those fellows who wants a better job, better pay, but never does anything about it. One of the many who spend their lives in a low-pay, no future job, because they haven't the ambition, the determination, the action it takes to succeed.

But read what S. J. Ebert wrote me and remember that John Doe had the same chance: "Upon graduation I accepted a job as serviceman, and within three weeks was made Service Manager. This job paid me \$40 to \$50 a week compared with \$18 I earned in a shoe factory before. Eight months later I went with station KWCR as operator. From there I went to KTNT. Now I am Radio Engineer with WYUL. I certainly recommend the N. B. I. to all interested in the greatest field of all, Radio."

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YOU**

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J. E. Smith

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While Learning**

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**J. E. SMITH, President  
National Radio Institute, Dept. 6JD  
Washington, D. C.**



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29x4.75-20	2.35	.85
29x5.00-19	2.85	1.05
30x5.00-20	2.85	1.05
5.25-17	2.90	1.10
29x5.25-18	2.90	1.10
29x5.25-19	2.95	1.15
30x5.25-20	2.95	1.15
31x5.25-21	3.25	1.25
5.50-17	3.35	1.35
29x5.50-18	3.35	1.35
29x5.50-19	3.35	1.35
6.00-17	3.40	1.40
30x6.00-18	3.40	1.40
31x6.00-19	3.40	1.40
32x6.00-20	3.45	1.45
33x6.00-21	3.65	1.65
32x6.50-20	3.75	1.85
6.00-16	3.75	1.85

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30x3 1/2	\$2.35	\$1.00	\$3.45
31x4	2.95	.85	3.45
32x4	2.95	.85	3.05
33x4	3.25	.85	3.75
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32x6 1/2	4.25	2.00	8.95
34x6	4.25	2.00	8.95
32x6 3/4	5.25	2.75	11.45
36x6	5.95	3.05	13.25

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Size Tires Tubes	Price	Size Tires Tubes	Price
6.50-20	\$3.75	\$1.65	\$6.95
7.00-20	4.45	1.95	8.95
7.00-20	5.95	2.65	10.95
			13.95

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## Causes Many Ills

If poorly functioning Kidneys cause you to suffer from Acidity, Getting Up Nights, Nervousness, Leg Pains, Dizziness, Frequent Headaches, Rheumatic Pains, Swollen Joints, Circles Under Eyes, Backache, Loss of Vitality, or Burning, Itching and Smarting, don't waste time worrying and waiting. The natural thing to do is to help your Kidneys with the doctor's special, guaranteed Kidney diuretic prescription, called Cystex, (pronounced Siss-Tex). Cystex works directly on the Kidneys and Bladder, and helps the Kidneys in their function of washing impurities and Acids from the system and in maintaining the purity of the blood. Don't try to overcome Acidity in your blood by taking medicines to offset the Acidity. The only way you can really get rid of the Acidity is by helping your Kidneys to function properly and thus remove the Acid from your system. The Acid is bound to stay there unless the Kidneys function properly.



Dr. T. J. Rastelli

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Because of its world-wide and unusual success, Cystex is offered under a written guarantee to do the work to your complete satisfaction in 8 days or money back on return of empty package. Under this written guarantee you can put Cystex to the test and see exactly what it can do in your particular case. You must feel younger, stronger and better than you have in a long time—you must feel that Cystex has done the work thoroughly and completely, or you merely return the empty package and it costs you nothing. You are the sole judge of your own satisfaction. With Cystex there is no long waiting for results, because it is scientifically prepared to act directly on the Kidneys as a Diuretic. For that reason most people report a remarkable improvement within the first 48 hours, and complete satisfaction within 8 days. Cystex costs only 3c a dose at druggists, and as the guarantee protects you completely, you should not take chances with cheap, inferior, or irritating drugs or delay. Telephone your druggist for guaranteed Cystex, (Pronounced Siss-tex) today.



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*Born to believe himself  
a genius—he built as never  
man had built before—*

# Godson of Almarlu

*A Novel of titanic forces*

by Raymond Z. Gallun

**W**ITH 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 antennæ 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 Manufacturing. 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, com-

pared 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 mo-

tionless 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 every one 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 popu-

lar 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 blue prints 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, countless 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 be-



fore 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 any one 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 any one 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 amuck 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 the 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 power house. 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 near-by 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 power house an hour and nine minutes ago. Phenomenal activity of Scanlon plant still in progress."

Finally Feodor Moharleff came onto 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 soulless, 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 addressing 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 to 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 be some at the center of the Earth, and at 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 shrielled. "No! It can't be as bad as that! The Earth is too solid—too permanent. It couldn't—break up! The whimsies it's got will end some way before that happens!"

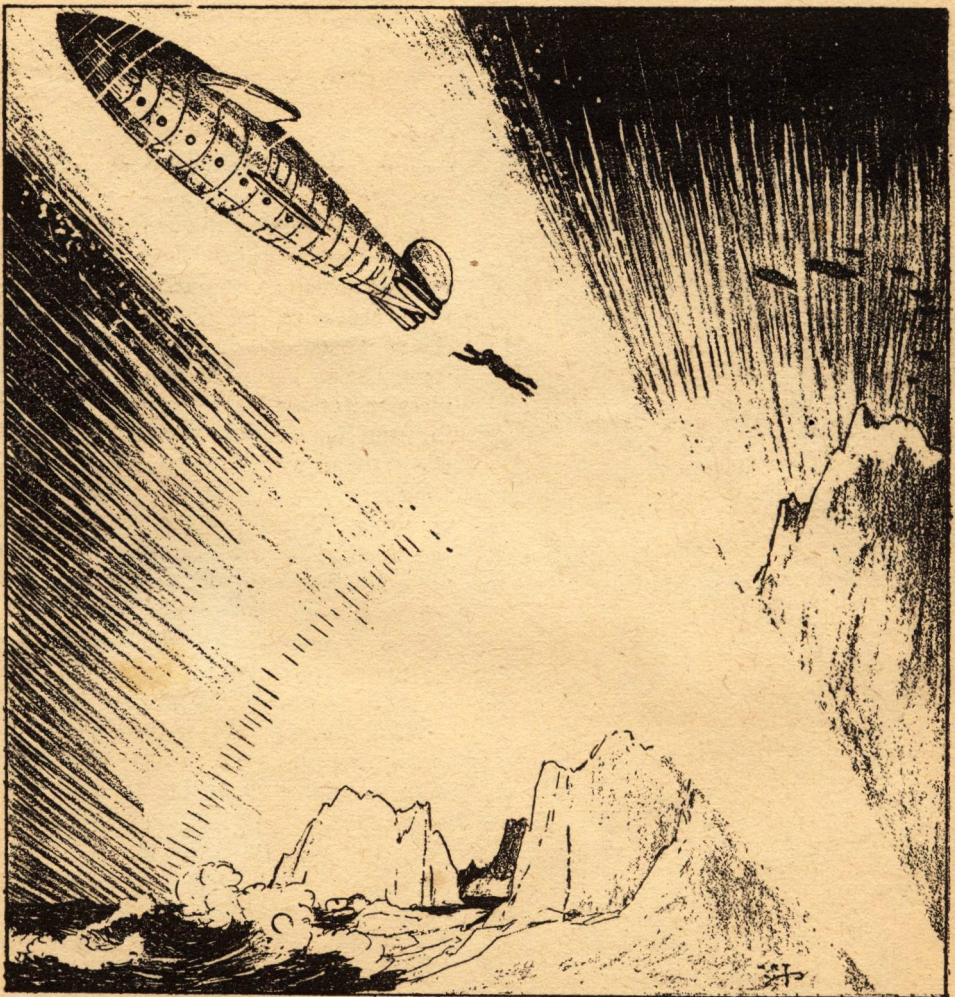
But even as he spoke he knew that he was only trying to reassure himself, and to deny the workings of an immutable destiny. They of Almarlu had made a mathematical prediction of the calamity an incalculable time ago. Then, too, Titan, moon of Saturn, had burst—— A giant of tremendous strength had gone 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 litness, he



*No, he was not free—but shooting upward—ever upward—  
along the slanting path of energy—*

strode to the microphone of the news-disseminator radio.

### III.

DAVID SCANLON, favored nephew of a world's money baron, heard the report of the mishap at the power station, along with every one 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 night club 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 ear lobe, 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 soundproof 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 wave length 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 wave-length 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 in so far 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 worst comes to worst, you could fly up to Uncle Jeff's lodge in Canada. It'll make a good hide-out."

"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 suppose. 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 tremor 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 air-tight; 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 a while 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 dare-devil 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 wave-length 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 wave lengths 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 whirlpoollike 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 mispent, 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 broad-

cast; 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 Valley. 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 every one 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 wave-length code. Good-by, 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 wave length 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 conversa-

tion; 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 irritation. "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 dare-devil. 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 wave-length 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 wave-length codes can be un-snarled. 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 bood 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 wrist watch. 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 roared his eardrums almost like a physical blow. And his eyes were tortured by their reëxposure 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 Jupiter, where, for untold eons there has existed nothing but a region of cosmic débris 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 its 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 any one 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 invader 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 the caustic cynicisms of Dave 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 get-away, 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 giv-

ing 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 desper-

ation 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.



*Adventure was at an end. Already the godson of Almarlu was turning over in his mind plans—plans for—*

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, 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."

"Hm-m, 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 reticent 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 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. It's 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 every one 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 for 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 sulphurous 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 near by, wonder of wonders, the cawing of an excited crow! Some one 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 hide-out, 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

hide-out, 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 live stock 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 per-

haps 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 recently 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 kindliness, 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 millenniums 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 crafts. 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 diffused, 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 some one, 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 Scan-

lon 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 near by, 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 near-by plane.

"That means that she isn't here and won't come," Jeff said quietly. "Every one 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 anything else in life, even though she had often irritated him. But she had never, never been willing to obey 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 trifler.

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.

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**PROBAK JUNIOR**

# Positive Inertia

*There was a strange light in the professor's eyes, a new ring to his voice—He had changed—*

by Arthur Purcell

**P**OSITIVE INERTIA! That's what Professor Wilson called it, and he ought to know; that's his business. He's in charge of the experimental physics department of Logan College, and his laboratory is the Mecca for all the great and near-great of science. But, speaking of positive inertia; it made a Sampson of a little shrimp and almost destroyed a college. This is how it started.

One day, I was putting the squad through some dummy tackling, wishing I had fewer Class-A scholars and more Class-A athletes, when some one tapped me on the shoulder.

"Are you the football coach?" asked a mild voice from somewhere about the level of my shoulder. I looked down to see Professor Wilson, a mild-faced little man of middle age, gazing up at me from shrewd gray eyes.

"Yes. Glad to see you." I shook his hand, then turned to watch the squad at their tackling.

But, he cleared his throat and went on:

"Would you like to win the game against State to-morrow?"

Would I like to win the game against State? Would I like a million dollars or— Why, State had been champion of the conference for three consecutive times and was steam-rolling to a fourth. And Logan College, with the stiffest

academic requirements of any college in the country, hadn't beaten State in fifteen years. Would I like to win against State?

My eyes must have answered his question because he nodded and went on: "Come to my laboratory to-night about eight."

I WAS THERE at the exact minute. He met me at the door and escorted me through the copper-and-glass maze of his laboratory and into his private office, where he seated himself at a desk upon which was an intricate machine which seemed to consist chiefly of a glass tube about four inches in diameter and about a foot long. Upon this was coiled a long string of copper tubing which in turn was wrapped with a fine insulated wire. The two ends of the copper tubing terminated just within opposite ends of the glass tube. On the desk, near this apparatus, was a powerful pair of mechanic's pliers. I seated myself opposite him.

"Mr. Hyde," he began abruptly, "I'm going to suggest something which may at first seem unethical, but upon subsequent analysis, I am sure you will agree with me."

"Well, what is it?"

"I—" he hesitated. "I don't know much about the game of football, but,

I believe that the object of the game is to place the ball on the ground behind the opponents' line more than they do behind yours. Is that right?"

"That usually brings victory," I conceded with a grin.

He nodded, then apparently changed the subject. "Did you ever hear of Ben Masters?"

"The big steel magnate?"

"Yes." He smiled. "Ben and I went to school together, and, in spite of the physical, economic and intellectual difference between us, our families have continued our friendship. Physically, Ben is a big man. His son of about the same age as mine is as big as Ben. But my son, William, has a stature like mine, but more slightly built. The physical difference between the two boys is about seventy pounds."

"But what has this to do with——"

"I'm coming to that."

"Is his son, Billy Masters, the all-American on State's team?"

"Yes, I believe he is. But, this is my reason for coming to you. A few days ago, I wrote Ben Masters, as the only wealthy friend I have, to ask him to donate a hundred thousand dollars for a private laboratory which I wish to set up."

"And he refused?"

"Not exactly. He said he would let me have the money on either one of two conditions: Either that my son stop courting his daughter, Alice, or that Logan College beat State in their game to-morrow." He raised a letter from his desk. "This is his reply here."

"If he put it in writing, he certainly couldn't get out of it gracefully—if we won, could he?"

"Ben wouldn't try to get out of it. He is a man of his word."

"But, if you are friends, why does he object to your son's attentions to his daughter?"

The professor smiled: "He has always been proud of the athletic prowess of his family and—er—he wants grandsons as big as he is. That is where my son and his love for Ben's daughter enter. You see, Ben doesn't think Logan College can win."

"Frankly," I replied, "neither do I."

"I DISAGREE with you," Professor Wilson retorted mildly. "My son is going to win for Logan to-morrow, if you use him. In that way I can show Ben physical prowess and scientific intelligence, too, and, also, assist my son's courtship, of which I approve."

"But how?"

"Did you ever hear of positive inertia?"

I shook my head.

"Neither has any one else. But it is a name for a physical property which I can induce in any bit of matter, organic or inorganic, by means of this apparatus here." He pointed at the glass-and-copper apparatus on his desk. "First, allow me to explain further. You know, of course, that you could stop a feather moving at a speed of ten miles an hour with the greatest ease. But you also know that a mass the size of the earth moving at the rate of ten miles an hour couldn't be stopped until it had met a second mass whose inertia could be expressed in the mass velocity of the first. Have I made myself clear?"

"Go on." I avoided the direct question.

"Then, suppose a feather by means of Inertia-X were given the mass inertia of the earth."

"Why, if——" I gasped at the thought. "That feather, going no matter how slowly, could penetrate—— It could——"

"Exactly," he assisted me. "And, if my son were given only a mass inertia of let us say twenty thousand pounds,

all the football teams in the world couldn't stop his progress to his goal."

"Do you mean you could give my team that inertia—that you could make it impossible for us to——"

"I could, but I wouldn't. It would be too dangerous. I'd only give it to one man."

"That's great——" I began enthusiastically, then checked myself. "Do you



*And then the coin—that tiny thing—fell to the floor, splintered the concrete—and——*

think that would be fair?"

He nodded sardonically. "As all things are fair. I've given the matter careful thought and decided that it is; and this was my conclusion. Ben Masters has an all-American son because Ben Masters is himself a big man with the physical alertness of a cat. He gave those physical functions to his son by fleshy heritage and, no doubt, a great deal of instruction in the fine art of gridiron mayhem during his early years. We can presume that that is true, can't we?" Then, as I nodded, "Then is there any reason in the world why I shouldn't give my son some of the physical properties I neglected to give him at birth?"

"You put it very cleverly, professor."

"Only logically," he replied dryly. "Now, Mr. Hyde, I have no great interest in football, but I am interested in the hundred thousand dollars so vitally needed for my experiments; experiments of which I can say nothing until they are complete, such as this property of Inertia-X. It is really only half discovered and, until I can find some way of controlling it, it would be dangerous to let the world know of its existence. Chaos and mob terror, the most fearful destruction might result from it."

I THOUGHT he was merely evincing the usual scientific caution and was unduly apprehensive. But before twenty-four hours had passed, I learned that he was only speaking conservatively.

"Did you want me to use your son on the team?"

"Yes. He's not as heavy as I am but—er—you will find him quite mentally alert. Besides that, he knows the risk he is taking. I know, too. You see, the induced inertia might stop his heart or—— But, he wants to do it for me and the girl he loves."

At the time, I ignored this latter statement, only envisioning the laughter with which the presence of a little

shrimp on my team of huskies would be greeted. The little professor must have read my thoughts.

"Furthermore, I wish you to place William opposite Tom Haley."

"Tom Haley, State's all-American end!" I groaned.

"Yes. He is the type that Ben favors as a son-in-law."

"But, after all, how do I know that your son will have this—this inertia tomorrow, if I do put him on?"

"You have a right to be doubtful. It is the true scientific attitude." The professor smiled whimsically. "I'll show you. Now, this little machine here," he pointed to the apparatus on his desk, "is a small model of the one I shall use on my son to-morrow. I shall work a simple experiment to clear away your doubts. I prefer to use something of yours so that you shall know there is no—no fakery. Have you a small coin?"

I took a copper from my pocket and was about to give it to him when he shook his head.

"Drop it on the floor please."

I did. The coin started to roll merrily under a cabinet, but I retrieved it. Again I started to give it to him, but he arrested me.

"Now, place it just within this glass tube." He pointed to the apparatus between us. I obeyed. He rose from behind the desk and threw two switches which were on the wall behind him. There came a faint hum which faded into a pulsing vibration which seemed to be attacking my very life. The flesh of my body seemed to become heavy, the muscles, puny sinews incapable of movement. Breathing became more and more difficult. I tried to rise from the chair and couldn't.

"There's nothing to worry about," the professor's voice assured me. "The center of the vortex is within the tube and can't harm you. The lethargy you



feel is only a vibratory harmonic of what is taking place within the tube. It will leave you in an instant."

Suddenly, my lassitude was gone. The professor had opened the switches, the vibration had ceased.

"Now, although the coin weighs no more than it did before, it is possessed of an inertia of approximately five hundred pounds, so, be very careful when you handle it and be sure that you change its direction very slowly or you might receive a severe bruise. Don't forget that every molecule of its mass has all of the inertia of the whole mass. Now, take those pliers and pick it up; and please be careful."

AGAIN, I thought the professor was being unduly cautious. So, I was careless and got the surprise of my life. First, when I started to pull the coin from the tube with the pliers, it didn't move, and I thought it had become welded to the glass. I tugged mightily and it moved reluctantly toward me, firmly clutched in the jaws of the pliers. Its inertia was backing me against the wall, and I tried to swing it in an arc, but, though it was almost weightless, it continued sluggishly in the original direction I had given it.

As it moved toward me the handle of the pliers began pressing against my stomach, backing me into a corner of the little office. I pushed against it with all my might, and succeeded, with my back against the wall, in bringing it to a stop. My brow was bathed in perspiration.

"Now, get your feet out of the way and let it drop."

Obedying, I opened the pincers and followed the coin with my eyes. It fell to the floor, splintered the concrete and disappeared.

"That is Inertia-X." The old man smiled at me proudly. "You can see its possibilities and its danger, can't you?"

"I'll take your word for it that your

son will have some method of controlling it to avoid injury to the opposing players."

"My son will be well padded, so that the opponents will receive no injury as long as he doesn't step on them with the control closed. But he understands that."

"How much of this inertia will you give your son?"

"Oh something under twenty thousand pounds."

"Will he have it for the rest of his life?"

"No, only for about three hours."

"But, while the inertia is in him, how will he be able to lift his legs quickly? They'll have some of that inertia, too."

"Yes, they will. But, this little apparatus will take care of his moving problem." The professor held up a leather case about the size of an envelope and about twice as thick. It was attached to a heavy leather belt, the inner side of which was studded with copper rivets. "When William wishes to use his induced inertia, he has only to press any part of this case, which will be at his waist. We must leave the belt on him until after the induced inertia has left his body."

"But, what if something goes wrong with that thing? Your son might be torn apart by his own inertia."

For an instant, a worried frown creased the professor's brow, then he smiled confidently.

"Oh, nothing will happen to him, because every molecule of his body will possess all the inertia as well. No, no. This apparatus is very simple and nothing will happen."

And I, like a chump, took his word for it. I should have remembered that the professor knew little about football, and that a delicate thing like an inertia compensator could get out of control.

THE NEXT DAY, I was giving the boys a last talk in the dressing rooms at the stadium, when Professor Wilson walked in. He was accompanied by a somewhat anæmic-looking young fellow who was clad in football togs which failed to conceal his slightly built figure.

"This is my son William," the professor stated quietly. "He is ready to win for Logan." And with this statement, he turned and left the room.

For an instant there was amazed silence, then the team, as one man, broke into gales of laughter. Williams' intelligent eyes twinkled with them, but he smiled with a deeper enjoyment than they—sardonically.

"You all'd better go out and warm up now." I tried to frown at them. As the team began to leave, I nodded to "Pug" Anderson, the captain and quarter back, to stay behind.

"Pug," I stated when we were alone, "if I send Wilson into the game put him at end opposite Tom Haley of State, and give him the ball as long as he continues to make yardage."

"But—er——"

"As long as he makes yardage," I insisted.

"As long as he makes yardage." Pug began to grin. "What's the matter coach? Did Professor Wilson——"

"He didn't," I interrupted, "and I'm not joking."

He nodded to himself in wonder as we crossed the room.

THE STADIUM was packed, all eager to see State flatten us to the tune of a mighty score. The bands played and the cheering sections roared their challenge. It was a big day because, though the game between Logan and State was rarely much of a contest, it was packed with the tradition of many years' play. And then, too, in the heart of the Logan rooters was the hope that

some day their David would conquer the Goliath; and, about once every ten or fifteen years, they were not disappointed.

Then the game began, and I saw a miracle take place before my eyes. Logan College just stepped in and tore the great State line to pieces. I began to grin in triumph. I knew what had happened. Pug Anderson had told them about Willie Wilson.

Near the close of the second half Abe Lynnman snagged a pass from Pug Anderson and zigzagged his way to a touchdown, which brought the stands to their feet in roaring approval. The half ended, and I herded the boys to the showers.

"Great work!" It was Jimmy Ralson, a reporter for the New York *Examiner*, walking beside me. "I heard you threatened to put the biggest sissy in the school on the team and made them so mad that they did this. That's using the old bean." He gave me a wise wink and disappeared.

Then the second half began, and State's machinelike attack and immense reserve power began to tell upon my boys. They began rolling up yardage against us and made a touchdown just as the third quarter ended. Before three minutes had passed in the fourth quarter, they made another.

I felt a touch on my arm, and looked around to see Willie Wilson who had slid up alongside me. I had entirely forgotten him in the excitement of the game.

"I know how you feel about using me." He smiled at me almost shyly. "If it wasn't for the laboratory father needs, I wouldn't do it; but, don't you think it's time to send me in?"

I was hesitating, when the decision was made for me. The referee's whistle blew, and then I saw Bailey, our center, being carried off the field. I nodded to young Wilson and, as he passed

Bailey coming off the field, heard the announcing system informing the multitude that Willie Wilson would replace Bailey at center.

"Coach"—Bailey painfully seated himself on the bench looking at me in surprise—"Canters is my substitute."

I pretended not to hear him and watched the game with growing apprehension, and then with chuckles, as the humor of it made me forget the unethical advantage I had taken of an opponent.

STATE saw little Willie, one hand hanging close to his waist, the other awkwardly stretched out, standing up in the center of our line. Their quarter back couldn't resist the temptation to make their next touchdown over that apparently inviting weakness. They came out of their huddle; their left half grabbed the ball on a double reverse, fainted toward right tackle and then, behind a thundering three-man interference tried—all tried—to brush Willie aside for their touchdown. But instead, the interference came to a sudden and crushing stop at Willie's breast; the back caromed off his interference and fell, half stunned behind his line of scrimmage for a yard lost.

I was dimly aware of a roaring from the stands as State picked itself up slowly and went into a huddle. They came out of it and tried the same play. Again they bounced off Willie's twenty thousand pounds of inertia; but that time, their half back fumbled the ball and I saw Willie, hand free of his belt, spring and fall upon the oval on our two-yard line.

Then my boys went into a huddle. They came out of it just as the referee began walking toward them, and I knew Pug was having an argument with his teammates about Willie. As the team approached the line, I saw that Willie was playing end, opposite Haley of

State. They were in the logical punt formation; but, when the ball was snapped, there was a simple reverse behind the line of scrimmage, and then Willie appeared running with the ball in the safety zone. He was not very fast and two State men leaped at him.

Before I could give utterance to a groan of despair, I saw Willie press a hand to his side and saw the leaping figures carom off him, as he called upon that twenty thousand pounds of inertia for an instant; but, during that instant I saw Willie's body grow rigid in a leap, until his hand moved away from his belt, and realized that he had encountered an unexpected obstacle in overcoming the inertia of the pressing arm. He stumbled, caught his balance and then began to run again.

But, unsuspected by Willie, Haley of State came up behind him and brought him to the ground, after a gain of about ten yards. But this gain was enough to send the stands into an uproar, and Willie's name shouting from many lips.

AS OUR TEAM came out of its huddle, I saw Willie pulling at his belt line. Then I saw him making test swings with his hand, brushing his waist as it passed, and realized that he was meeting the first problem which had presented itself. I realized that he planned to swing his left hand in such a way that it would give a momentary pressure on the apparatus at his belt during instants of tackling, and was trusting to the artificially induced inertia to then carry the hand away from his waist with the same motion. It was clever and it worked beautifully.

On the next play, he was again given the ball. He was not a fast runner and every one of the State team had the opportunity of tackling him; but, as each tackler sprang, I saw his left hand quickly brush his side. As the tackler bounced off him, I saw Willie grow

rigid for the fraction of an instant during which his induced inertia lasted. And I realized from the agonized expression on the boy's face that he passed near me that the physical strain upon his body must have been tremendous.

But Willie ambled through their team, down the entire length of the field and over the goal for a touchdown, with the State team sitting upon its haunches from various positions about the field, staring at him in wonder—while the Logan cheering section went made with joy.

Pug Anderson failed to convert, and we were one point behind when State elected to receive. There was less than three minutes to go.

Pug kicked for coffin corner, a high, arching kick, giving the team plenty of time to get down under it. Their quarter back caught the ball, fumbled it, caught it again and started to run with it. But, Pug, running madly down the field, cut through the forming interference like a one-man tank and nailed him on their twelve-yard line. Then State called for time out.

"What's that little shrimp on your team?"

I looked up to see a powerfully built, ruddy-faced man of middle age scowling down at me. I had seen his picture in the papers so often that I recognized him immediately. It was Ben Masters.

"That little shrimp is Willie Wilson, son of Professor Wilson," I informed him.

"You mean that's William?" I became aware of a very lovely girl who was staring at me in amazement and worry. I nodded.

"But he might get hurt," she exclaimed. "You shouldn't have sent him in. He isn't——"

"He's the best player on the field. Where would Logan be without him?"

"Why, yes." She smiled and turned to her father, her eyes glowing with

pride. "Did you hear that, dad? Where would Logan be without him?"

"There's something phony——"

But Masters broke off as the game began.

STATE, unable to believe that Willie's actions had been more than luck, and probably urged on by Tom Masters and Tom Haley, tried to brush around end, where Willie stood with one arm awkwardly outstretched, the other ready to swing by his waistline. I saw the hand touch his waist as Haley plunked into him head first and then came to an abrupt stop, as if he had collided with a brick wall. Tom Masters, not expecting the abrupt stop at his friend, crashed into him and fumbled the ball. Willie leaped, scooped it up; a tackler plunged at him, almost missed, then clutched frantically at his belt, half tearing the pants off him.

THEN, the thing that I had forgotten to fear, happened. The ball flew from Willie's hand and over the goal line. Pug Anderson fell on it. But the triumphant roar from the Logan stands became suddenly hushed and awe-stricken as Willie, deprived of his compensating apparatus and therefore unable to control his artificial inertia, became statuesquely rigid in running position, fell slowly to the ground, then slid along, gouging a deeper trench as he fell.

The goal post collapsed before him as if it had been matchwood and seemed to have little effect upon his momentum. Just behind the goal zone, an automobile with a motion-picture camera in the back seat, lay in his path. The driver, seeing what had happened to the goal post, tried, frantically, to get his motor started and out of the way; but Willie, like a slow-moving projectile, crashed into the side of the car, bent its steel strength into a grotesque U and, push-

ing the wrecked car before him, came to a slow stop.

In the vast stillness which gripped the stadium at this sight, I heard an agonized cry from Professor Wilson, who had joined me.

"My boy," he cried. "One of the tacklers tore off the compensator. The inertia is crushing him. He is suffocating. He can't overcome the inertia of his chest. He can't breathe." He turned to me, holding out an envelope-like compensator with its belt attachment. "You can run faster than I. Please!"

I understood. I grabbed that belt and ran the fastest fifty yards of my life, brushing aside members of both teams as they continued to stare in awe at the slowly purpling figure which was resting in the cradle it had made of the car.

Hurriedly, I strapped the belt around the narrow, motionless waist and pressed the compensator. A great sigh was my reward and, when I saw Willie take a deep, grateful breath, I drew one with him.

Then, in spite of the fact that a few minutes before he had been on the verge of a horrible death, he grinned and asked: "Did we win?"

And I understood why such a lovely

girl as Alice Masters loved him in preference to so many others.

"You did."

I turned to see Ben Masters, who had answered the question, smiling down at the boy narrowly, but with a twinkle of approval in his eyes.

"I'm not so sure about that." It was the referee speaking.

Professor Wilson hurried up and sighed with relief as he saw his son climb to his feet, then turned to Masters: "Well, Ben," he asked, "what about it?"

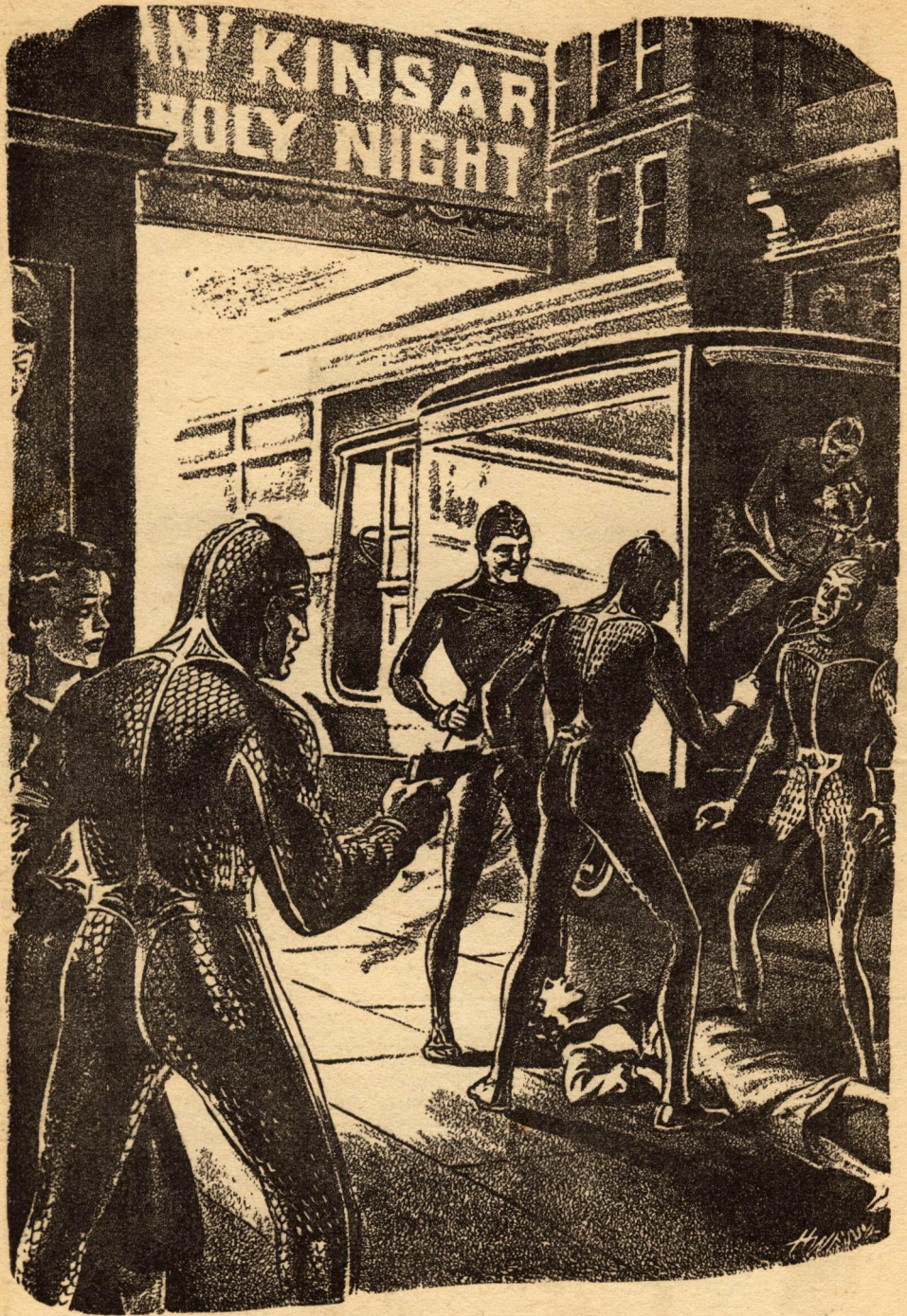
"As far as I'm concerned," Masters informed him, "Logan College won. You win, because any fellow with the guts to play with—with, I don't know what, deserves"—he turned until his glance fell upon his daughter—"deserves anything."

Alice flushed rosily as she glanced at Willie, who smiled back, pale but strangely unbruised.

I'M writing this while the athletic board considers my dismissal. But speaking for me is Professor Wilson, who threatens to leave the college if my contract is canceled. There are lots of good coaches and Logan can get along without me; but, there is only one Professor Wilson and—maybe they'll forgive me this once.



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*In the uncanny silence of this strange dead city the explosions were incredibly loud—echoing from building to building—*

# The Incredible PART THREE Invasion

*Slowly, silently, they stalked  
the city watching, learning,  
seeking an effective weapon*

by Murray Leinster

## UP TO NOW:

Professor Blair, while in the midst of his work on Straussman's theory—showing that two objects can exist in the same place at the same time—suddenly disappears.

Steve Waldron, a biologist, is in love with Blair's daughter, Lucy, as is Fran Dutt, a foreigner who is laboratory assistant to Professor Blair.

At Fran's request, Steve and Lucy drive from Newark to New York. They see human beings freeze in their tracks as if paralyzed, till all seem waxlike and dead. They alone, because of something Fran has put in the engine of the car, escape unharmed.

Newspapers report Newark a dead city, wiped out by plague.

Steve knows differently and suspects Fran's compatriots of invasion. No one will listen to his story except Nick Bannerman, a newspaper reporter and a friend of Steve's.

Everywhere Steve and Lucy go becomes a "plague spot."

Crowds flee from New York in panic, causing riots and bloodshed.

Steve and Lucy go to White Plains, where they take refuge with a doctor who allows Steve to use his laboratory.

Before White Plains is stricken, Steve discovers that, by means of high-

frequency electricity, he can bring wax-like mice, supposedly stricken with the plague, back to life.

Equipped with battery generators, to protect themselves against the supposed plague, Steve and Lucy set out to explain their find to an anxious world. But, being believed plague carriers, it is not safe for them to even let their whereabouts be known.

After a futile attempt to explain his discovery over the telephone, Steve decides their only chance is to invade the stricken city of Newark and learn more of the foreigners—who Steve is now certain are from the fourth dimension, or the other world occupying the same space as ours.

They break through the barricade on the outskirts of the city, and, on foot, walk cautiously toward the center of the unlighted town. Presently, in the darkness, they make out moving shapes. Then comes a rustling at Steve's elbow, and a voice rasps out a suspicious challenge in an unintelligible tongue.

## VII.

**A** MYRIAD of bitter thoughts and desperate fancies ran through Steve's brain in the next few seconds: Bitterness because he had found out how to revive the six hun-

dred thousand seeming corpses the world thought really dead—and the discovery had done no good. Because here before him was proof that the so-called plague was really an invasion—and there was no way of making any one else see that proof. And he felt a surpassing bitterness because, in the effort to open the eyes of his countrymen, he had not only come back to Newark himself, but had brought Lucy here, and had walked into a trap.

Perhaps because it was a trap his mind fumbled among imagined miracles which would bring about escape. A wild hope flickered in his mind that the man who had challenged him might drop dead, or decide that it was absurd to challenge any one within this dead city; a wilder hope that silence would seem the scornful refusal of a superior to reply; and then, wildest of all, the desperate wish that this man might be one of those of whom Fran Dutt had hinted, who hated the thing they were forced to accomplish, and desired nothing so much as to overthrow their own rulers and withdraw from this invasion of America.

Each one of these ideas was lunacy, but the last one saved Steve. He said "Sh-h-h-h!" and moved toward his challenger.

It is not possible to guess what the other man thought. But men who are in hiding do not usually hush those who discover them. This man lowered his queer weapon and bent forward, trying to make out Steve's features in the blackness.

Steve's fist lashed forward and landed accurately on the point of his jaw. There was not enough light to judge distance. It was either blind luck or a miracle, according to one's estimate of such matters. But the other man staggered, and Steve hit him again and again with everything he had. He rained blows upon the dazed and staggering Invader.

The Invader collapsed, and Steve hurled himself upon him, his hands groping for the other's throat.

A long time later he whispered over his shoulder: "Lucy!"

"Y-yes——"

"He's got some kind of armor on—scale armor. I'm guessing it works like our high-frequency packs, to protect him. I've got to get it off. Then he'll stiffen like everybody else, I think. And if we hide him——"

CARRYING THE MAN he had battered into unconsciousness, cold sweat oozed out on Steve's skin. The panic that filled him came solely from a fantastic terror that now—now!—his generator of high-frequency current might suddenly cease to function. Its wavering tongues of metal seemed horribly fragile. Its manifold connections seemed makeshift and insecure.

Under such circumstances, he did not carry his prisoner far—fifty, sixty feet, perhaps. Then he laid the man down. He pulled off the close-fitting helmet and put it on his own head. He stripped off the close-fitting, curiously worked scale armor and, with whispered and urgent instructions to Lucy in case he "froze," he slipped it on. He wrenched away the leggings and donned them. Then, only, he felt secure. Lucy's life depended on his own, and, for battle, he needed something more certain than dry-cell connections.

He felt the body of his victim. It was hard, harder than even a dead body should be, harder than *rigor mortis* would account for. This man, a compatriot of Fran Dutt, had yielded to the strange force that had made and kept the city a place of grotesquely posed pseudo-corpSES.

Then Steve hid his victim and he and Lucy crept away. In whispers, he explained to her what he had done. He could not find the weapon that had been pointed at him. Most probably it had



fallen from the sentry's hand and now lay somewhere off in the darkness, perhaps heating itself to melting, but with its glow unseen.

He oriented himself carefully. They heard the rumbling of muffled, quietly driven trucks. The trucks headed toward the business sections of the city. They moved without lights. Their drivers must have had the eyes of cats.

Steve went quietly along a parallel street, Lucy clinging to his hand. For block after block they moved through soft and rather horrible blackness, with only the stars for light, and that muted, almost purring murmur of motor trucks for sound.

Belleville Avenue joined Broad Street. Steve peered, and listened. It seemed to him that another stream of silenced trucks came from somewhere and joined the first. He swung to the left and followed on again.

His eyes were not accustomed to the darkness yet, but now and again he saw a vague grayness, or a vague whiteness, or an indefinite difference in the color of the sidewalks on which he moved. Starlight was enough for such perceptions. Those patches of color were human beings, toppled where they stood at the moment the "plague" struck Newark. Sometimes, though, they were wreckage, as when a monstrous heap of debris nearly closed the street, and the reek of stale gasoline—which is quite different from fresh—was in the air.

They circled it and plodded on. Gradually even Lucy ceased to gasp faintly if by chance she trod on something which should have been soft and yielding, but was not. Yet they gained new expertness in avoiding such accidents. And all the while the soft, purring mutter of many motor trucks moved parallel to their course.

THEY came to a wide, open space. Here a triangular park verged on Broad—the street along which the procession

of trucks had moved. It seemed that the open space made the starlight more effective as illumination, or perhaps there was a dim, diffused radiance supplied from somewhere. In any case the line of trucks could be seen to turn and go growling across the soft green sward of the park, to vanish into a great building on the farther side.

The building was a trolley terminal, and within its bulk there was a huge waiting room almost warehouselike in size. All of the trucks went into it. None of them seemed to come out. The two watchers saw enough trucks roll into the building to fill it on every floor, to fill it twice over, three times. Yet not one vehicle came out again.

"We're going around behind that place," said Steve shortly. "I think I know what's happening, but I want to make sure!"

They began a wide circle to get to the back of the building. Their route required that they scale a fence—since Steve would not go even into a corner of the park proper—and then pick their way across railroad tracks, each one of which had a third rail beside it.

"I'll see about this," said Steve. "The juice will be off, I'm sure. But I'll try it."

A little later he came back to whisper that the third rails were not charged. They crossed tracks, and clambered upon platforms—the still, stiffened forms were very numerous here—and presently hurried down a street which should have been empty, but was actually filled with such a chaos of smashed motor trucks and their ladings as to make climbing a necessity.

It took them half an hour to go the short distance Steve contemplated, to the back of the trolley terminal. There they could see signs of lights within the building, but all very carefully screened. Steve pointed out tiny, glowing cracks, barely visible from across the street, surely undetectable from such a distance

as would be the least any outsider could report from.

Steve got out his revolver and went quietly to look through them. Lucy clenched her hands and went with him.

"If anything happens to you," she whispered desperately, "it's got to happen to me, too! Don't you see, Steve? If you run risks——"

Steve nodded abstractedly. He flattened himself against a wall. He edged to a window with a crack of light showing. He peered in. His hand, holding Lucy's for her comfort, closed hard—so hard that she caught her breath to keep from crying out. Then he reached over and moved her head with his hand until she peered in with him.

SHE GAZED into what had been a waiting room. It was what all designers of traffic terminals term a "grand concourse." It had a twenty-foot ceiling. There had been a very neat concrete floor, nicely painted and daintily divided into squares. There had been seats, very prettily varnished. There had been a news stand with magazines and packaged candy and tobacco, and a soda fountain, and there had been a certain number of plate-glass boxes which were serving advertising purposes up to the time the Invaders took over the building.

A corridor ran away from the two who peered in. It ran toward the entrance, which looked out upon the park. Once upon a time it had resounded to the decorous muffled sound of rubber heels and the brisk footsteps of business men. The doors had been revolving doors, and above them there had been a quite artistic transom which reached up to the ceiling.

Now all that was torn away. The end of the corridor gaped open. Transom door and all were gone. The floor was fouled with mud and clay and trampled grass. Trucks came rolling in the opening, having bumped and growled

across the grassy park. The sound of their motors was made louder by the echoes within the building. They came lurching in, past men who barked orders in an unintelligible language, and rolled fairly into the view of those who peered through the crack.

The soda fountain had been torn out and thrown away. Ends of the piping still gushed water, which ran off unheeded in a mess of mud and grass and scattered magazines. The news stand, of course, was destroyed. The trucks came bumping in and up upon a platform of rough wooden planks, raised perhaps a foot and a half above the floor. The platform looked rather like a cage, because of a helical coil of bars quite an inch thick, wound around and around to form a hollow spiral into which the trucks drove as they mounted to the platform.

And in that helix they vanished! They came growling into the huge room. They rolled across the untidy mess the wheels of many predecessors had made. They changed gears and went ponderously up upon the platform, inside the helix. And then, like candle flames, they flickered and were not! Other trucks followed, and others and others——

Heavy copper cables led to the helix of bronze bars. A queer, unearthly, bluish wild fire seemed to play all about the platform, though there were other shades than bluish in it, too. The glaring electric bulbs made the interior of the place seem like day. The trucks came in, filling the air with a humming thunder, and rolled up upon the platform in an unending procession.

Each time the two watchers saw a massive, solid vehicle. Sometimes it was a heavy-duty, long-haul truck. Again it was a smart light delivery truck from a department store or expensive grocery. The next might be something aged and dilapidated, with streaks of worn fabric showing where the tread of the tires should have been.

But each one was loaded, and each one was driven by a man who wore curious, scaly armor, and each one rolled upon the clumsy platform and flickered and vanished like a candle flame—and then there was room for another.

But the strangest, the weirdest thing of all was the fact that the bluish, flickering wild fire seemed half solid—no, not half solid but half phantomlike. It shimmered in an uncanny fashion, in an incalculable combination of many rhythms. At times Steve had the feeling that it was not merely flame or luminosity. It was something else.

He watched one certain spot. The blue glow came and went. But when it was present, and when it was strongest, it had a curious and very definite pattern impressed upon it. That pattern moved. Presently Steve saw a man's face in it. The light flickered out.

It came back and the man had shifted his position. It looked almost as if colored motion pictures were being thrown upon a screen of smoke which wavered and vanished and appeared again irregularly. It was as if something impressed a deep-blue tint upon the projected image, and the smoke which served as screen appeared only in patches and flecks and nowhere displayed a complete picture at once.

LUCY DREW BACK uncertainly, to look at Steve. The light that came out through their peephole showed her his face clearly enough. His eyes were glowing in deep satisfaction.

"Steve!" she whispered. "I don't understand!"

"Those pictures," he whispered in reply. "They're of the Other Side of Here! That's the way through to Fran Dutt's world! The trucks go through, and some small bits of light come back! We're seeing where Fran came from! In case of need, now, we might even

invade that world to get back the things they've stolen from us!"

He watched an instant longer.

Knowing or guessing at the full meaning of Steve's inadequate explanation, Lucy gazed desperately at the fragmentary scene. Her father, Steve had said, was most likely in Fran Dutt's world. She looked, then, upon an enigmatic planet which was not earth and yet was the earth; which was in what might be called a fourth dimension, and yet was bounded absolutely by the common three. She gazed with totally illogical intensity, as if hoping for a sight of her father. But the shimmering, flickering vision, such as might come from a television set far past the limit of its amplification, showed her snatches of light only.

She saw torches flaring—though she saw them but intermittently. Once she saw a truck which was of earth. She even remembered its huge and sleekly shining shape. It had rolled up upon the platform and vanished a bare two minutes before. Now she saw its image in those phantom bluish flames, with men swarming about it. It had vanished utterly, and yet it still existed. It did not exist on this earth, and yet it existed on another earth which was in the same space as this earth.

Steve drew back and touched her arm.

"We'll go."

Again he led the way. But now it was Lucy who kept a lookout. Steve seemed so engrossed in the meaning of what he had seen that he would have turned straight into the open space across which the trucks ran softly. Lucy checked him.

"Steve! The trucks!"

He stopped instantly.

"Thanks. Stupid of me, when I know things that will mean— What won't they mean! We've got to hurry!"

He seemed to come back to the time and the moment, now. But though he spoke of haste, he stood still. He stared

at the blackness all about. He glanced upward at the stars.

"They're working out Belleville, cleaning up as they go. They're nearly all the way. They can't go but so far toward the Oranges. The cordon would hear them. We've got to find — Professor Hamlin would do! They'd have to listen to him, and he's worked with me. He was one of my instructors! We must find him, and I'll explain——"

"Steve! He's——"

"Frozen or whatever it is. I know. But we'll revive him! The first thing, though, is to get to him. We've got to dodge around—— Come along!"

HE TALKED uninterruptedly of the marvelous fact that Straussman's theory was now proven true. There was another planet occupying the same space as earth. It must be approximately the same size, containing nearly the same elements in the same proportions and doubtlessly its atmosphere and oceans and clouds resembled those of earth. It might even have been peopled from earth, though how it could be done was hard to say.

And Straussman, being proved right in this prediction, was most probably right in his further belief that there not only could be, but in cases of sufficient mass there must be, not only two but three objects occupying the same space, but there were probably six objects, and conceivably eighteen or fifty-four.

And while Steve talked, he was making another huge circling movement around the part of the city which seemed to be receiving attention from the Invaders.

"There'll be worlds to explore," he said eagerly. "Great shining globes as big as ours, with continents and oceans unmapped and still unknown. There'll be creatures such as we've never dreamed of, and fruits no man has ever

tasted. There will be colonies to create and grow. There'll never be need of war again, with half a hundred worlds in which our nations can expand——"

Lucy said, "*Sh-h-h!*"

She pointed. There was a light ahead—a curious, dull-blue glow which was bright enough to see by, but made no glare which could be noted by observers at a distance. Steve checked himself instantly. He heard voices, speaking in the unintelligible language of the Invaders. A voice spoke harshly and arrogantly. Another voice replied humbly. There was a little cracking sound and a whimpering noise, the arrogant voice again, commanding and contemptuous, silence.

Then another voice. By its tone it made a jest, and the voices which had been so arrogant replied in the manner of one talking to an equal. There were small sounds which were men moving, another humble voice, the arrogant voice again, harsh once more.

Steve put Lucy behind him, and gestured for her to stay where she was. He moved forward, taking infinite care to make no noise. He instinctively drew his own revolver. The blue glow enabled him to avoid a tumbled heap which had been a group of human beings, now sprawled in insane poses on the sidewalk. He reached the corner and peered cautiously around it.

There was a small truck beside the curbstone. It stood before a marquee studded with letters a foot high and designed to be illuminated from behind. A motion-picture theater. This was on Market Street. The letters spelled out a supposedly alluring play title and, in much larger print, the name of an actress of demonstrated fascination.

BUT THAT was not the thing which made the blood suddenly pound savagely in Steve's temples and made him see even the ghostly blue glow as if

*And he was utterly motionless—not a muscle moved—  
—not an eyelid flickered.*



through a film of red. There were two slim, arrogant figures on the sidewalk. Each carried, as if it were a cane, a limber, lissom stick which held a dozen snaky filaments at one end. Some-

thing at the top of each filament glittered metallicly.

The pair wore the scaly armor which protected its wearers against the artificial catalepsy which was the Invaders'

principal weapon. They seemed officers or more probably noblemen in the organization of the Invaders. Certainly the other men Steve saw had no such arrogance of manner, nor such magnificence of attire.

Of the others—and he instantly remembered Fran Dutt's use of the word "Underones"—he saw altogether perhaps a dozen. There were three in view at first. Two jumped down from the body of the truck and cringed before the slim figures before they scuttled into the motion-picture theater. It seemed as if that unspeakably abject shrinking of the whole body were a standardized thing, equivalent to a military salute. They vanished. The third of the Underones remained in the truck, stowing something away. The two superiors remained in elegant idleness, talking together in their cryptic language. There were footsteps within the theater. A man came out—and Steve saw red.

He was one of the Underones, and he carried a human figure. More, it was the stiffened, frozen figure of a girl. She had been in the theater, of course, at the instant of the coming of the plague.

The Underones put her down upon the sidewalk and cringed. Another of his kind came out, with a second girl. The two superiors talked amusedly. Other Underones came out. Five—six—a dozen stiffened figures had been brought out of the theater. All were girls. None was over twenty, and the blue light was not flattering, but Steve could see that they had not been selected for any other reason than the fact that they were slim and young and pretty.

An Underone made a humble noise. The two superiors turned and inspected the loot of the theater. To Steve, who knew that these girls could be revived unharmed, the air of the two superiors immediately became as a red rag to a bull. One commanded that hats be

pulled off. The two superiors, gayly, began to divide the unconscious, immobile victims. An amused difference of opinion arose. One of the two bent over and pulled loose a girl's hair to show its length. The other protested, laughing. The first gave an order. The Underones began to load the pathetic forms into the motor truck.

Steve felt a hand upon his arm.

Lucy whispered shakenly: "Steve! What are they going to do?"

"Load them on the truck," said Steve savagely, under his breath, "then to their own world. Revive them there, I suppose, as slaves or wives. They've just divided them—all but the last. They're arguing over her now."

The debate between the two superiors was amused and bantering and incredibly inhuman. One of them, laughing, took out a queerly shaped knife and began to slit away the jacket this last girl wore. At the instant the plague had struck her motionless, she had been smiling faintly at something which was then upon the screen. She was very pretty indeed, and very young—

One of the Underones stumbled with his load. He brushed ever so lightly against one of the two young lordlings. That lordling rasped an order. The cringing man moaned a little, but put down his load and stood still. And then the limber, canelike thing with the tentacles on its ends flashed up. It struck viciously upon the unprotected face of the Underone. The metal tips of the lashes—it was suddenly a metal-studded whip—made deep gashes. It struck again—and again—

"I can't stand this!" said Steve fiercely.

He spoke in a thick voice of wholly normal volume. The next instant he went around the corner. His revolver flashed. It flashed again. In the uncanny silence of the city the explosions were incredibly loud. The buildings echoed and reechoed the noise.

The Underones turned and gaped at Steve. One of the two superiors made a choking noise and collapsed. The other panted furiously at Steve—who was wearing the scaly armor of the Invaders. His hand went to his hip. Steve shot him, too. The noise of the revolver seemed enough to wake the dead.

Then the Underones fled, squealing. "Now I've done it!" said Steve savagely. "I've done it! Here, get in the truck, Lucy! We've got to get away from here!"

He flung her up into the truck.

### VIII.

TWENTY MINUTES LATER Steve said, "Maybe this'll be seen and prepare people for what I hope to pull next. It'll surely tell them there's somebody alive where they think there are only dead men!"

He worked the light switch feverishly. Three long flashes of the headlights, then three short ones, then three long ones again. He repeated the signal twice. Then he left the switch on, leaped from the driver's seat, and fled with Lucy into the shadows.

He left the truck parked at the top of a steep hillside street—Third Avenue—which fell away before it. The headlight beams reached out into sheer emptiness. In the utter blackness of all Newark, the beams would make some faint illumination even in Kearney.

But meanwhile Steve and Lucy ran headlong. They wanted a hiding place, to be sure. But they had a tremendous advantage in that their existence seemed impossible to the men who should have pursued them. Shots in the supposedly dead town would seem to the Invaders more like one of their own number firing an unfamiliar weapon by accident, than like a raid by former inhabitants.

So that Steve and Lucy had a good start. Three times, while in flight, Steve

had checked the small truck to unload it of its cargo of young girls chosen to be slaves or wives to the two men Steve had shot. Steve had put those girls out of the truck in the middle of great heaps of shattered machinery—cars which had smashed and piled themselves up gruesomely at street intersections. The girls were less likely to be picked out of such heaps of scrap iron by others of the Invaders than from any other hiding places Steve was likely to contrive. He could not go about selecting imperiled damsels to revive. He had to try to arrange for the revival of the whole city.

As Steve and Lucy ran, they heard motors purring angrily. The truck's headlights staring out from a hill crest had told of its position, of course. The Invaders were rushing to put out those lights. And Steve felt a certain vengeful satisfaction when he heard one or two minor crashes ringing through the silence which overlay Newark. They had run into smash-ups.

In the twenty minutes of his flight, Steve had not given up the plan he had formed before. Now, running from the truck, he led the way to the home of Professor Hamlin. They broke into it by the back way. It was undisturbed. Fran's compatriots had not yet reached the Forest Hills section in their systematic looting of the city.

But the bachelor scientist evaded their cautious search for some time. Steve looked for him in his bedroom, because of the darkness. It was Lucy who remembered the hour when the plague had struck Newark. She led the way into the dining room. They found the portly scientist stiff and immobile at dinner.

STEVE unslung his own high-frequency pack, depending solely upon the scaly Invader's armor for continued life. He fitted the pack to the body of his old instructor. Then he turned it on. The scientist moved, in the darkness. He continued the gesture he had begun

forty-eight hours before. His spoon seemed empty. He grunted, and listened. The room was dark. He called out to some one to light a candle. He had no sensation of time lapse. He thought that a fuse had blown out to leave the house in darkness. Then Steve spoke to him.

It took Lucy's insistence and her bedraggled appearance as revealed by match light to make the dignified biologist believe that Steve was not insane. It took a painstaking examination of his two servants, and then an even more painstaking examination of the goldfish—one of which he slit open—to make him believe that the condition was not conventional *rigor mortis*.

Lucy took one of the fish between her two hands, and the high-frequency current, which she did not even feel, passed through the small creature. It flapped convulsively. She released it—and it was stiff and stark and still once more.

"Now come along!" said Steve grimly. "You'll see plenty to convince you as you go out of town! I can't leave! I'd be shot, and probably Lucy, too. But if you go to the cordon and tell your name, it will carry weight. They'll listen to you. And you'll tell them how to fix up a regiment or two and come marching in over here to settle this business!"

Professor Hamlin felt of the pack Steve had placed upon his shoulders. He sniffed the dust that fell from his clothing in small clouds when he moved.

"I shall do so, Steven," he said with dignity. "What you tell me is impossible, according to all preconceived ideas, but it is apparently true. And it seems to be a fact that Straussman was right. I know that Professor Blair was inclined to accept his theories. My dear, have you heard anything of your father?"

Lucy said bitterly: "He's in that—other world Steve and I saw, where the trucks go through."

Again instinctive incredulity. But the portly scientist accompanied them out of the house with the high-frequency pack strapped to his shoulders. The utter darkness and utter stillness of the town tended to convince him. They came upon a pathetic bundle upon the sidewalk. A boy and girl—high-school children—had been talking together. They had fallen, stiffened, together. Professor Hamlin recklessly struck a match. He saw their faces.

"Girls," said Steve harshly, "are being loaded on those trucks and carried to that other world. This girl is pretty enough."

Professor Hamlin groaned softly. He blew out the match and came on. A long distance farther, he halted again. Steve risked a match for him. The professor saw a piled-up heap of smashed cars. They went on, and on— Steve talked crisply and urgently.

Professor Hamlin listened. Presently the scientist in him awoke. He asked questions, more questions. He took Steve's theory and shrewdly pointed out a weakness in it—and found the explanation that removed the weakness. He had Steve describe in detail the appearance of the helix about the platform in the trolley terminal.

"They're running one of the power houses for the energy for that," he said. "Probably only at night, so no smoke will be seen."

He walked briskly, stumbling now and again over the heaped bodies on the pavement. He had become so absorbed in the scientific aspect of the affair that even these gruesome reminders of the condition of the city ceased to affect him. Steve was calloused to them through his consuming hatred of the Invaders. Only Lucy still shuddered in horror.

A RUDDY LIGHT appeared a long distance ahead. It was a bonfire of the military cordon.



"I know enough," said Professor Hamlin, "to vindicate you, Steven, and to put an end to this ghastly attempt upon our nation. That fire must be one built by the soldiers of the cordon. I will go forward, identify myself, and tell your story. This apparatus upon my back will revive some of the victims in New York. It will be easy to make more. I feel that I can promise, Steven, that within twelve hours this terrible catastrophe will be at an end. And I consider that you deserve the best from your nation."

He shook hands.

"Be sure and call ahead when you go up to the cordon," said Steve grimly. "They've orders to shoot anybody who tries to come out. You'll have to argue with them."

"They will not shoot me," said Professor Hamlin confidently.

But they did.

Steve saw it happen. The portly figure of the scientist moved away from them into the darkness. A long time later Steve and Lucy heard his voice, shouting undistinguishably. There was a sudden flare of light. A searchlight stabbed through the darkness. Steve and Lucy saw the elderly man outlined in its glare.

He waved his hands and moved forward. They could not distinguish words, but somebody shouted back to him. The tone was commanding. Professor Hamlin replied, halting. The other voice bellowed again. Professor Hamlin argued. Then he went deliberately and dignifiedly ahead.

There was a sudden outburst of tiny sparks, the tearing *rat-tat-tat* of small-arm fire. Outlined in the searchlight beam, Professor Hamlin staggered, wavered, and dropped quietly to the ground.

The two who watched were silent. Lucy, because she could not speak. Steve, because he was shaking with

fury and grief that seemed to strangle him.

It was a long time later when he said in a rage-thickened voice: "The report of a man coming out and being shot down will add up very neatly to the car lights we turned on! Don't you see? They'll think one man got the plague they believe in, and didn't quite die of it. That, after forty hours or so, he'd gotten back his strength, tried to signal with car lights, and then essayed to walk to where he could get help. That he was shot down. All of which means that we've accomplished nothing but his murder!"

Lucy said; "But—Steve, won't Fran's—friends think he was also the man who shot down two of them on Market Street?"

"Probably. You weren't seen."

Then Steve wilted drearily. His voice broke. "But damn, Lucy, it looks so hopeless—so uselessly hopeless! I've killed a friend! If they'd only listen to——"

Lucy pressed close. "Steve, you're tired. You got no rest at all last night. Let's go back to the car and—and listen to the radio reports. There might be something said that would give you an idea——"

Steve let himself be turned around. He plodded back. He was tired. He had slept practically not at all for two nights. The first was the night of the catastrophe in Newark; he had spent all the dark hours trying to get himself a hearing. The second was the night after their escape from White Plains, after that city had been frozen in the attempt of the Invaders to capture Steve. Steve had worked most of that night improving the high-frequency packs and making spares.

"We need to replace the batteries in your pack, anyhow," he said dully. "We'll go back to the car and hook onto a storage battery while we do it."

THEY FOUND the car they had taken from before the White Plains service station. Steve clipped a storage battery to Lucy's outfit and replaced the dry cells. As long as she stayed in the car, however, it would draw from the storage battery.

Then he said wearily: "They'll be hunting all over the place, probably. If they see me with this armor on, they'll want to ask me questions. I'm going to get it underneath my clothes. Then if anybody comes around, we'll just stay motionless. They probably won't look closely—not while they're hunting for somebody who's alive and kicking."

He took one of the spare packs he had made and stepped outside the car. He came back again, the scaly armor hidden under his clothing. He settled down wearily behind the driver's seat. He turned on the car radio and adjusted its volume to a bare whisper.

"We'll listen," he said tiredly.

There was only music on the air. This was an interval between the news bulletins, the broadcasting of which was now the principal occupation of the New York stations. In a very little while, Steve slept.

He slept heavily, his head fallen forward. The silence of the city became very tense and horrible indeed to Lucy. There was literally no sound at all. The murmur of the looting trucks was too faint or too far away for her to hear. The radio had been turned so low that it was rather the ghost of a sound than a sound itself. The houses were blank and dark and still. If they had been empty, it would have been horrible. But they were occupied, by motionless, staring figures which were more horrible still.

The streets were utterly dark, which in itself would be nerve racking to a girl. But there were toppled, motionless figures on the sidewalks which were more than nerve racking. There were not only the shuddery feeling of one

alone in dense blackness and feeling that furtive figures might be creeping close. Lucy *knew* that there were really figures moving somewhere in the dark city, searching for Steve and for herself. And besides, there was the sensation of a terrible isolation, of a nightmarish helplessness, because of the cordon of soldiers in a wide-flung circle about the town, whose special duty it was to prevent the escape of any one who might be in it, or the entry of any one from without.

Lucy's teeth chattered suddenly. She lifted her hand to waken Steve. Then she stopped. He was exhausted, worn out. And more, he was defeated. Something maternal stirred in Lucy, and with it the strange and quite incredible courage of maternity. She clamped her teeth tightly, to watch and let Steve rest.

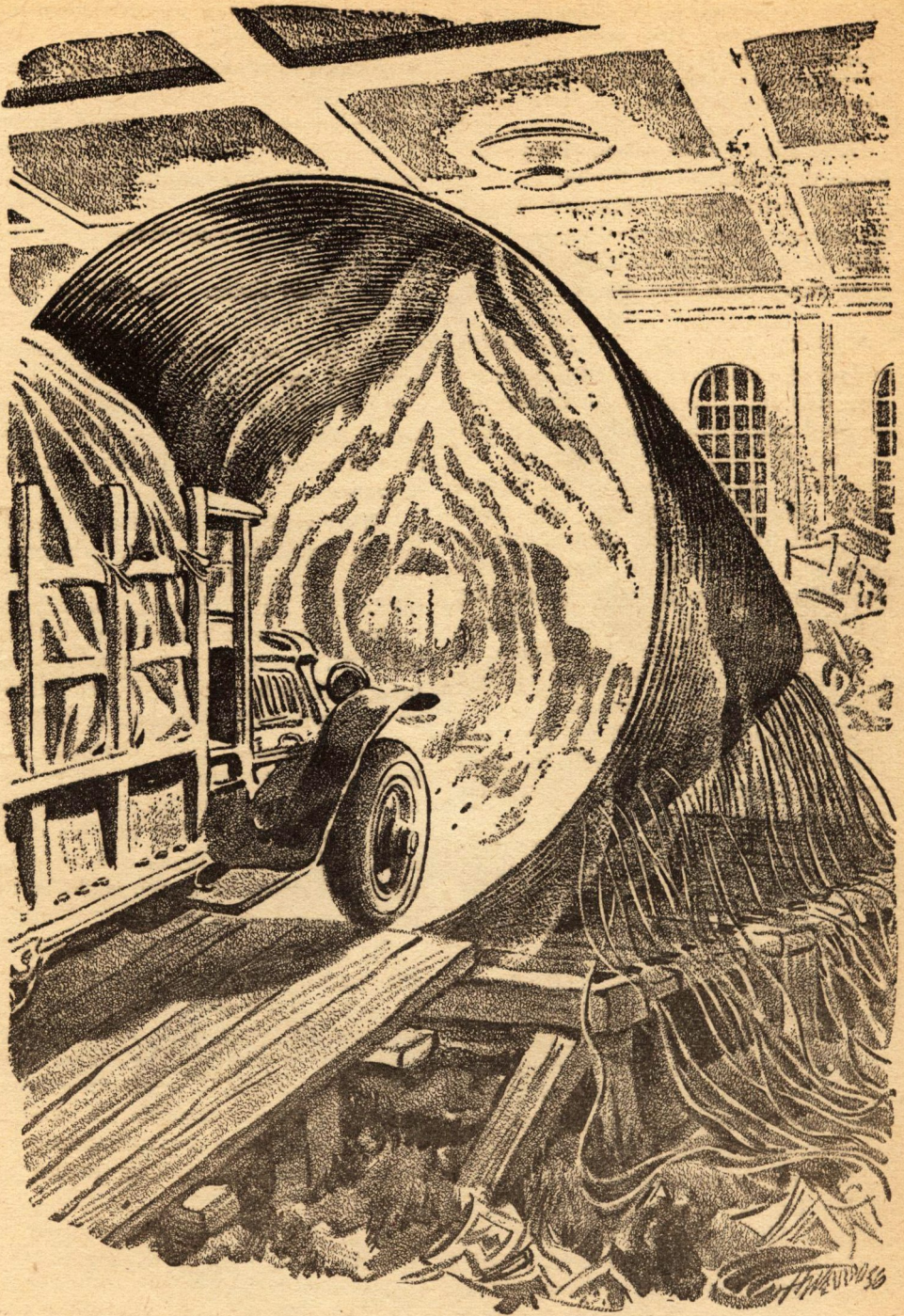
The ghost of sound which came from the car radio changed. The whisper of a man's voice came out:

"Special news bulletin—Shanghai, China: News of the plague appearing in Newark, White Plains and New York has caused a Mr. White, of Shanghai, to communicate with the American consul general.

"Mr. White declares that while traveling near the Mongolian border some eight months ago he came upon a small walled town in which the inhabitants seemed to have perished suddenly from a plague resembling in every way that which has killed six hundred thousand people in the United States.

"He investigated the condition, but was fearful of remaining in the city for fear of contagion. Some three weeks later, returning, he found the city alive and bustling. The inhabitants informed him that they had all slept from the time of the new moon to the last quarter, and that during that time a great many of the younger and prettier girls had disappeared, and thieves had stolen many beautiful things.

"Mr. White did not report the occurrence on his return to civilization, not thinking he would be believed. Now, however, he is in conference with Federal



*As he watched, a truck, and then another, and then another, rolled into the haze—and disappeared completely—*

health authorities in Washington via short-wave radio. Much doubt has been expressed as to the accuracy of his statements and the value of his observations. For further details——"

Steve stirred in his sleep. Lucy bent forward and turned off the radio.

Steve stirred again. His lips formed the words: "They were testing——" A little later he said distinctly, "Short-wave radio" and slept again.

THERE WAS SILENCE—fearful and nerve racking; nevertheless, Lucy let him sleep on. She sat beside him in the car, and rolled down a side window that she might listen more closely for the searchers who undoubtedly hunted them. She heard nothing. With even the radio cut off, the silence was so deep that the blood in her own ears seemed to make a pulsing, roaring sound. There was no light anywhere. But presently she noted a pale glare in the night sky. It was the glow of New York's myriad street lamps.

Steve slept on—one hour, two, two and a half. Lucy heard only the murmur of Steve's breathing. Then there came an abrupt crash as of tinware falling, a block or more away. She caught at Steve's hand. He was instantly awake.

"I—heard a noise," she whispered faintly.

He listened an instant, nodded, and opened the car door with infinite care. He slipped out. She joined him. He opened the back door and fumbled delicately there. He found a spare high-frequency pack. He lifted it out and tucked it under his arm.

"All right," he whispered.

He led her away, half a block, a block. He froze, clutching her arm tightly. A little knot of men, all of a dozen, came out of an alleyway. They crossed the street and vanished. Steve relaxed.

"Close, that!" he whispered. "They're

going to turn the town upside down tonight!"

"What will we do?" asked Lucy fearfully.

"Go out to the cordon," said Steve. "I woke up with a new scheme ready-formed. Silly of me not to have thought of it before."

"Steve, not the same thing Professor Hamlin——"

"No," said Steve. "Something else. Hold it!"

The last was whispered. Another patrol of the Invaders passed. This one was not as near as the first had been. It went on, oblivious. There were two more such alarms in the next five minutes.

"There must be a couple of thousand men in town here, looting it," whispered Steve. "And half of them are hunting for us. But I'll bet they think Hamlin was the one who shot two of them and set those truck lights glaring. I'll bet they think he was one of them turned traitor—and they know he's dead."

They probably did. Certainly the hunt for the two fugitives was not intensive nor very enthusiastic. It was merely widespread. But in pitch darkness, and with all lights and all noise alike forbidden, no search could be intensive over a large territory.

Steve and Lucy had little trouble in evading the patrols which marched about the city. But it took them a long time to make the great circle which Steve's new plan required. The stars which had been overhead when they began were far down toward the western horizon when they went cautiously out upon a causeway running across the Jersey meadows.

In a car, they could have made the trip in minutes, but, of course, they dared not use a car despite the number of them about. Their journey took them hours, and Lucy was as exhausted physically as Steve had been mentally.

Yet he urged her on. He still carried the extra high-frequency pack.

AT LAST, a luridly bright star rose above the eastern edge of the world, flickering only a little and casting perceptible shadows. It was Venus, the morning star; dawn could not be far away. Only then would Steve let Lucy rest. But then he went into a filling station along the causeway and found a place for her to lie down in, while he stared out the windows at the street lights of Jersey City. Presently they paled.

Lucy fell asleep, utterly worn out, just as the gray light to eastward began to be flecked with the colors of dawn.

When she woke, she heard voices. It was near sundown again. The amazingly fragrant odor of freshly-made coffee and something else more tantalizing still came to her. She stirred. Steve came in from the front of the service station.

"Rested?" he asked, smiling.

"Steve! I smell coffee!"

"And hot dogs," he told her. "Waiting and ready. Come on out and meet Nick Bannerman."

When she went out, Nick grinned cordially, with a mug of coffee steaming in his hand and the extra high-frequency pack on his back.

"Nice mess this, isn't it?" he asked cheerfully. "I came out with some high-hat scientists, to show them how to fly kites, though it was Steve who did the work yesterday; or was it yesterday, Steve? I've been dead or something, Steve tells me. Anyhow, all of a sudden I didn't know anything. The plague got all of us in the same instant, and the next thing I knew Steve had this dinkus strapped on me and was explaining a lot of improbable things. So we came back here to wait for dark."

"We've got those devils licked, now!" said Steve savagely. "We've got them!"

He gave Lucy coffee. She drank thirstily, and then said ruefully: "I look a fright! What are we going to do, Steve?"

"Wait till dark," said Steve, "and then walk our legs off again. I'm sorry, Lucy, but I don't know Morse code, beyond S O S, and Nick does. So we had to come out to where he and his bunch of investigators were frozen."

"Thanks," said Nick blandly. "Your solicitude for me, Steve——"

"And more than that," said Steve triumphantly, "Nick knows some radio amateurs—ham operators—and at least one of them used battery current for steadiness of signal. So that's where we're going!"

Nick put down his coffee mug and expertly stewed more frankfurters on the gasoline-heated stove. They sizzled.

"I suspect," he commented, "that we're going to run away again as fast as we go to it, but maybe I'll get something across before they catch us. Remember, Steve, those mugs have been planning this thing for a long time. They've had spies planted for years, and they picked off their most dangerous opponents before they started anything at all. Lucy's father, for instance."

He turned the frankfurters with calm efficiency.

"Nevertheless," he added, "we're in the trouble zone, and we'll be shot if we try to get out of it, and frozen if we're caught in it, so we might as well try something. Lucy—maybe I'd better say Miss Blair—will you have another weenie?"

"Lucy," said Lucy, and held out a roll. "I will."

Somehow it seemed less horrible when they moved back toward the city as darkness fell again. Steve had rested a little, if not enough. Nick Bannerman, however, was capable of a jest. More, he had used his eyes during the daylight hours while Lucy slept.

Before they had gone more than a few hundred yards, he had stopped twice and fumbled at prone, stiffened figures on the ground. Both were State policemen. The two men had revolvers in holsters and full cartridge belts besides, when they crept cautiously into the dead, dark streets of Newark again. Steve, too, silently passed Lucy the revolver that had belonged to her father.

HERE, among the first houses, Nick's blandness deserted him. He stumbled upon a pitiful heap of stiffened flesh which had been a child. Lucy knew that he touched it and found that it was a child. When he stood up, he was whispering blood-curdling profanity to himself.

It had taken them a long time to reach the city. It took them longer to reach the house of the short-wave fan whom Nick knew. It was not easy to find the way on foot, in dense blackness, without even street lamps to tell them where they might be.

At the end, though, Steve cracked a window with every possible precaution against noise. The three of them entered the house. Presently, trickling the glow of a flashlight through his fingers, Nick found the amateur's short-wave set. His friend sat stiffly in a chair, making some adjustment to the set. It was not turned on, which was fortunate. The batteries were not run down. Nick checked here and there. He flung over a switch and the tubes lighted. He fingered the key.

"Now," he said calmly, "it all depends on whether our friends, the enemy, happen to be listening in for short-wave stuff. If they are, they'll slap a directional antenna on us and come here running. If they aren't, we'll raise hell with them! You two had better stand guard."

The key flicked up and down. "CQ-CQ-CQ-CQ-DE 9XY2, 9XY2. Dot,

dash, dot!" The key tapped noiselessly, and Nick spoke slowly as he worked. "I'm giving a general call, begging somebody to answer. Very important, emergency call, everybody stand by. I think I'll put in an SOS to get more attention."

He flicked in the speaker switch, but only a hum came out of it. He returned to his calling. "CQ-CQ-CQ-CQ-CQ-DE 9XY2, 9XY2. Dot, dash, dot!" Again the speaker switch. It hummed once more. Staccato, musical sounds came out. "Beep, bee—"

"Got 'em!" said Nick joyously. "Now listen to what I give that egg!" The key wavered beneath his fingers. He spoke as he sent. "Nick Bannerman calling. I am with Steve Waldron in Newark. Everybody apparently dead but us. We have found way to combat plague. Are you listening?"

Again the switch. The speaker hummed, and instead of musical sounds it emitted a harsh and strident shriek—a raucous shriek. It was composed of dots and dashes sent insanely, meaninglessly, in a dozen pitches and at a dozen rates of speed, so that it would scramble and obliterate any possible meaningful message Nick might send.

Nick listened. He glanced up at Steve.

"It's no go," he said composedly. "The Invaders were listening in. They've scrambled my message, and they'll be all set to scramble any other. They know this station call and can get the address in three minutes, if they choose to hunt it up on a list of short-wave amateurs."

"Come on!" said Steve bitterly. "We're licked again, but there's no sense in letting them catch us!"

NICK snapped off the current and came after him as, half carrying Lucy, Steve raced down the stairs and out into the street again. Silence inside a house is not abnormal, but in a street

it is. Wherefore the utter stillness of outdoors smote sharply upon their consciousness again.

Steve said, more bitterly still: "They coming!"

There was a purring sound in the air. Cars were racing through the still and silent streets—muffled cars, unlighted cars, but cars driven at breakneck speed. And they would be loaded with many men—

"Quick!" said Steve. "They're going to try to ring us in!"

He ran ahead. Nick tumbled over something with clothing on it, lying in a grotesque heap. He scrambled up and after the others. He heard the purring sounds divide. They could be heard distinctly. Some came from the north; others sped to east and west, and still others came racing even faster than the rest and curved around to block off all possible escape to the north.

Lucy heard little clicking noises. Steve and Nick were clearing their newly-acquired guns. Steve dragged the others into an areaway.

Then there was a rush and a roar. A huge car, already braking, slowed smoothly before them. It came to a stop a bare fifty feet beyond. Men tumbled out, weapons clanking. A harsh voice snarled orders. The men spread out across the street. They went on.

"There's a break," whispered Steve. "They're stopping to feel everybody they stumble over. Lucky they stopped beyond us. We couldn't have passed for bodies."

Other cars were slowing and stopping on other streets. The amateur short-wave station from which Nick had been sending was completely encircled. There must have been fifty—sixty—a hundred men making a closing circle about the spot.

"Wait here," said Steve in the faintest of grim whispers. "I'm going to see what I can do."

He stood erect and walked to the car. It was deserted. He fumbled for the key. He stood straining his ears. The advancing patrol reached and passed the next street corner. Steve beckoned.

Perhaps the starlight was brighter, or perhaps the second night of activity in such a lightless environment had made Lucy's eyes more sensitive. She brought Nick quickly to the car.

"Inside," whispered Steve. "Down on the floor, Lucy. Nick, get set for fighting!"

The starter whirred. The motor caught. An angry hail—but guarded in tone—came from ahead. Nick slammed the car door; Steve let in the clutch with a jerk, and the car shot forward. He raced it in second and switched on the headlights for a fraction of a second. He saw the line of scale-armored men in the act of halting. Some were half turned toward him. He cut off the headlights and bored ruthlessly through them. At that, though, one man leaped onto the running board. But Nick's revolver exploded with a muffled roar and he fell off again.

Straight ahead, the next corner, another flicker of the headlights—Steve swept around it and away. A sudden surge of other men before the car, as disclosed by the flicker of the lights again—Steve left them on for fifteen seconds, while his revolver crashed. Other crashes came from the back. Not only Nick, but even Lucy was firing vengefully into the scale-armored Invaders as they flung themselves recklessly upon the speeding car.

But Steve broke through, his wheels grinding horribly over something which shrieked. Then they were away again.

FOR TEN MINUTES—fifteen—twenty, Steve tore through winding streets upon an untraceable course. The headlights flicked on and off. Half-second flashes showed the way for two or

three blocks, but did not give a steady beacon for the pursuers to trail, and more especially did not point out a course so he could be headed off.

"Steve," said Nick suddenly, "what're you gaining by all this?"

"Throwing 'em off," said Steve shortly. "We'll jump out in a minute or two and run. They'll have trouble finding the car and more trouble finding us."

"No," said Nick. "Not so good, Steve. They've got short-wave listeners now, Steve. We just proved it. And most likely they have a directional outfit, too. If it weren't for their own cars, they could trace us by our motor. And—we're depending on sparking contacts to keep us alive."

Steve drove for perhaps five seconds. Then he groaned. "And they'll have noticed those things, now!"

"Sure!" agreed Nick. "But we can get in a sheet-iron building, like a garage. Most likely the short wave those sparks make—there are bound to be some—will be grounded by the sheathing. And the Invaders may not be able to pick them up outside. Then we can figure out something else to try."

"All right," said Steve grimly. "Watch out for such a building. I'll let you out, drive on past, set the car to wreck itself and come on back."

"There's one now," said Lucy breathlessly.

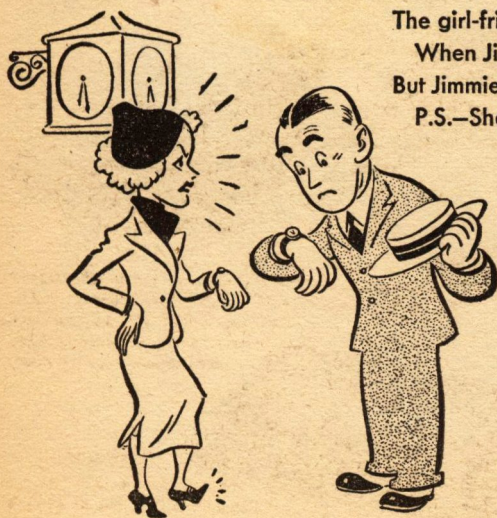
There was. A garage sign above its ungainly bulk showed that it would be desirable in other fashions, too. Dry cells for the high-frequency packs, for example. Steve stopped the car. Nick and Lucy tumbled out.

"Right back," said Steve shortly.

He plunged away in the car. Around one corner, two, three—a long, straight street ahead. Steve settled the car's wheels in a trolley track to guide it. A flash of the headlights showed the way clear for a long distance. He set the gas lever for a good speed, swung over the side, and jumped.

He tumbled over, once. The car rolled swiftly away in the absolute blackness. It would go five blocks surely, perhaps ten, before some obstacle flung it from the shallow grooves of the track. Then it would smash—and no searcher could find evidence that its occupants had left it before the smash-up.

Steve got up and shook himself. He



The girl-friend made an awful fuss  
When Jimmie turned up late,  
But Jimmie brought her Beech-Nut Gum ...  
P.S.—She kept the date!



... is so good it's the most popular  
flavor of any gum sold in the United States.



started back toward the sheet-iron garage, listening keenly for sounds of search. He heard motors purring here and there, but nothing near enough to cause alarm. There was, now one infinitesimal sound which puzzled him a little, but he could not locate it.

It was, as a matter of fact, the vibrator of the high-frequency pack he had donned as a spare after giving his own to Professor Hamlin, and which made a slight noise where the others were silent. The pack had been turned on by Steve's fall. He had forgotten that he wore such a pack. It had happened simply to be the most convenient way to carry an extra one in case Nick or Lucy needed it.

He heard the crash as his abandoned car shattered itself against the trolley on the track it followed.

HE WENT ON through the darkness. All of fifteen minutes later he found the ungainly building in which the others had taken refuge. He went in and called softly.

"We're here," said Nick quietly. "There are some cars and things here, too, Steve, and plenty of batteries."

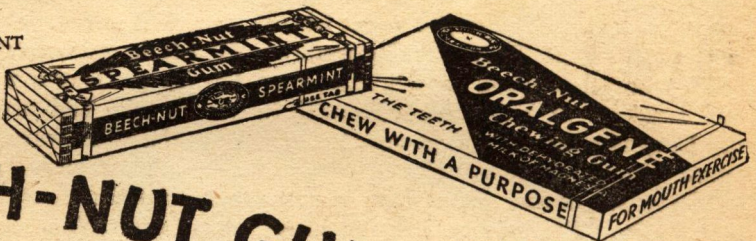
"We'll just keep quiet until the hunt dies down," said Steve tiredly, and then try to think of something else. We've got to get word of what we know out to where it can be used. The fools still think it's a plague——"

Discouragement weighed heavily upon him. He sat down and put his head in his hands. His efforts to combat the Invaders, by proving their ghastly weapon to be a weapon instead of a plague, had resulted in the use of that weapon upon three areas in New York and the wiping out of White Plains. It had probably cost the life of the one White Plains physician with the courage and intelligence to recognize proof when he saw it, and it had certainly cost the life of Steve's old instructor, Professor Hamlin.

He had achieved absolutely nothing. He and Lucy were alive. That was all. And they were hunted ruthlessly by the Invaders, and if they went out of the area the Invaders held, they would be shot down like mad dogs. Steve had enough to make him heartsick.

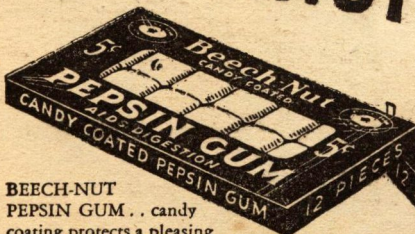
Then came more. He jerked his head upright. There were footsteps outside the garage. Then a voice, hushed and

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cautious. "Steve! Lucy! Steve! Lucy!"

It was Fran Dutt. He came furtively into the darkness of the garage and spoke desperately, "I know you're here! I traced you with a short-wave receiver. The Leaders haven't thought of that yet. I realized that you must have found out how I kept you from being caught when all of Newark went dead, so I fixed up a set to find you. I knew you'd come here after you got away from White Plains. I'm your friend, Steve! And Lucy's! I've got to talk to you!"

Dead silence. Then Steve's voice, cold and deadly. "I've got a gun on your middle, Fran. Come over here and talk. But talk quietly!"

Fran slid the door shut, with infinite care to avoid making a noise. Then he turned a flashlight on his own face. It was haggard and worn.

"I've been nearly crazy!" he said bitterly. "Lucy, you're all right?"

He swept the beam around. It touched Lucy, and its reflection showed Nick.

"Three of you, eh?" said Fran Dutt. "You are clever!"

He put the flashlight down on the floor, with its beam still glowing.

"There's nobody hunting near here," he said jerkily, "but it's worse than I thought, Steve. You've got to get Lucy away from here! They're taking women back to my homeland, to divide among the Leaders. It is horrible! Horrible! If Lucy is caught I will go mad! She must be made more safe!"

Steve sat down. Fran Dutt wrung his hands. The love he felt for Lucy

had saved both Steve and Lucy in the first place. Now Fran looked like a man in torment. Steve holstered his revolver.

"Well?" said Steve cynically. "How can Lucy be made more safe? I've tried, Heaven knows! What do you suggest?"

Fran Dutt made a lightninglike movement.

"This!" he said desperately.

A flash and an inadequate report came from something in his hand. A blue spark shot out from Nick's high-frequency pack. The tiny, silenced gun spat again. A wire of Steve's pack parted and a lurid spark flared momentarily.

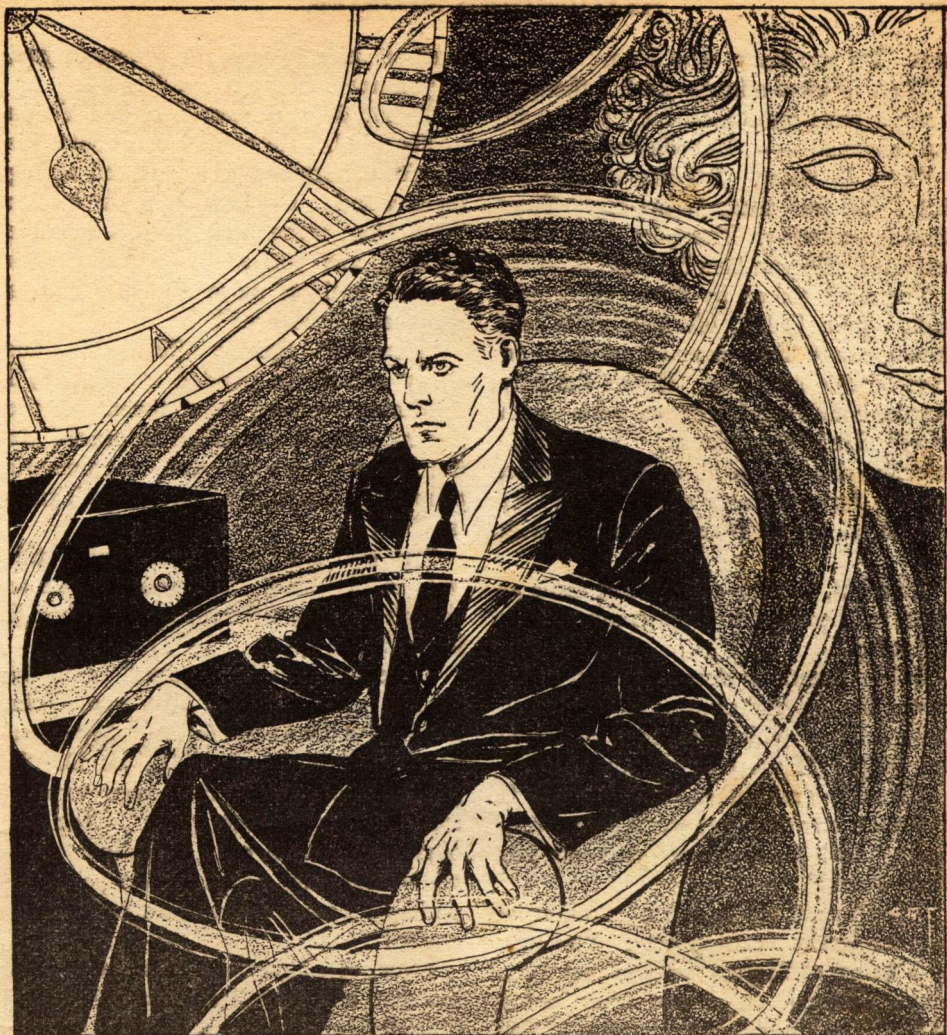
Then Lucy cried out. Nick toppled slowly forward, every muscle instantaneously stiffened in that ghastly tetany which men called the plague. He struck the floor of the garage and careened to one side, unspeakably grotesque because he retained the pose in which he had been standing. And Steve, seated on the running board of the dismantled car, was utterly motionless. Not a muscle moved. Not an eyelid flickered.

Lucy cried out when she saw Steve stiff and still. She thrust forward the revolver Steve had given her hours before. She pulled the trigger desperately. It clicked in complete futility. She had fired it empty not twenty minutes since, helping to shoot a way through the Invaders who had tried to capture them near the short-wave station.

"I almost wish," said Fran Dutt in exquisite bitterness, "that you had killed me, Lucy. You see, I love you."

*(To Be Continued)*

**In Part Four the struggle reaches toward its tremendous crisis with Lucy alone able to combat Dutt.**



*It was the only way he could regain contact with—  
with what?*

# The Time Entity

*A Thought-Variant Story*

by Eando Binder

**H**ERE I AM."

"Yes."

"You understand me clearly?"

"Yes."

"You've been expecting me?"

"Y-yes—in a way."

"You are not as frightened—superstitiously frightened—as formerly?"

"No, I'm not. That is—"

"You hesitate. You are still not

sure. Do you know who I am?"

"Yes. Wait a minute—no! I thought I might have for a moment. I thought you might be—— But it's impossible!"

"You *do* know. It's not impossible. But I feel our contact slipping. Your mind is wavering. Don't let—— Concentrate! Do you hear? Concentrate!"

The clock ticked by thirty silent seconds. John Dakin, his face white and drawn, closed his eyes and shut his mind from outside influence. It was the only way he could regain contact with—with what? He did not know. He subconsciously thought of it as an unknown entity. An entity or a mind that had for days been trying to communicate with him.

To-night, though—to-night it came as clear and articulate as if coming from the radio.

Dakin, breathing deeply like a sleeper, parted his lips and murmured half aloud the words by which he again contacted the entity: "I am concentrating."

"Good," came the ghostly 'voice.' "I feel that our *en rapport* is now very firm. And to continue—who do you think I am?"

"You are a voice, and a mind, from another world than my own. You may be a being of Mars. Or you may be a mind existing on some other astral plane." Dakin shivered slightly. "You may even be a voice from beyond the grave."

There was a pause before the other answered, and in that pause Dakin realized the entity was laughing. It was amused!

"You may be a hoax, too," added Dakin.

The entity seemed to ignore the last part. Its disembodied tones flooded again into Dakin's hypnotically receptive mind: "A voice from beyond the grave! You hit it close there. In fact, on second thought, you're exactly right. If the grave is considered as merely a division between life and death, I am as

much a voice *beyond* the grave, to you, as you are actually to me!"

"What do you mean?" asked Dakin in his mind. He could not prevent his lips from framing the words and saying them aloud. He became a bit ironic: "Can you mean that I'm a genuine psychic, and you a spirit, and our *en rapport* nothing more nor less than a spiritualistic séance?"

"Psychic? Spirit? Séance?" The entity seemed to ponder. "Oh, yes, I remember reading about them. In the ancient times it was called an oracle. In the Dark Ages it was necromantic prophecy. In your age it was spiritualism."

"In my age!" Dakin turned this over in his mind. The entity spoke as though from a different age, as though it existed in——

"The future! Of course," came the other's mind voice. "To you, John Dakin, I exist in the future. My calendar says it is the year 2086 A. D. So you see how appropriate your expression is—"beyond the grave." You are obviously that to me. And, in a manner of speaking, I am that to you. Or perhaps I am a voice from beyond the cradle!"

"Yes, of course," said Dakin. For a moment he rebelled against belief, told himself it was madness. His mind swam up from a fog of dreaminess, and he felt his contact with the entity stretch to the snapping point.

Then he told himself, "Why not?" He thrust from his mind the grapples of incredulity, which had nearly pulled him away from the entity, and again established connection.

"All right," he said, "you're a mind existing in the year 2086 A. D., one hundred and fifty years in the future to me."

"Good," returned the entity. "I admire your ready acceptance of a fact so strange. Yet it is a fact. Furthermore, I am your direct lineal grandchild, five times removed!"

DAKIN STARTED. Could it be possible that he was communicating with his own flesh and blood, and long after his bones must have been laid away from mortal life? "Good Lord!" he cried aloud. "If you really exist, then I've been dead over a century!"

"And if you really exist then I haven't been born, and won't be for another hundred-odd years!" added the entity.

"We'll grant that," said Dakin. "But this can somehow be explained rationally—perhaps even scientifically," he added stubbornly.

"Perfectly so," agreed the entity. "The conception of time is perhaps the hardest thing for the human mind to grasp without distortion. Time is always thought of as progress in a straight line, upon which there is no returning. It is called a dimension, but the only one of four which we cannot retrace. It is also understood to be constantly and uniformly moving, or rather moving us along its dimension. And we have not the power to stop it, nor escape from it, nor track back upon it. Is that time, John Dakin?"

"Yes, that's about it," replied Dakin. "Any event, once occurring, cannot be changed. It is done, forever."

The entity seemed to laugh, as it had once before.

Dakin squirmed mentally. He saw at once the paradox before his eyes. He was speaking to a mind that had no existence—had not occurred—in the year 1936. Conversely, he himself was dead in the year 2086. It could not be explained by thinking of his, Dakin's, mind freed of its dead body, for, obviously enough, he wasn't dead. Yet—

"Don't rack your brain with those paradoxes," came the entity's calm voice. "You can't look at time as a straight one-way path and explain even such a simple thing as instinct. Think of instinct once—the patterned reactions to definite stimuli. By what magical process does the duckling take to water,

the kitten spit at the dog, the male seek the female? Is it in the blood? If so, *what* is it? Is it a submerged, ancestral memory? If so, science admits the supernatural, for no chemistry can explain ancestral memory transmitted through one egg cell. Is it imitation of elders? If so, a boy and girl, both of virgin innocence, isolated on an island, would never discover sex.

"No—instinct can never be explained in these indirect ways. The direct way to account for it is to say that it is repetition; because it can't be anything else—because time loops back on itself! Because, in occurring the second and third times, any event has occurred the first time. And therefore has never occurred more than once! And—"

At the sound of a slamming door, the entity's voice became dim and faded away. Dakin's mind swirled up from its state of half coma. His staring eyes seemed gradually to make out the vague outline of his study room—the book shelves, the furniture, the shaded lamp. He stared hard at the radio, realizing suddenly that it had been on, but not tuned to any station, all during the time he had been *en rapport* with the entity.

DAKIN stepped to it, snapped it off, then turned to his visitor. Young Dakin, Jr., had entered stormily, slammed the door, and growled a greeting to his father. His face was darkly angry.

"Did you knock?" asked Dakin. "Sorry I didn't hear you."

"No, dad, I didn't. I was too mad clear through to think of it. And I'm still mad. Lois just threw me over. Here's her engagement ring."

"Let's see—that makes the fourth girl with whom you've broken an engagement."

"Oh, don't rub it in, dad."

Dakin grasped his son by the shoulders. "When in the name of Heaven," he asked earnestly, "are you going to really get married? You're twenty-four

now. Next spring you'll have your M. S. and be ready to settle down to work and marriage. That gives you just about time to pick out the bride."

The son drew himself up with a determined look. "Dad," he said solemnly, "I'm never going to get married! I've seen just enough of women to know you can't trust them, married or not."

He strode to the door while his father burst into laughter. At the door young Dakin turned. "Dad," he said half petulantly, "I can't understand you to-night. Any other time you would at least have been sympathetic. Incidentally, I'm taking that motor trip over the week-end with Sam. See you Monday, and I hope you'll have stopped laughing by then."

But Dakin could not stop for a while, even after his son had left.

"The whole point of the joke," Dakin explained to himself, "is that Jack, in saying he would *never* get married, contradicted himself without knowing it. For the entity is my, and therefore Jack's direct lineal descendant. Obviously then, my son *has* to get married, for I have no other children to carry down my line to that grandchild removed five times!"

THE NEXT EVENING Dakin again established contact with the entity. He closed the windows against outside noises, settled himself comfortably in his cushioned chair, and turned out the lights altogether. It was almost like making preparations for a necromantic rite that had to be done in a prescribed way, and in no other. He had even turned on the radio, without tuning it to a station, on the chance that it was part of the last evening's episode.

The entity was there immediately, as though waiting, as soon as he had relaxed. "I am here," was its opening announcement.

"Yes, and we can begin where we left

off," returned Dakin. "You were explaining to me *your* way of looking at time."

There was a short pause before Dakin again heard the entity's voice: "Before I begin, I ask that you throw aside all your previous conceptions of—everything! Free your mind of any prejudice. Listen to what I have to say as though your brain were an empty well into which I was pouring fresh water. Try only to grasp the large essentials, rather than small points. Ready now?"

The voice went on after Dakin had signified assent: "I mentioned last time that instinct is repetition simply because time is a looped repetition. Memory is another abstract quality hard to define, unless one thinks of reliving every instant over and over as often as the time loop curls back on itself. Why do we remember some things in our childhood vividly, and forget other events completely a week after happening? Simply—yet not so simply—because the successive loops of time are overlapping in places, far apart in others.

"You must think of time as unwinding from a spool, and retaining, like wire, its tendency to curl into loops. Time reels off steadily from the spool, but, after its looping, it falls into a systematic order of intertwined spirals. Wherever the loops touch or lie partly together, you have memory repetitions and instinct repetitions. The former are conscious, the latter subconscious.

"Now any repeated event—where the time loops touch or overlap—has happened only once, yet many times! If you can think of the time wire as braided with three strands—and call those strands past, present, and future—an event can easily happen in all three periods at the place of overlapping loops. And if you multiply the pasts and presents and futures, because they shift position as the time wire reels out, any single event becomes an endlessly repeated oneness! Do you follow me?"

"No," said Dakin frankly.

"No?" There was silence while the entity pondered. Presently: "I think I have tried to have you envision too much at once. And yet I haven't even explained how the small loops which determine memory and instinct and thought eventually complete a geometric pattern and form much huger looped designs—those which are the looms of atoms and all matter. Yet these loops, composed of the infinitesimally small memory-instinct loops, are themselves incredibly tiny. And again these loops complete a cycle and form the skeleton of ordinary phenomena, which include those of chemistry, physics and such. And these comparatively smaller looped loops form really tremendous circlets which guide the stars and planets in their courses.

"Time, looped and interlooped, and so on again and again, forms the pattern of the entire universe, from the beginning of all to the ultimate end, from Earth to the remotest galaxy, from the smallest vibron part of an electron to a giant red star, from life to death and beyond death!

"Your contemporary, Einstein"—Dakin was startled to hear that familiar name from the entity—"came quite close to this conception. He did bind the entire universe up with a single set of formulæ; showed the interchangeability of matter and energy; even discovered—without knowing what it was—one of the multiloops of time: that one which causes a light ray to circle back to its starting point after many ages. Had he gone a step further, he would have gained the fame that went to a man who in 1978 first formulated the grand scheme of looped time.

"As it was, Einstein showed that at the speed of light time has seemingly ceased to flow. What he should have said was that at the speed of light time had completed one of its great loops and had begun to form a still larger one."

THERE CAME A PAUSE; Dakin heaved a great sigh. "I'm afraid," he said despairingly, "that you're as far above my understanding as your age is beyond my age. Just tell me one thing. When you contacted me, how did you know it would be me, your ancestor?"

"Because this episode is, or will be, recorded in your diary! In plain words, the account you haven't yet written in your diary lies before me now. The pages are old and yellow, the ink faded—it is a small, thick book bound in alligator skin."

Dakin puzzled over this in a curiously detached way. He knew that little book reposed in his private drawer. How could it simultaneously be in the hands of the entity, and already aged for one hundred and fifty years? How could its pages be filled with words he hadn't yet written?

"I can only explain the seeming paradox," the entity's voice continued, "by saying that the diary I have exists only because I exist, when neither it nor I have yet occurred, in your conception! Remember that past and future are man-made figments of the mind. We exist, John Dakin, almost side by side!"

"But why can't we see one another, then?"

"Because the time loops, those next larger in dimension, do not coincide to that extent. The smallest time loops are those of instinct and memory. The next larger of conscious thought, by which we are connected. The next larger are those of atoms—of matter. All people—all life, in fact—are in direct contact with the past in instinct, and in memory, if they could probe their innermost mind. Much less often does thought contact—telepathy—happen, as with us. Physical contact, as in the third order of loops, happens much more rarely.

"Our contact is telepathic, from mind to mind, quite like radio. Your radio set is acting as an amplifying valve be-

tween us; it catches up and strengthens thought vibrations. Let's see—it was in 1956 that the radio principle was applied to telepathy, bringing that direct form of communication into general use. That's only twenty years in your future. You'll live to see that day."

"I should; I'll be sixty-four," said Dakin. A sudden thought struck him and brought goose pimples out on his flesh. The entity wasn't suggesting he would live that long. The entity stated he would. The entity knew!

"Yes, of course," said the voice with its uncanny knowledge of the thoughts passing through Dakin's mind. "I know your date of death, just as you know that of your father and grandfather."

"What is it?" snapped Dakin. "When did I—do I, die?"

"You will die to-morrow!"

Dakin gasped. "To-morrow! No! W-what——"

The entity was laughing again. "Of course not. What if I said at the age of ninety-six, what difference? Would it change the course of your life if you knew?"

Dakin calmed himself, felt ashamed of his display of an abysmal fear of death. "That is a question," he said thoughtfully. "If I knew I had to die to-morrow, I'd undoubtedly plan to make the most of my last twenty-four hours of life. For example, I might visit all my closest friends. But if I didn't know that I was to die, I wouldn't visit my friends, and there the future has two different paths to follow."

THE ENTITY seemed to laugh again. "Still thinking of time as a straight, one-way course! Which is more inevitable? The future, because the past, in occurring, molds the succeeding chain of events? Or the past, because the future, in arriving, determines the preceding course of events? At once you see, or should see, the

purely relative, and arbitrary, quality of those quite human conceptions of past, present, and future."

"All right," said Dakin, too weary by now to question, or try to understand.

"I sense that you are tired, John Dakin," said the entity then. "It is no wonder, however. Telepathy numbs the brain rapidly, drains its cells of the stored energy which in daily life renews as steadily as used. When shall we meet again?"

Dakin pondered a moment. To-morrow evening a banquet was to be given by the company in which he was a high-salaried official. It was triviality, but they would expect him——

"I would suggest," intruded the voice of the entity, "that you skip that perfunctory affair and again contact me to-morrow evening. You see, there is no telling how long the path of communication will be open to us. The twists in the time loop, which so far have favored us, may at any time break our connection—forever."

It had not occurred to Dakin that the inexplicable looping of time, which had brought them together, might wrench them apart. The contact with the entity became suddenly precious. "To-morrow evening, then," agreed Dakin.

The entity was gone, with a peculiar click in Dakin's mind, as if a switch had been turned off. Dakin pulled himself out of a state of blankness. He found himself even more weakened than the evening before. But it was not a physical effect. It was purely mental, with his brain aching and reeling.

Dakin noticed it was early, only ten o'clock, and decided to take a walk in the cool night air. After an hour's steady hiking, he found himself in the neighborhood of a friend, and, on sudden impulse, approached his home.

PROFESSOR WAXFORD greeted his late visitor with some surprise, but none the less cordially. "Professor,"



began Dakin when they had taken seats in the parlor, "what is time?"

Waxford blinked his eyes. "That's a rotten question to ask a man at this time of night," he said. They were old friends and always bullied one another. "But if you must have it, why the academic definition of time is the flow of events. To make a broad sweep of it, the movement of the cosmos from beginning to end."

"Does it move uniformly—and in one direction?"

Waxford laughed. "Do you know," he said, "that you're running into astrophysics—and a headache? Time apparently does flow uniformly, although there's no proof, since our instruments can't be trusted. You've heard of the Einstein clock moving at the speed of light which measures a second that could include the rise and fall of the Roman Empire."

"Skip that," said Dakin. "How about the direction?"

"Direction?" Waxford frowned. "I'm afraid you're taking the 'time-is-the-fourth-dimension' definition too literally."

"I mean," explained Dakin slowly, "does time ever loop back on itself? Does it ever work in such a way as to bring two separate periods of time in coincidence?"

Waxford shook his head. "When you try to treat time in just words, you run into meaningless ambiguousness. It must be done by mathematics—the kind that's helped to make me bald. Einstein has some original ideas about time, in fact about everything. For instance, if a person moved at half the speed of light, time would slow down for him. If he kept that speed up all his life, he might live for centuries—yet to him it would be only threescore ten, by his clock. Relativity."

"Time would slow down—would slow down——" Dakin muttered to himself for a moment. His brain was still numb

from its ordeal of an hour before; he found it hard to concentrate.

He found himself saying—"Time doesn't slow down, because it doesn't move in the first place—it loops"—without understanding what he meant. But that was what the entity had said.

"That's an odd way of looking at it," said Waxford. "It's like Einstein saying that gravitation may be just a warp in space, and of space, instead of a force. Explains it in the simplest way, but the most incredible. There are possibilities in a looped or spiraling time system, but too many of the equations end in zero. And zero is the one number mathematicians can't analyze."

"I'll bet *he* can analyze it," said Dakin, and at his friend's blank stare, added: "My grandson—five times removed."

The professor grinned. "Dakin, when you came in I thought you were drunk. Now I know you aren't, but I advise you to plaster yourself thoroughly."

Waxford refused to listen to anything more, and almost pushed Dakin out of the front door. They parted in mock anger. As a parting shot, Dakin promised to come back again and let the professor know why his zeros didn't work.

PHILOSOPHIC of temperament, Dakin slept soundly that night, and worked efficiently the next day at his office. He retired to the privacy of his study at nine o'clock that evening. It was Saturday, the evening of the banquet he was skipping to talk to a mind of the future.

He tried establishing contact at first without the radio. He heard the entity's voice, but very faintly. At the snap of the radio switch, the voice grew in volume, became clearly understandable. It was calling him by name, asking if he could hear, and to answer. Could it be just a voice induced by his own brain? Those queerly involved explanations of time—were they merely the tor-

scious twistings of a mind going under?

"O. K.," said Dakin, relaxing. "O. K., 2086 A. D."

"You are entertaining grave doubts that I am a voice from the future, John Dakin," greeted the entity.

"Well," said Dakin, "you—or it—could be a delusion of my own mind."

The entity laughed. "Two years from now," it said, "you will take a trip to Europe. It is in the records of the Dakin family album. Then, and perhaps then only, will you be sure that I am a voice from the future—the voice of one who knows the future, which has been my past."

"But suppose I make it a special point to avoid any such trip to Europe! I would change the future, and would make your prophecy meaningless. It would just cancel you!"

"It would, but it won't," returned the entity. "Look—your trip to Europe will follow a long chain of other little events in your life for the next two years. You would have to change the entire chain of those events to escape the eventuality of making the trip. As for making it a definite purpose in your life for the next two years to remember not to go to Europe—well, the family record says you went, so you didn't willfully cancel the trip to thwart fate."

"I didn't because I didn't—because I didn't!" said Dakin. "What a way to explain why a thing happens. Cause and effect should determine all events, not a blind destiny."

"Cause and effect!" reiterated the entity. "Another name for looped time. Many of the causes of events lie *after* the effect! Suppose you were to willfully destroy yourself and your son at this moment. I would not exist, nor could I ever have existed, being your descendant. *But*, if I had not existed, we wouldn't have had this conversation, and therefore you wouldn't have had any reason to think of ending your and your son's lives in order to change

destiny. And, since I *do* exist, the thought, though occurring to you, was never carried out. Now you figure out cause and effect.

"To use an illustration from history—history to both of us—Martin Luther threw his inkwell at a devil, and that devil was a voice from the future! Precisely as I had been trying to gain contact with you for days, so had this other future entity with Martin Luther. When full contact was established one night, Luther, drugged with religion, thought he was being plagued by a devil, and threw the historic inkwell. But that did not change the future; it was *inevitably* the future. It was just an incident made possible by the same spiraling of time that has brought us together.

"The oracles of Delphi, and many other recorded, and more unrecorded, things of a seemingly supernatural turn, are merely manifestations of time having looped and made it possible for minds of the future to contact minds of the past, as with us. You will immediately want to say that the past is therefore actually interfered with by the future."

"The way I see it—yes," agreed Dakin. "Not physically, but mentally, and therefore just as directly. For instance, I did not go to the banquet to-night because of you. If I had gone, that would have been a *different* event in my past."

"BUT YOU SEE," said the entity, "that turn of events did not occur. And, in not occurring, there has been no change in your future! You say I have made you avoid that possible—in fact, normal—event in your life to-night. That can only be true if you will grant that the future does not depend on the past, for your absence from the banquet does not account for my telling you to not go! I could have told you to go, but you wouldn't have anyway."

"Then why did you tell me not to go?"  
 "Because," said the entity, "I never try to thwart fate, knowing it to be use-

less. Fate being another name for looped time. You can't beat fate because you can't beat looped time."

"No?" retorted Dakin. His physical self smiled. "I did, though! The copy of the diary you have—says you told me *not* to go to the banquet, doesn't it?"

"No, it says I told you to go!"

"What?" cried Dakin. "But yesterday you told me *not* to go, even after reading my diary and seeing that I had said you had told me—here in my past—to go! You—you made a liar out of yourself!"

"Oh, no!" The entity laughed. "Because I read this account of your trick in falsifying the diary, too! That makes *you* the liar, in that you deliberately put the wrong words after me in your diary for last night. You didn't you see, fool fate. Now suppose, just to help you along, that I hadn't read about your trick soon enough to tell you not to go. Then, John Dakin, I would have told you to go, and in not going of your own volition, you would not have been able to say I was the cause of your not going, which started this whole argument. And which resulted in your clever, but unsuccessful, trick!"

Dakin, his mind peculiarly alive, saw that, too, and said: "You win, 2086. You can't beat looped time!"

"I'm glad that's cleared up," returned the entity. "Any way you figure it out, the future is as much the cause of the past as *vice versa*. And therefore neither is cause or effect. Past and future are side-by-side strands in the time wire, and since they are arbitrary according to viewpoint, cause and effect are purely relative. So you see, many of the so-called paradoxes of coexistent times are simply failure to carry through any given situation by plain logic."

For a short moment Dakin rested his whirling brain. Then he said: "Of course, we deal there only with actions and thoughts. But getting on a strictly physical basis, *you* exist only because I

have existed before you. I am the cause and you are the effect."

The entity laughed, but Dakin sensed it was a sympathetic laugh. "Strangely enough, that statement has no meaning. There is a wise old saying that has come down to our time, which no doubt you've heard: 'Which comes first, the chicken or the egg?' Applying it to our problem, are you any more the cause of me than I of you? Abstractly speaking, a mind with an unbiased opinion could trace the loops of time from either you to me, or from me to you.

"Because, you see, wherever the time loops touch or overlap, past and future are purely relative. We have contacted at one of the overlappings, you and I. Physically, you are my progenitor, five times removed in ancestry. But it happens that my descendant eight times removed, with whom I've communicated, lived in the year 1742 A. D., and was your ancestor!"

DAKIN'S BODY jerked convulsively in the chair, and his mind leaped like a frightened thing. Seconds went by. At last he asked quietly: "How can that be possible?"

"The queer, and yet not so queer, loopings of time," was the entity's rejoinder. "That descendant of mine, who was your ancestor, lived nine years in the 23rd Century, and then found himself mysteriously transported to 1742 A. D., and lived a useful life in that period for sixty-one years.

"What happened in his case was that the looping of time, giving him contact with the 18th Century while living in the 23rd, gave him contact both mentally and physically. A vast step beyond what you and I have. It is to be explained by the overlapping of those small loopings of time which form the material body of the universe. To him it was like a doorway, through which, with a boy's curiosity, he naturally stepped. Once, in the year 1742, the doorway

closed and he stayed to become your ancestor."

"Oh, it can't be!" groaned Dakin. "I must not believe it. It's—it's madness!"

"No, John Dakin, it's not madness. It's just an indication of the inextricable way the universe is woven together. Past and future—don't you see how arbitrary they are? That is why, in the schools of my time, we teach that those illusionary qualities of past, present and future are merely three strands in the time wire. It is not the flow or time which is unreeling from the great cosmic spool; it is the pattern of time, and of all things.

"Your age accounts time as that merely which the clock measures off. But time, in its grander scope, is the matrix of the cosmos. Einstein—to mention him again—saw part of the scheme, calling it 'space time.' But that is only half of it—one must conceive of 'space-time-matter-thought.' But that will not come—in your future—until the mathematicians realize that the number 00.00 is different from just zero. All the paradoxes of time lie in the cipher zero."

"Just what Waxford said," commented Dakin, half to himself. "What if I told my mathematician friend to take apart the zeros in his time equations? Would he solve the secret——"

"Before 1978?" finished the entity. "Still trying to uncurl the loops of time? No, he wouldn't. You see, in getting the hint from you, the relative position of past and——"

"Let's skip that," interjected Dakin pleadingly, and went on: "But tell me, does that sort of thing happen very often, where a person steps from one age to another, being at the same time his own ancestor and his own descendant?"

"More often than your rather unimaginative age would believe. Have you ever read the book 'Lo!' by your contemporary, Charles Fort? He specu-

lated rather closely in some things, although the rest was wild guesswork. But he does mention the fact that people are mysteriously disappearing off the earth and others appearing from nowhere. It is true. The overlappings of the numberless time loops quite often open the doors between past and future.

"Your very prosaic age refuses to credit such things, but the ages previous did not. Perhaps most of the tales of demons, witches, ghosts and such were based on these transpositions of people and animals. Classical mythology, in its essence, is a series of records of beings who came from nowhere. The early Grecians simply dressed the accounts, as did the later ages. Your peculiar age, stilted and hard-headed, refuses to believe at all. My age and those following, believed and found the explanation—looped time."

"Looped time," echoed Dakin. "And you can't beat it—wait! Maybe I can beat it, Mr. Dakin of 2086."

"Miss Dakin, if you please! Miss Joan Dakin—and I will marry a Dakin."

"What? Oh, gosh——"

"Telepathy is quite sexless." The entity laughed.

Dakin recovered his poise. "Anyway," he said, "that diary of mine you have—it says I did not go to the banquet to-night—you're sure of that?"

"Yes—too sure!"

Dakin failed to catch the sudden sadness in the entity's mind voice. He went on eagerly: "Well, look—I'm going to that banquet right now! It's not too late. That beats your looped time—knocks it for a loop, in fact. I'll——"

Dakin was aware of a bell ringing. It was the telephone out in the hallway. His contact with the entity thus rudely broken, he went to the phone.

"Yes, John Dakin speaking. . . . My son? . . . He's—what! . . . Accident! . . . In their car—his friend killed? . . . But my son! What's happened to him?"

A minute later Dakin slipped the receiver on the hook with nerveless fingers. His son had been killed in the head-on smash-up with another car! Like an automaton, Dakin went back to his study, slumped into his chair.

He had forgotten about his queer determination to beat looped time by going to a banquet he didn't go to. And in this way had looped time triumphed after all. He had forgotten the entity, too, in his sudden shock, until he felt its mental radiations prying into his consciousness.

"John Dakin, what is it I see? Your son is—dead?"

Dakin raised haggard eyes, as though trying to seek out the speaker. "You dare to ask that!" he cried. "It's there—must be—in my diary. You knew it all the time!" His voice changed to a moan: "Why didn't you tell me? We might have beat looped time—saved my son—"

A sudden, startled look came into Dakin's eyes. His voice rose to a half scream: "My only son dead! And that means you don't exist! Lord! You can't exist! You're a hoax—a delusion! Go away—I won't listen to something which doesn't exist! Lord!"

THE LAST WORDS Dakin heard from the entity were enigmatical ones. Dakin had no chance to demand an

explanation, for right afterward their contact had been broken—forever. The strange looping of time which had brought their mentalities together as suddenly tore them apart.

Dakin pondered the words for many months. After the hurt which came with his son's death had healed, he was able to look back upon his contact with the entity in careful perspective.

Incredible as it had all been, unbelievable though the things were that he had heard, Dakin believed. Believed in spite of the seeming paradox of the entity having no existence with the death of his son.

Dakin tried every sort of mental gymnastic he could think of to explain away the paradox. He juggled centuries and pasts and futures. He tried figuring a turn of events that would make the entity an ancestor instead of a descendant. He even tried diagraming the loopings of time. But all the while, in the back of his mind, he knew the true answer.

The entity had said: "Your son is dead. He died unmarried, without issue. Therefore I must not exist. But, stubbornly enough, I continue to exist. The answer, John Dakin, is simpler than you think."

And Dakin realized that three years later, when he led his second bride to the altar.

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# The Saprophyte

*What was that strange column  
that ate its way through cities?  
That drove men mad? What?*

by NAT SCHACHNER

IT was a long, steep climb up the rocky slope of Baldeagle Mountain, and the Sun was a globe of liquid fire almost directly overhead, but Hugh Warner did not mind. In fact, he was enjoying it thoroughly, this pitting of sheer muscular strength against the hard physical surface of things, this momentary release from the four walls of his laboratory that nestled far beneath in the smiling valley.

"Hold on, Hugh!" a voice, half laughing, half panting, sounded immediately behind and below him. "I didn't know you had mountain-goat blood in your veins. I can't keep up with you."

"Sorry, Jane!" he said, as he swung her up to the flat rock beside him, "but I'm so glad to get out into the open, and forget quanta and protons and mass spectographs and futile experiments, that I think I really could give a mountain goat a run for it."

Jane Castle shaded her eyes against the glare of the Sun, looked back the long way they had come. They were above timber line. Below were stunted dwarf pines, then the wooded flanks, stretching interminably down. Far beneath lay the smiling valley, sun-kissed, threaded by the silvery wind of the river, lush with ripe-eared grain and fat kine and red barns filled to the bursting.

Farther up the glistening stream,

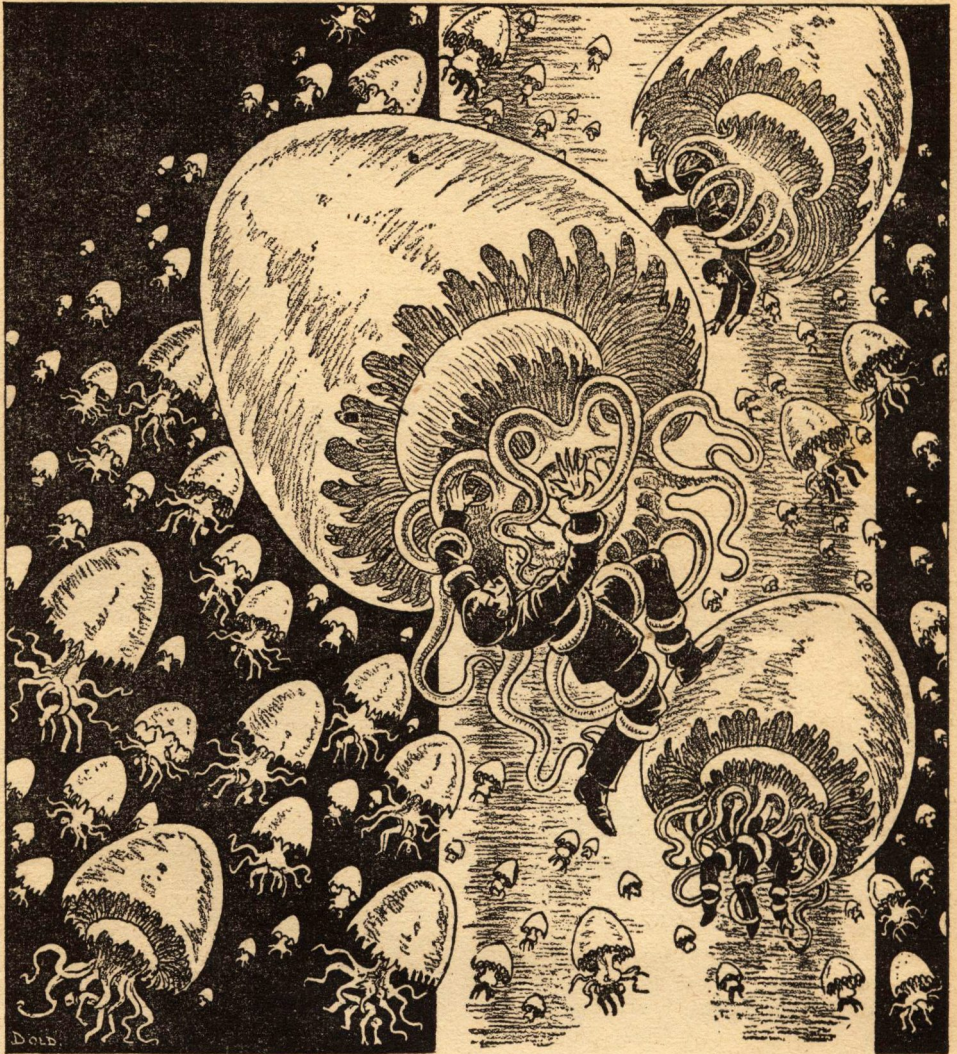
sprawled along its banks like a gigantic jig-saw puzzle, stretched Middletown, metropolis of the valley, population 25,000, blessed with Rotary and Lion's Club and Chamber of Commerce and slogans alike.

She took a deep breath. "I'm glad I got you away from that stuffy lab of yours, even if only for the day," she said. "Ever since the foundation placed its research unit here in Vermont I've hardly known what it is to have a fiancé."

Hugh pressed her small fingers. "You've been a brick coming up to see me," he apologized. "But we're tottering on the verge of some important discoveries on the nature of light, and—well"—he grinned down at her—"we scientists are somewhat like soldiers on a battlefield—when the photon bullets are flying and the electron shells are exploding, we can't simply quit and run away because we have sweethearts waiting."

Though it was hot and the Sun's rays beat mercilessly against the tumbled rocks, she shivered a little bit. "I don't like your similes, Hugh Warner," she told him. "War—battlefields—soldiers—I hope we never see those again." She stared down at the valley, at the red brick buildings of the Welles Foundation far below. "Thank heavens *your* battles

# Men Of Venus



*The luminous blobs of light dropped steadily,  
lightly—tens of them—scores of them—*

are metaphorical only—weapons against the secrets of nature. I don't care at all for the other kind."

"No more do I," he assented gravely. "But the one is just as real as the other, and who knows——"

She sprang to her feet. "We're talk-

ing nonsense," she cried. "In the midst of peace we talk of war; overlooking this scene where everything is drowsy, content with mere existence, we discuss bullets and shells. Nothing could ever happen here. Come on, I'll race you to the top."

She was off, light-footed, graceful, clambering swiftly up the rocks. He looked after her quizzically a moment, filled with warm tenderness, then he hallooed, "Look out, I'm coming!" and climbed after her.

A GIGANTIC SHADOW swept like a hooding shroud over Hugh. One moment there had been the glare of heated rocks, the dazzling vistas of far-off tumbling hills and valleys; the next moment he was plunged in utter darkness. Some one cried out sharply ahead of him—Jane; while his poised foot and extended arm, groping for holds on jutting boulders that had suddenly disappeared, missed their vantage points, and sent him stumbling and rolling. Only the timely interposition of an invisible rock saved him from a clattering fall down the mountainside, and a steep descent to extinction over the terminal precipice. Bruised, battered, he hauled himself gingerly erect.

"Jane!" he shouted hoarsely into the enveloping dark. Fear gripped him—fear for her that was too overwhelming to leave room for fear or wonder at the sudden obliteration of all light.

"Here I am, Hugh, safe and sound," he heard her clear voice, straight ahead, piercing the sudden blackness like a liberating sword. "What's happened?"

"I don't know," he admitted. "But hold on tight. I'm coming up for you." Painfully, on hands and knees, he groped his way upward, seeing nothing, hearing nothing. A cold wind had sprung up, chill with the frigidity of outer space. It whipped through his thin khaki shirt and trousers, froze the perspiration on his side. Finally, hearkening to her repeated calls, he was at her side.

Her cold little hand gripped his tight in the darkness. They clung to each other in thankfulness, though unseeing. "What could it be?" she asked with a little tremor. "An eclipse?"

"None scheduled for now," he answered, and peered into the icy gloom. At one bound the mysterious darkness had fallen upon them. The world was a bottomless void—no sky, no earth, no sign of anything but that strange, weird totality of blankness.

"Perhaps"—and the tremor in her voice betrayed the growing fear—"your experiments are responsible, Hugh. Perhaps your machines have concentrated the light waves, the photons, and sucked them away from the land."

"Nonsense," he told her half angrily. This was no time for jesting. The world had been blotted out, and they were stranded, helpless, shivering, on the top of a mountain. "It's something far beyond any laboratory work. It's—Hello!" He broke off, stared. "The stars are out. Look! We were just blinded for the moment by the sudden cessation of light."

Jane looked up. Bright pin points stabbed the pervading gloom, shed their wan feebleness over dimly descried peaks and escarpments. "Then all light isn't gone," she said shakily. "For a while I thought——"

Hugh held her arm very tight. In the dimness his face was a puckered frown. "Then that means it isn't a strange cloud of sorts," he muttered. "It must be the Sun." Almost involuntarily his head went back. As it did a stifled cry came from him. "Good Lord, it is the Sun! Look, Jane."

She followed the shadowed outlines of his arm. Where the Sun had been, seconds before, a blinding, molten glow too dazzling for human sight, there was now nothing—or worse than nothing. There, in the blue-black background of the heavens, surrounded by a guarding circlet of faint stars, was a black hole of nothingness, the exact size of the Sun—a disk of impenetrability, of blankness, of utter extinction.

"Hugh!" she said rapidly. "The Sun's gone. It's vanished—forever!"



She twisted toward him, her face a mere pallid blob.

His arms tightened around her. "Don't be silly," he reproved her. "It's just some natural phenomenon, an eclipse of some kind. Perhaps I slipped up; I've been so busy with my own work. But it's getting frightfully cold; we'd better try to make our way down to the valley. There's ice forming already on the rocks."

HE WAS not mistaken. Hoarfrost spread with uncanny rapidity, white, glimmering, and solidifying into a smooth, slippery surface. What with ice and darkness, it would be dangerous work getting down.

Hugh had spoken confidently, but in his own mind he was afraid. This was no mere eclipse. In the first place, no eclipse was scheduled for this part of the country, either now or for years to come; in the second place, an eclipse was gradual, while this cessation of light had come on with startling suddenness. *And there was no sign of the Sun's reappearance!* That sinister black hole in the sky was as complete, as smoothly round, as minutes before.

But of all this he said nothing as they descended cautiously, feeling their way over whitening rocks. The invisible trail led somewhat to the left—of that he was sure. Slowly, panting a little, they turned the heft of a sheer wall, which, he remembered, marked the beginning of the beaten path.

Jane stopped short with a cry of surprise. "Hugh! Look!" Before them, directly ahead, was the weirdest, most wonderful sight on which mortal man had ever laid eyes. Far up the valley, a huge cylinder of flame sprang shimmering out of the earth, and heaved perpendicularly up, up, until Hugh's back-flung head ached from stretching.

Its smooth, round flanks glowed with the fiery colors of the rainbow, weaving and swirling in restless iridescence. So

dazing was its base, it pierced the eye like red-hot knives; then, as it lifted its huge bulk into the enveloping darkness, it grew less bright, until, at the very limits of Earth's highest stratosphere, it vanished abruptly into surrounding space.

"Hugh!" Jane cried, "I'm afraid. It—it's un-Earthly."

Hugh Warner was astounded. Light was his special province, but never had he seen anything to compare with that vast cylinder of playing colors; nothing on Earth, no phenomenon of nature, could account for this resplendent, yet almost sinister display. Good Lord! it was almost five miles across, blanking the river, the valley fields, barely missing the outskirts of Middletown.

"Have you noticed that it doesn't light up the darkness?" Jane exclaimed. "As though—as though the cylinder of light were self-contained."

"I've noticed it," Hugh remarked grimly. That had been the most surprising feature of the un-Earthly radiance. The shaft of iridescence rose smoothly, sharply, into the black veil of artificial night. The colors swirled and glowed, but held within the round of the cylinder. Darkness, more Stygian by sudden contrast, began where dazzlement ended. There was no penumbra, no twilight zone such as Earth's atmosphere must normally make.

Jane's teeth were chattering. "I'm cold, Hugh. We'll freeze if we don't move."

Hugh came out of his scientific daze. It *was* cold, and snow—large, dim, soft flakes—was beginning to fall. "We're going," he muttered. "Perhaps down in the lab I'll be able to— Come on!"

IT WAS a hard, dangerous climb in the dark. Only the glimmer of white snow, the feeble stars still peering through the swirl held them from missteps and destruction. In the laboratory, they found confusion worse confounded.

The place was in utter darkness; the power seemed to have been abruptly cut off with the first appearance of the artificial night and the cylinder of colored flame.

Men were moving around with kerosene lamps and candles, bundled in sweaters and shivering with cold. All eyes were directed through the gloom at that sinister, sky-piercing shaft; all tongues were chattering with unleashed excitement.

"Thank Heaven you've come back," John Frith shouted at them as they staggered, frozen and stiff with fatigue, into the little circle of bobbing illumination. "We were going to send up a search party soon, though it would have been suicide. But what do you make of it, chief?"

He was Hugh Warner's assistant, a little, wizened old man, with bright eyes and a chirruping, birdlike voice. But he was uncannily deft with his hands, and no one could set up delicate apparatus and make millimicron adjustment as he could.

"John, quick," Hugh ordered. "Take Miss Castle inside, bundle her up well, and give her hot tea with a dash of rum."

"You too, chief," Frith chirruped. "You're practically icicles right now."

It was quite a while before they thawed out in the heat of a log fire some one had kindled. Meanwhile Hugh was machine-gunning staccato questions at his men. But they could add little to what he knew.

"There isn't a bit of juice in the place," Howard Bradshaw, the electrician, interjected. "All power's gone. Telephone, radio, everything. We're isolated from the rest of the world."

"That is—if there *is* any rest of the world," Oliver Tazewell, assistant physicist, said gloomily. "The blanket of darkness seems interminable. The Sun's wiped out."

But Frith was staring at the log fire;

at the lamps. His bony finger shot out suddenly, pointed. "Look at that," he wheezed with excitement. "I've been watching. The tongues of fire are all pointing one way—toward that damned cylinder outside."

They all stared. Sure enough, the flame, from whatever source, was bent over at an acute angle, as if sucked by some invisible force, directly toward the looming shaft.

"That settles it," Hugh said grimly. "That fiery portent is a tube of force, of an order hitherto unimaginable on Earth; and somehow, it sucks all ether vibrations, light, heat, electricity, magnetism, from the surrounding territory into itself to build and renew its vortex of light."

"But where does it come from?" asked Bradshaw.

No one answered. They checked their own apparatus, in the improbable event that it had been responsible. But no experiment had been in progress, and the machinery was inert, dead, sucked of all energy.

They huddled over the dim, pointing light of the fire, arguing excitedly, spinning theories, rearing structures of hypotheses, only to have them crash. Meanwhile the darkness grew more and more intense, the cold more bitter, the great shining cylinder more dazzling, and the Sun was a round hole of extinction in a star-studded sky.

It was Jane, wrapped up in blankets, who put her finger on the semisolution by her innocent question. "How high do you think it extends?" she asked.

Hugh whooped. "Of course. We can check its point of origin from its height. Get out the theodolites."

IN MINUTES they had taken the altitude, shifted the base out into the brittle snow, taken another reading. Then pencils raced.

John Frith looked up. "Its height," he

said slowly, "up to the apex of fading, is 196 miles."

"Exactly," Hugh cried out, "the height of Earth's atmosphere. Gentlemen"—he looked around the tense circle gravely—"that cylinder of flame is no Earthly phenomenon. It is directed at Earth purposely from some point in outer space. Light waves, or photons, are naturally invisible while traveling through airless space; they begin to glimmer faintly in the highest reaches of the stratosphere, and become more and more bright as the denser layers of the atmosphere are reached. But it's more than that.

"To build up such unimaginable compression of light, it was necessary to drain all the Sun's wide-spreading etheric emissions into the tense, hard round of the directive cylinder. That is why we are in darkness, why heat and light and all other manifestations of ether waves have left us. They—or most of them—have by some unimaginable means been sucked away and into the cylinder."

They sat there, huddled, allowing the awesome thought to digest—a bit scared.

"That means," Bradshaw broke the silence, "there are beings somewhere, up there"—his arm went toward the window, out to the frosty stars, past the tremendous column—"who have a science far beyond ours, who for some unimaginable reason have directed that cylinder of etheric force directly at our planet."

"Yes," Hugh said carefully. There was another silence. Thoughts raced. What did it portend? What was going to happen next?

"Do you think," Jane asked, with a little catch in her voice, "this strange darkness covers the entire Earth?" She was thinking of her parents down in New York, of all the peoples of the world. For, with the light of the Sun abstracted, with all manifestations of that orb's etheric energy concentrated in

the mysterious cylinder, Earth's peoples were doomed to destruction, to insane deaths from cold, from darkness, from the very cessation of being.

In her mind's eye she could visualize the panic that must ensue, the wild, helter-skelter flight from the growing cold, the huge bonfires of buildings, forests, anything to gain a modicum of warmth and light, the slow, inexorable advance of a new glacial age from the frozen North. The others stirred uneasily; they, too, were thinking along the same lines.

Frith suddenly shook his fist at the inimical, strangely glowing cylinder of flame.

Hugh rose grimly. "I intend finding that out shortly. If my theory is correct, radio etheric waves are flowing past us toward the cylinder. In other words, if stations are still functioning somewhere in the world, undrained of their power, their signals will come to us, even though we can't buck the ether suction by transmitting to them."

"How will we receive?" queried Bradshaw. "Our power lines are dead."

"Our outside lines are," Hugh answered. "But we have powerful storage batteries for emergency use. The chemicals are there, and the potentials are intact. They have as yet no ether waves to drain away. If we connect them in series, we may be able to build up enough current for our sets faster than it can be sucked into the vortex."

HE WAS RIGHT. In half an hour a low, feeble hum and dimly lighted tubes told them that some current was passing through the receiver. Then, as they strained to listen, through crackling static and etheric howls, came faint announcements. New York was calling, over and over, giving news, seeking information from the dead area. Slowly, painfully, overlaid with howls and squeaks and grunts as the ether waves

fled blindly past, seeking the swirling surface of that strange beacon of light, they pieced together the story.

The area of darkness extended over a radius of some two hundred miles. New York was on the outer verge of the circumscribing circle. The rim of darkness was as sharply delineated as the cylinder itself; there was no twilight zone between night and day. Outside, the Sun shone, but only as a wan replica of its former self, as though part of its tremendous etheric manifestations had been shorn away. The multicolored portent was visible over half the United States—steady, towering, ominous.

The world was in a panic; scientists were converging to study the strange phenomenon. The people of the blanketed territories were streaming out into the blessed day, with tales of perishing cold and fear. But millions more were buried within the strange pall, unheard from, their situation unknown.

Rescue expeditions were being fitted out to penetrate the frigid darkness, scientific expeditions to try and pierce to the mysterious cylinder itself. But it would be difficult. Already the snow was feet deep on the outer rim; automobiles could not be used, nor any mechanisms powered electrically. Even heat radiated too fast for efficiency. Sledges were being hurried from the North, all the impedimenta of polar exploration. It would take time, and—

Interspersed with these excited announcements came faint calls for the Welles Laboratory, for Hugh Warner himself. Were they alive? Could they do something, study, find some way to circumvent, destroy the cylinder? Frantic calls, barely heard through magnifying ear phones.

Hugh rose slowly from the receiver. His face was lined and taut. "It's up to us," he said quietly. "We're at the very center of things. Before outside help could come, five million people will have perished." He paused, took a deep

breath. "That isn't all. That cylinder somehow spells doom to our Earth. It was directed at us deliberately, for a definite purpose. That purpose, gentlemen, I'm afraid is, from the standpoint of Earth, maleficent."

"But what manner of beings, and from where, could have done this?" Jane cried.

Hugh shook his head. "I can't answer the first part of your question, but I can the second."

He strode to the window, rubbed the frost away, peered out. The others crowded around.

It was still snowing, but the sky was cloudless. The swift change in temperature had precipitated and frozen all the moisture in the atmosphere. Above, the stars shone in mockery; to the left the luminous cylinder thrust upward in smooth immobility.

"Venus is now in conjunction with the Sun," Hugh said, "almost in a straight line. Can any of you see the planet?"

THEY shook their heads. Venus was gone, though the other planets—Jupiter, Mars, Mercury even, were visible in the star-studded night. But Venus had vanished, even as the Sun itself. "There's the answer," Hugh told them somberly. "The force ray comes from Venus."

"But how?" demanded Bradshaw. "I thought it was the Sun's rays that were being concentrated."

"Exactly," Hugh explained. "But it is on Venus that the trick is being turned. Venus is nearer to being in a straight line with Sun and Earth than at any time within the past twenty-five years. This is no natural phenomenon," he told them earnestly. "There is evidently a race of beings on Venus far in advance of Earth in scientific achievements. They've been able to do what we here have only been playing around

with. They've used their planet as a gigantic focusing lens.

"By some method, as yet unknown to us, they've deflected the etheric vibrations of the Sun over a radius at least equal to that of their planet, and concentrated them into the glowing cylinder of energy. Then, with uncanny powers, they directed it toward Earth through millions of miles of space, to glow into etheric being on striking our atmosphere."

They shuffled their feet and looked uneasily at each other. Beings of such an order of intelligence and power on another planet. What were the implications for Earth and its puny people?

Jane asked the question uppermost in every one's mind. "But what is their purpose?" she insisted. "Is it merely a means of signaling us, in case our planet should be inhabited, or is it——"

She stopped short, but the unspoken thought echoed with hammer blows in all their minds.

Hugh's face was white, yet purposeful in the flickering, turning flame. "That's what I'm going to find out," he announced.

"Alone?" demanded Bradshaw.

"Alone."

Jane came over, put her hand on his arm. "I am going with you," she said determinedly.

He looked at her in consternation. "You can't, Jane!" he cried. "If what I think is true, it may be——" He hesitated, while she finished for him with grave emphasis.

"Dangerous, you meant to say. I know it; that's why my place is with you. The others can take care of the lab, get the messages as they drift through from the outer world, perhaps even rig up some apparatus to establish power again. I'd only be in the way. But out there——"

Hugh's brow furrowed. "All right," he acquiesced reluctantly. "Bundle up well, and take a pistol along."

Ten minutes later they were trudging through the foot-deep snow, guiding their way by the un-Earthly, yet tremendously splendid flare of the gigantic beacon. It was bitter cold, yet strangely windless. All the world seemed frozen into immobility, breathless before that alien cylinder.

Behind them the laboratory had been swallowed up in blanketing darkness. The feeble flicker of the hearth fire was insufficient to penetrate the gloom. The snow had ceased, and the stars were frigid sparkles of distant light. No sound came to them but the *crunch, crunch*, of their own lagging feet. Houses, looming dark and tenantless, drifted behind them.

"Poor people!" said Jane. "They must be dead from cold or fright."

It was ten miles to Middletown—and the weird force beam; and the highway was obliterated in the uncanny night. But they struggled on and on. Hugh's mittened hand was always close to the pocket of his heavy ulster, where an automatic nestled. Just in case—— In his other pockets were bits of apparatus he had picked out of their store—also just in case——

THEY SAW their first human being about three miles out of Middletown. He was staggering wearily through the drifts, wheezing and moaning to himself. He shied away from them, as if they were wild beasts, glared momentarily with the light of madness in his eyes, then fled over the crusted snow, uttering shrill cries.

"Gone crazy," Hugh muttered. "We'll see more of them, I'm afraid."

They did. As they came closer to the darkened town, and the looming cylinder, the tide of fugitives increased. All were hurrying as if their very lives depended on getting away from there as fast as they could! Hugh tried to stop some of them, but they broke away with furious haste, fearing to lose even

a second in their dreadful flight. One, more coherent than the others, cried a warning: "For Heaven's sake, don't go! Turn back!"

"But why?" Hugh demanded.

"The *things!*" the fellow screamed. "They get you." And he took to his heels as if he had already lost too much time.

Hugh's brow furrowed more and more. "Jane," he said abruptly, "you'd better turn back, get to the laboratory."

She faced him in the darkness, punctuated now with the tramp of the fugitives, their panting cries of fear. "And you?"

"I must go ahead."

"Then so must I," she answered quietly, and resumed her forward pace.

About a mile from Middletown the flood of human beings slowed to a trickle, then ceased altogether. The town was a dim, outstretched blob before them, silent as the grave, seemingly altogether deserted. Just outside its limits reared the tremendous structure of the five-mile-wide shaft of iridescent light, supernal in its brilliance and smooth race of shifting colors, piercing into the very heavens themselves.

"I don't like this," Hugh said, as they slogged through the crunching snow.

"What is that?" Jane cried out suddenly.

Hugh stopped, stared. High overhead, launching itself straight out of the mysterious circlet of swirling force, floated a luminous apparition. Then another, and another, until the dun darkness was spangled with gigantic, flitting fireflies, tens of them, scores, and hundreds. They were too high at first for visibility, but soon they straightened out their course, and descended like flakes of flaming snow to the moribund city beneath.

THE TWO Earth people instinctively shrank behind the sheltering trunk of a tree, not knowing what or why they

feared, but filled with ancestral bristlings against the unknown. The luminous blobs of light dropped steadily, lightly, toward Middletown, and, as they poised in a disk of spangled fire before the last vanishing descent into the street of the darkened town, Hugh and Jane were enabled to make out the internal structure of the strange apparitions. With a single accord they turned, stared at each other with blanched faces and gasping breath.

"They're alive," whispered Jane, as if she were afraid of being overheard.

"Sentient, motile plants," added Hugh in a smothered voice. "Gigantic fungi, like spreading mushrooms, with hundreds of waving rootlets like octopus tentacles. Dead-white, too, bleached of all chlorophyll. But of course, for the dense atmosphere of Venus permits hardly any of the Sun's rays to penetrate. Each is surrounded with an incasement of circumscribed light, like the cylinder itself. Their bodies must be powerful magnets, to deflect and concentrate etheric waves in a shell about them. These, Jane, are the plant-men of Venus, shot to Earth through that cylinder of light."

Jane gasped. "But it's impossible, Hugh—living forms to propel themselves over 26,000,000 miles of space without air or food. Even plants and fungi breathe and require nourishment."

"That's true," he admitted, peering vainly toward the unspattered darkness of Middletown. "Unless, within that tube of force, there are space vessels in which they had come. But we must go——"

He never completed his sentence. For just then a confusion of faint screams and smothered cries of agony emanated from the too-quiet city. Shrieks as of human beings in the last ecstasy of pain and dread: the deep, lacerated cries of men; the high, piercing screams of women; the frightened, sobbing wails of children.

Hugh started to his feet, his automatic snouting in his hand. "For Heaven's sake, what is that?"

They were to find out only too soon. For the great, luminous fungi rose like petals of fire from the darkened house-tops, swollen and extended over their former leanness.

Hugh ripped out an oath, cried vainly to Jane: "Back, back. Don't look!"

But she had seen, and in the seeing, covered her eyes with mittened hands to avoid further sight. For the multitudinous rootlets were anchored deep into the struggling bodies of human beings, limp with the last agony, and they were being borne swiftly aloft, to plunge into the great glowing column in horrible vanishment. Hundreds of Venusian plant-men rose, each with its dreadful load, until once more the city lay dark and silent, and the surrounding night was a pall of horror.

"Oh, the poor, poor people!" Jane moaned. "They must have been hiding in their houses. What frightful things those Venusians are, with all their intellect and scientific knowledge!"

Hugh's face was a grim, tight mask. "From our point of view, yes. But not from theirs. Fungi are saprophytes. They live on dead organic matter, sucking in nutriment through their rootlets. We are natural food to them, just as certain plants and animals are to us. Perhaps that's the reason they migrated from their native home to Earth. The food supply was giving out. We must be fair."

Jane took her hands away from her eyes. "Hugh!" she cried in a shocked voice. "You—you're defending those horrible beings when your own kind are suffering torture and death before your eyes. How could you?"

Hugh smiled painfully. "I've an unfortunate habit of seeing the other fellow's point of view. But," he said, his voice hardened, "that doesn't mean I

won't do my best to destroy them. It's the law of self-preservation."

"But how can we?" persisted Jane.

He shook his head. "I don't exactly know. But I'm going to find out soon enough."

"Where?"

"Within that tube of light."

HALF AN HOUR LATER they had crawled warily up to the very round of the supernal edifice of weaving flame. Everything had been deathly quiet; Middletown was a blob of ravished emptiness, and no more plant-men had erupted.

"Digesting their odious food." Jane shuddered. "Poor people, let's hope their end was swift and painless." Even then they did not realize the full horror of the Venusians' feasting.

They stared up at the high, kadeidoscopic round as it penetrated the topmost sky. A sinking feeling was in their hearts. How could they two puny mortals, with puny Earth weapons, attempt to combat the unbelievable science of these creatures from another planet!

Yet, when Hugh pressed Jane's small hand, she understood the mute question and said steadily: "I am not afraid, Hugh. If we fail, all Earth will succumb to the invader."

"We *must* succeed," he assured her, but his tone lacked conviction. It was indeed an incredible task they had set themselves.

For a moment they stared at the shimmering, racing light that blocked their path. "It radiates no heat," Jane said. Hugh thrust a wary hand into the fiery glow of colors, bracing himself for—he knew not what? Nothing happened. His hand disappeared into the luminous wall, but he felt nothing. "Cold light," he muttered. "Something our scientists have been vainly seeking for a century. Somehow they've stepped up or stepped down the vibration period of all other forms of ether waves, to extract full

efficiency in pure light. I wonder why they formed this space tube, though? It's penetrable, and serves no purpose that I can detect."

They looked at each other gravely, with the rainbow hue upon them, as if they were seeing each other for the last time. Very likely it was. They had no means of telling what lay beyond. Yet, steadily, without a whimper, the two brave humans walked quietly through the wall of light, walked hand in hand for what seemed miles, yet was actually only a hundred yards, to burst upon a scene that held them taut, speechless, hardly recking of their imminent danger.

The huge force tube from outer space was a hollow shell. Within its circumscribed interior a great shaft of darkness extended upward to a seeming infinity. But the shaft was not empty. Everywhere were the Venusian plant-men; great luminous fungi floating in the ambient darkness, or resting on the ground, busy with their myriad rootlets on strange engines and machines of extremely complicated design and *outré* shapes of which Hugh, with all his scientific knowledge, could only guess the functions.

He watched them eagerly, with a strange fascination, marveling at the deftness of those rootlets, more pliable and skillful than any hands, wondering at those machines compounded of fused and luminescent earth, glassily transparent and whirring at almost invisible speeds. He hardly remembered the purpose of his spying, the immediate danger to themselves. Luckily, their bodies were semisheltered by the wall of colored flame, and the plant-men were engrossed in their tasks.

IT WAS Jane's shuddering gasp, which brought him to a full realization of the portentousness of the scene. There, on a hundred platforms raised siliceous smoothness, rested the maraud-

ers who had descended on Middletown. They were feeding.

Hugh started, and swore violently. He raised his automatic in involuntary gesture, lowered it again only at Jane's quick cry. A shot would have been madness—more, it would have meant instant destruction. But his brain seethed with the horror of what he had seen. Forgotten were his philosophical dissertations on fairness and abstract viewpoints. For the moment he wanted to kill and slay with all the narrow hatred of the beast.

For the plant-men were feeding on the live and squirming bodies of their captives. The rootlets had pierced deep into the poor, struggling humans, and they pulsed and contracted in regular peristaltic motion, as the life juices and blood of the victims sucked upward into the bloating forms of the pallid fungi.

"What can we do?" Jane whispered, trembling with nausea.

Hugh plunged his hand into a capacious pocket, took out, with grim intent, a small metal sphere. "Do?" he echoed grimly. "This. I provided myself with a bomb, tiny but powerful. I'll blow them all to kingdom come and rid the Earth of these devils. You start to run back now, Jane. I'll wait until you've reached safely; then I'll throw it."

She looked at him quietly. "And you?"

He avoided her glance. "I'll run *then*."

"It will be too late. You're going to sacrifice your life."

"To save the Earth."

"Give me another bomb," she ordered. "Two will be more effective. I'm staying."

He would have argued with her, had not something almost directly overhead distracted his eye. Out of the smooth, racing funnel of light, flat disks were catapulting, brown and sere, thin almost to transparency, saucerlike, to float with feathery softness to the ground. As



they did, the plant-men left their busy duties, caught them gently with their waving rootlets, transported them carefully to the top of vacant platforms. Machines buzzed, and a deep-purple flame emanated from spiral funnels, to bathe the thin brown disks in eerie glow.

Hugh's voice was a queer compound of groaning and scientific excitement. "That explains the mystery," he cried.

"What does?" Jane asked, clinging to his arm.

"Those papery disks," he pointed. "They are the spores of the Venusians, brought here to germinate and grow to adult form. That's why the Venusians projected this tube of compressed light. It's a means of transportation. Light exercises a definite pressure. They've concentrated it to unbelievable strength, and those spores, incredibly light and flat, are shot along the walls of the tube at almost the speed of the carrier waves.

"Arrhenius long ago surmised that life might be carried from one plant to another by light pressure on spores. Many Earth spores even are resistant to the absolute cold of outer space, and require no air in their inactive state.

"The Venusian scientists are using this principle to colonize the Earth, to get rid of surplus population." Then he groaned wholly. "A mere bomb or two won't be enough. Those spores will be coming in ever-increasing hordes. As long as the tube of light remains, the Earth is doomed."

IN HIS EXCITEMENT he had pushed out into the semidarkness of the interior. Jane plucked at him with a strangled cry of warning, but it was too late. Somehow the delicate rootlets of the swarming plant-men had sensed his presence. With lightning speed they whirled, flung themselves like trailing fireballs toward him. Before he could turn to flee, they were upon him, upon

Jane. There was a soft, hissing noise, then stabs of unbearable pain.

The next moment he was borne aloft, kicking and struggling, the automatic fallen from his nerveless fingers. A rush of air, then he was upon one of the fused platforms, his body smothered under the luminescence of a gigantic, sentient fungus.

It was a frightful sensation. A fetid, un-Earthly odor enveloped him; microscopically sharp rootlet cells insinuated their way into flesh and muscle tissues, tapping greedily for the arterial blood streams that lay deeply imbedded. A frightful cry came to him, as from an exceeding far distance. It was Jane's voice, calling on him in the last extremity of despair. The sound cleared Hugh's brain from the haze of agony in which he was enveloped; it acted as a stimulant to his failing muscles.

He lashed out violently with feet and flailing fists, and heaved with superhuman strength. There was a sickening, squishy sound; hard flesh smashed through soft, oozy pulp, and the thrusting rootlets ripped out of his body like quivering barbs.

Bloody, dark with pain, he staggered to his feet. His captor lay thrashing feebly to one side on the platform, its great pulpy head a turgid, smelly liquid. Another scream from Jane, then the quick bark of an automatic. Somehow she had retained her grip on the weapon. But, as Hugh swung around toward the sound, he saw her struggling wildly on a neighboring platform, the great Venusian seemingly unharmed, and flinging its rootlets over her writhing form, seeking entrance.

As he dived over the six-foot edge, however, Hugh's brain worked with crystal clearness and furious speed. From all sides, the plant-men were rushing toward him to avenge the wounding of their mate. In seconds they would be upon him. He could not reach Jane

in time, and, even if he did, only the bomb in his pocket could hurl both themselves and their attackers to destruction.

But even that would not save the Earth from eventual doom. For, as his feet touched hard ground, more of the brown spores, faintly luminous, catapulted out of the gushing walls of light. They would come on in endless streams, millions on millions, as long as the tube of force remained intact. *Remained intact*, his brain echoed. But how to destroy it?

Before expeditions from the outer world could make their painful way through arctic blizzards and the vast area of darkness, a billion plant-men would have germinated and taken flight to suck their nourishment from the juice-laden bodies of men. And even then, the absorption of etheric waves would disarm Earthmen of their most potent weapons.

But here, within the cylinder, his thoughts raced, there was no such absorption, or, if there were, the Venusians had found means to counteract it. For their machines, emanating what seemed a species of ultra-violet light, were bathing the germinating spores, hastening their emergence into adult form. Could it be possible—

All this flashed through his mind in the splitting of an instant, as a whole life is reviewed in the moment of a dream, the suffocation of a man. Jane struggled and cried aloud for help. The Venusians were lunging for him like winged comets, trailing sinister splendor.

He did not hesitate. Jane's life, his own, mattered but little if all Earth could be saved from the spatial peril. It was a chance, an infinitesimal chance that his vague, half-formed theory would work. He must take that chance.

HE DIVED for the nearest machine, humming with penetrating rays, bathing a hundred spores with its deep-purple

light. He had watched the movements of the plant-men carefully when they had turned it on. There was a certain series of coiled tendril levers which had been moved but slightly.

As his desperate fingers reached for the complications of coils, wrenching them open with all the strength he possessed, the machine spun on noiseless gimbals, swung in a wide arc around the inclosing walls of compressed light. The slight hum rose to a full-throated roar; the alien power plant trembled with enormous internal vibrations. The short radius of limited rays gave way to a great scythe of purple, almost black, vibrations that leaped and crashed against the far-spreading cylinder.

It had been as Hugh had hoped. The Venusian scientists had assembled their machines against all eventualities. They would have stricken down all man's puny weapons like so much chaff, have obliterated life within a radius of a hundred miles. Tapping their power from subatomic units, they hurled the infinitely short vibrations of X rays, gamma rays, the whole gamut of ultra-violet wave lengths, with energies of hundreds of millions of volts.

But the plant-men were upon him now, swarming over his head, blanketing his body, digging into his flesh with excruciatingly agonizing rootlets, trying to force him away from the machine he had turned into a tremendous weapon of destruction. He was possessed of the strength of madness, however. Bleeding from a hundred slashes, buffeted, crushed, he clung with a dying clutch to the controls, fighting off the furious Venusians.

The machine roared and thundered, the plant-men hissed their strange, rubbing anger, and the hurtling vibrations beat upon the vast round of the shaft.

Hugh staggered and cried out as a particularly vicious attack flung him away from the coiled levers, and the in-

furiated Venusians crashed down upon him. But even as he fell, there rose, high above the crackling roar of the machine, high above the scraping squeaks, high above Jane's fast weakening cries, a new sound—a sound as of a thousand Niagaras hurtling their cargoes of water from high precipices, a sound as of a universe booming to its end.

As it smashed and beat upon his deafened ears, the plant-men fell away from him with queer gibberings; a huge wind lashed out of space, caught his bleeding, battered body, whirled it aloft, sent it smashing into unconsciousness—

WHEN HE AWOKE, the blessed light of day bathed his temples. The sun shone, blinding and dazzling as of yore, in a cloudless sky. Jane, swathed in bandages, was calling his name. He opened his eyes wearily—his limbs hurt damnably—and blinked. There was no sign of the interplanetary cylinder of light; the machines of the Venusians were twisted wrecks, and of the Venusians themselves, only a few pulped fungi dotted the ground, shorn of the luminescence that enveloped them in life.

Beside Jane there were the men of his own laboratory, clustered anxiously around him, as well as certain khaki-clad and aviation-helmeted strangers. Bombing planes rested on the valley floor, and the drone of motors showed the presence of more high overhead. Puffs of smoke lashed out every now and then as they dived and zoomed.

"They're mopping up the last of the plant-men," explained Frith, his wizened face lighted with exultation, his voice more chirruping than ever. "Thanks to you, Hugh. Those bombers were able to penetrate the dark area only after the cylinder of force had col-

lapsed. But how," he demanded curiously, "did you do it?"

Hugh raised his head weakly. "Those machines of the Venusians turned the trick. Their immensely penetrative emanations threw the photons of circumscribed light out of their locked, tight state; jarred them loose, so to speak. The potential energy of position was transformed into the kinetic energy of action. The wall of light disintegrated into its old components of light, heat, and electromagnetic waves.

"The released heat met the frigid air currents of the dark area, set up a furious convection storm. It was that which ripped the Venusians loose from me, from Jane, and overturned their machines. But the whole structure of the light shaft was highly unstable, brimming with pent-up, explosive energy. The disintegration of the lower structure acted like a catalyst, touching off, triggerlike, more and more disintegration all the way up the tube into space."

He stared up at the bright blue sky where Venus might have been. "Perhaps it even fused or blew up their integrating instruments when it hit the surface of Venus. In that case there would have been a cataclysmic explosion that might have wiped out all Venusia."

Jane cried out, with a certain venom in her ordinarily gentle voice. "It would be a good thing if it did. They were horrible creatures."

"From *our* point of view only," Hugh amended. Now that the crisis was over, he was once more judicial in his fairness. "According to their own code they were justified—and—they were great scientists as well. But," he continued with a wan smile, "I am not sorry for what I did. We, too, are justified in adopting those measures which are necessary to preserve ourselves and the future of the race."



*There was no fear now—no hysteria—as the thing opened  
its gleaming jaws—and swung—*

# Nightmare Island

*Nature had gone mad on an island where one man was king*

by Douglas Drew

**D**URING her past four terms at the university, Estelle Wolfe had received many letters asking her to select and send laboratory equipment and apparatus to some unheard-of address in the Caribbean, and always she had complied, promptly and willingly. But this letter was different. Although couched in terms of affection and congratulation, it was virtually a command.

The letter read:

After years of research and preparation, I am about to proceed on an experiment which is bound to be of world-wide importance. It will revolutionize and advance scientific comprehension of organic as well as botanical cell growth beyond your wildest imaginings.

Immediately after your graduation, you will please come to Anguilla. Bring full photographic equipment for recording certain interest stages of my subject. I have lived so long alone that I have no intelligent friend whom I may trust. Therefore try to bring a witness, a man whose discretion is dependable, whose scientific interests are sincere and who is not too ignorant to know phenomena from fake.

At the end of the month you will receive in the place of your usual remittance, a sum sufficient to cover the passage for you and for the witness.

Unknown to yourself, a member of the faculty of your university has kept me posted on your progress. He writes that your devotion to botany is genuine. On these islands you will find much to interest you in your special field. Order whatever apparatus and materials you wish from the Kraus laboratories on my account and have them shipped to Anguilla.

Estelle read and reread the letter, and sat tapping the envelope with pretty but nervous fingers. She was thinking of Rupert Seward, not that she called him that. She always addressed him as Mr. Seward. He was the new assistant chemistry professor. They had lunched together a few times, and although the conversations had been principally confined to the cold-blooded language of technicalities, neither of them was blind to the other's attractiveness. And yesterday they had even gone so far as to discuss the possibilities of sharing a small research laboratory, which with much labor and economy they might establish for themselves after her graduation.

Rupert Seward was considerably upset. His plans for the summer had included not only a laboratory, but also an attractive little bungalow. Furthermore, his intentions were strictly honorable. Foreseeing possible frustration of his hopes, he demanded a lot of explanation.

Who was this man? What sort of experiment was it? Must she go against her will?

Peter Wolfe was her uncle. At the death of her parents, he had agreed to educate her in the vocation of her choice. This he had done, and although he had no claim on her save her gratitude, she felt honor-bound to respect his wishes. She had never seen him, but knew from his occasional, though peremptory, correspondence, that he was both brilliant and eccentric.

In response to her frequent requests for books and supplies with which to carry on her work, his generosity had never failed. Could she then ignore his first real request of her?

"And you, Mr. Seward. Can't you see how I'll need you? Not just as a witness, but so that we may continue our work together. This morning I did a lot of checking up on the vegetation of those islands, and although they have never been carefully studied, it is well known that there are several species related to the plans we are working on."

It seemed to Rupert that she was trying desperately to make a dismal obligation look like an attractive adventure. He promptly swore that neither of them should go, yet in his heart he knew that if she would, she would—and he would follow.

PETER WOLFE had mailed the letter from Anguilla which was the nearest point touched by steamer routes. His own private establishment was on a little nameless island over thirty miles distant. He called it Wolfe's Isle. It was untenanted except by himself and his four native servants, three of them men, and one, a girl, who worshiped him, and who was therefore privileged to wash his clothes and prepare his meals.

Her name was Mermo. She was almost to be trusted, but even she was expressly forbidden ever to enter the two big stone rooms at the back of his house. Wolfe never left those rooms unlocked. For the past six months he had kept the cellar locked, too. The men couldn't imagine why. They had helped to mount the great door and nothing was in the cellar at that time except the twisted trunk of a tapan vine. It was rooted in the earth floor and passed through the ceiling by means of a hole cut for it by Wolfe. In the room above, which was Wolfe's inviolable laboratory,

the vine terminated in an ugly, gnarled lump of distorted vegetation.

No plant native to the tropics possessed more aggressive vitality, more speed of growth or more versatile adaptability than the tapan. But Peter Wolfe had discovered new things about the species.

Not only did it have in its sap tiny cells which were visible through his microscope, but he had completely proven that these served to feed the plant tissues exactly as red corpuscles feed animal tissues. Another distinguishing feature was that whereas most vegetation has one flow of sap, upward from the roots to the leaves each spring, and a return flow from the withering leaves to the roots each fall, the tapan had a *continuous* flow or circulation, up through the sap wood and cambium layer close under the bark, then back toward the roots through a porous and elastic core.

Peter Wolfe had written in his notes, "Tapan has actual blood stream akin to that of animal life." It had taken but little experimenting to prove the tales of the natives. He had captured a live swallow, plucked away its breast feathers, broken its wings so that it could not fly, and perched it upon a tapan twig to roost during the night. By daybreak green tendrils had coiled about the bird's tiny feet, and fresh young leaves, still sticky with their newness, had incased the little creature, and, despite its struggles to escape, were slowly drawing its life's blood into their own distended veins.

While Peter Wolfe watched, the leaves grew redder, and after some minutes they daintily abandoned the dead bird. The tendrils relaxed their hold and it fell to the floor. Wolfe examined the body; it was bled white. During the next hour he studied samples of the twig's sap at ten minute intervals. Then he wrote in his notes, "Tapan has true

digestive track, faintly resembling that of lower animals."

When he returned to the plant a while later, he noticed that the twig which he had nicked for sap samples had twisted several feet away from its previous position. He wrote, "Tapan has nervous system like that of lower Invertebrata."

Then began a long series of experiments on the tapan's blood stream. He was seeking to relate the circulatory system of the plant with the systems of living organisms. He tried a transfusion of blood from a rat. The results had been shocking, but interesting. The plant was a young seedling, scarcely an inch in diameter. It had begun to sway with a circular movement in slow rhythmic convolutions, becoming more and more rapid until, within five minutes, the motions became so short and so fast that the thing seemed to shiver. Then it was dead.

Wolfe, examining the tap, found it had clotted with a jellyfish consistency. He killed many of the young plants before he discovered that, after proper inoculation, he could give transfusions from any cold-blooded creature without apparently harming the tapan.

Obviously he was on the right track. He soon eliminated reptiles; that left fish. He had conceived a plan by which flesh should be made to grow, nourished only by the soil and the sun, a plan which should startle the scientific world and by which he, Peter Wolfe, would become the most famous man in civilization.

LONG MONTHS were spent in developing serums for injection into the tapan trunks, thus preparing the plant's veins for a perfect transfusion. He tried different varieties of fish, and, by making careful observations of the blood cells after the transfusions, he narrowed the field of his experiments to eels. They seemed the most hardy and the operation was more generally successful.

By now his serums were perfected to an extent whereby a transfusion of an eel's blood was taken up in the tapan's circulation as readily as its own sap. Furthermore, the corpuscles not only survived in perfect health, but multiplied, keeping a constant ratio of plant and animal cells.

It was at this stage that he began grafting. His first attempts were twelve bits of living muscle, inset beneath the bark and carefully sealed. At the end of twenty-four hours he opened two of them. Both had survived. One day later he opened two more. These were as healthy as the first. Some of the tiny capillaries had swelled and were carrying the pinkish sap which was now the tapan's own life fluid.

On opening two more the next day, he noticed that although the veins were enduring, yet the flesh itself was wasting somehow, while the cellulular tissues of the plant gradually replaced it. He cursed himself and opened the remaining grafts, all of which showed an identical process. Nourished by one blood stream, the organic and the vegetable tissues were competing for growth, and the vegetable was winning in every case.

By now the vine planted in his cellar had developed a trunk several inches in diameter. Its serpentine branches encircled the ceiling of his laboratory. He inoculated it and gave it a complex transfusion, slashing the branches and bleeding it of its natural sap as he injected the blood from a moray eel into the trunk.

The tapan drank it up quickly. Wolfe doubled the treatment. That, too, was absorbed. He lopped off the branches in his laboratory and sealed the butts with wax. He estimated that the plant's fluid was approximately seventy per cent red blood. On the same day he performed a similar operation on a captured moray eel, leaving in its veins an identical mixture.

The following days were an agony of

waiting. The great eel fell into a stupor and lay quietly in the bottom of his tank. The tapan showed none of its usual vigorous budding and Peter Wolfe tore his hair and spent sleepless nights, half in desperate hope and half in miserable certainty of failure.

After five days, the tapan began to break new buds, and by the end of a week its old vitality was entirely renewed. The moray eel returned to its normal habits and viciously circled its prison, feeding gluttonously and fully demonstrating its right to the title of most formidable and dangerous inhabitant of tropical waters.

PETER WOLFE was in ecstasy. He took samples from the veins of both and examined them beneath his microscope. The mixtures were unchanged. He had observed, with delight, how quickly the tiny wound healed on the eel, a property doubtless conveyed by the sap of the tapan, which had that power to a remarkable degree.

He prepared for a more daring experiment. The grafted flesh, he reasoned, had not actually died, but had been compressed and absorbed by the rank growth of plant tissue. This time there should be no crowding. He would not insert his graft in the trunk but would set a large one firmly upon the butt from which he had pruned the branches. In this way plant growth could not compress the graft.

Having familiarized himself thoroughly with morays by weeks of vivisection, he now attempted what the world would have called the impossible. He anesthetized the prepared eel and cut its body in half. This left its digestive track undamaged. He then sealed up its mouth and gills with wax, and, opening its side, he severed the muscles of its heart, leaving that organ limp and powerless, yet permitting a circulation through itself.

Gathering the arteries together he set

them in the fluid core of the tapan. The surrounding flesh and skin he pressed to a lip of the freshly opened cambium layer beneath the tapan's bark. He sealed the connection with a heavy ring of wax and stood back to survey his handiwork.

What began as a branch, continued as the gray-green body of a moray, and terminated with the horrible head which hung motionless before him, its small eyes sullen and quiet. Wolfe tapped a pencil on one side of the creature to see if the anæsthesia had worn off. It swerved sharply in that direction, and a slight movement of the eyeball was discernible. Every day for weeks he tried it. The reflex action was always the same. He watched eagerly for some indication of growth. There was none whatever.

The tapan thrived as before, sending out new buds and branches so rapidly that Wolfe was obliged to cut them back every three or four days; but the moray eel merely existed. True, it was alive; it still reacted to a touch, and the operation had healed so completely that it was only by close inspection that he could see where the vine stopped and the eel began. But all growth within the tissues of the moray seemed to be at a standstill.

Peter Wolfe waited, watched, hoped and swore. He almost never left the laboratory. His anxiety for the moray left him no patience with his men. They wondered what great thing it could be which played such havoc with the master's health and temper. With the exception of rare, short-spoken orders, he addressed no one but the faithful Mermo. She adored him as always, but shuddered at the violence of his moods.

Although he lopped off the branches as fast as they sprang into being, there was no controlling the trunk; its diameter had tripled. Where it came through the floor, the boards were pushed aside like ribbons. Wolfe cut



a larger opening rather than risk damage to the plant's circulation.

The influx of red blood in its veins seemed to increase its carnivorous appetite. He frequently experimented. It devoured any small creatures, alive or dead, birds, insects, or mice. But still the eel hung changeless, yet alive. He watched the tapan devour its small prey. "Who shall say that you are inanimate?" he would mutter challengingly. "A blood stream, a nervous system and a carnivorous digestive track."

He wondered for the thousandth time why a union with the animate creature was not possible. Why wasn't the tapan already an animal? What remained to bridge the gulf? Only the ability to move from place to place. That was nothing to bar the tapan from a class of animate beings. There were many low orders of life which never changed their place of habitation. Had any one ever seen an oyster walk? Or a sponge? No, nor a hundred other creatures he could name.

He cursed and raved. "If only it had a quicker pulse. If only it were——" Then Peter Wolfe stopped short. He believed he knew. Yes, now he knew what was preventing the growth of the moray. Of course! Why had he overlooked it? The blood was right; the operation was right; only the circulation was too slow! Why had he ever depended upon the sluggish action of osmosis? The vital fluid must not merely flow through the veins, it must be pumped swiftly. Then it would truly feed growth of new cells and tissues and wash away the waste of those processes.

## II.

HE IMMEDIATELY began to design a machine which would pump the sap. It was built on the principle of a heart, with one auricle and one ventricle to be connected with the upward and downward flows within the trunk. The

device was inadequate. It had to be powered by electricity, too little of which was available from his tiny lighting plant. However, during the two days before it broke down altogether, he saw the grafted moray show signs of movement. When he tapped it with a pencil, it struck at his wrist and loosened the wax which sealed its jaws.

Wolfe was mad with delight. Of course the artificial heart was short-lived, but now that he knew it would work, he threw himself feverishly into a new plan. The tapan should have a permanent heart, a real one. It should be grafted from a large fish, a shark. Perhaps his men could catch a big one; they were fond of fishing and were frequently threatened by such monsters.

This was when he wrote the letter to Estelle. He had given her an education; it was time she did something in return. There would be much for her to do. He wanted complete detailed records of every step in the operation and of every development which would follow. She would also reassemble in correct order all notes which he had made on his efforts so far. He knew she was capable.

The request for a reputable witness had been an afterthought. He believed that such a testimonial would clear his path if it were ever blocked by skepticism. Wolfe had no fear of letting them in on the secret, for he was certain that once they were here on Wolfe's Isle, both niece and witness would be virtually prisoners as long as he wished.

Even the few white inhabitants of Anguilla did not know where he was located nor what he did. He forbade the servants to leave his island and allowed them no craft suitable for the passage. He kept one heavy power boat entirely for his own use, and when he went to Anguilla for mail or provisions he went alone. In such places as Anguilla, people ask nothing save that a man's coins ring true.

From then on his days were filled with frenzied activity in preparation for the great experiment. Tapans grew densely in the jungle heart of the island. He inoculated many young ones and gave them transfusions from moray eels. In the trunks of these plants he made his first attempts at heart grafting. The technique was extremely difficult, and at first the hearts died in the labor of pumping the fluid into the nonelastic veins.

It took several weeks to overcome this difficulty, but at last he devised a scheme by which the heart pumped against a bubble, the bubble maintaining a fairly equal force at all times, and, by its contraction under pressure, cushioning the labor of the heart pneumatically, relieving it, much as the expansion and contraction of arteries and veins modify a pulse.

The arrangement was necessarily delicate and his first ones died, but he became more skillful, and by the time Estelle and the witness were due he had successfully grafted hearts into the trunks of several jungle vines. He was eager now to plant a heart within the great trunk in his house, the heart which he knew would put lusty life and growth into the savage moray.

No two specimens, he reflected, could more perfectly represent the hardihood and vigor of their two worlds, than the cruel, powerful, moray eel, and the tapan, king of jungle creepers and climbers. What an achievement then! What an honor that he, Peter Wolfe, should be the one man in the world to unite two such powerful specimens into one living, growing organism—the mind, the flesh of a brute with the vitality and furious growth of a tropical vine. Perhaps it was to be a forerunner of a race of animated vegetation which would be man's food and man's slave.

Wolfe's optimism was at its greatest height. To-morrow he would go to Anguilla to meet the ship which would

bring the newcomers. As soon as he brought them here, he'd commence the operation. Everything was ready, all necessary instruments and materials stood waiting. The great heart had already been taken from a big shark, and the powerful muscle was now throbbing in a solution which he had prepared for it. It could live in that a week if necessary. He had been lucky to get that heart. His men had rebelled against the task of landing the huge fish. One man was badly mangled, and might possibly die. They would not obey if he ordered another such capture.

But Peter Wolfe was not concerned with a native's life. He had the heart, and soon it would be throbbing in a new creation—his creation! He tried to visualize the amazement with which his niece and the fellow Seward would behold his monstrosity. He was so excited that sleep would not come to him.

RAIN pattered on the roof. He wondered if it would stimulate the tapans. The rainy season would be on in full by the first of July. The vines were now growing almost three feet a day. With the ground drenched it would not be unusual for them to triple that growth.

His thoughts raced. Sleep was impossible. He dressed and entered his laboratory, gathered the necessary articles and went to the cellar where the heart was beating beside the swelling trunk. By three a. m. the operation was completed; the great pump throbbed within the body of a new beast.

He went up to his laboratory and tapped the moray with a pencil. There was no reaction. Well, it would soon enough take effect. He was not discouraged, but he was frightfully weary. Setting his alarm clock to wake him lest he sleep too long, he threw himself upon a cot in an adjoining room.

How long he slept will never be known. Soothing fingers stroked his

eyelids, his lips and throat. He tried to open his eyes, but something enveloped his face, tenderly, but with tremendous strength. He could not lift his head. His hands groped in space. He was miserably weak. Then he realized! The vine! He had left the door open and the heart or the rain had produced creepers to devour him.

He found a knife in his pocket, fumblingly opened it and slashed away the parts which had seized him. Then, peeling the sticky young leaves from his eyes, he watched blood drip from the stems—his blood.

There were several of the long creepers in the room beside the one which had found him. One had encircled the clock and crushed it so that it was no wonder he had not been awakened. Hastily, he lopped off the branches, leaving only the moray. That creature was so much revived that it struck at him viciously whenever he approached it, the long jaws working convulsively and the tiny pig eyes glittering with hatred. Wolfe believed its body had become longer and weightier, but wasted no time on further examination.

Twenty minutes later he was chugging across smooth ocean swells, toward Anguilla. He was grateful for the thirty-some miles which lay ahead, for much had happened and he wished to think undisturbed.

### III.

ESTELLE no longer called him Mr. Seward. He was Rupert now and sometimes just Bert. It was all settled—they were to be married as soon as they returned to civilization.

It had been a beautiful trip, the first sea voyage for either of them. They were passing little mysterious islands that looked like long gray clouds when you first sighted them, and became deep-blue, then purplish as you came nearer

and then, if you passed close enough, they were green with glistening white beaches.

Life here looked good. Sunshine seemed to be especially intended to bathe these waters and these islands. Estelle and Rupert laughed like children. Did they like the Caribbean? Were they glad they came? They'd tell the world they were glad to be here, and as for liking it—well, they were wondering why they'd ever wasted so much of their precious time locked up in a dismal university.

To-night they would be put ashore at Anguilla, where the mysterious uncle was to meet them. What would he be like? Estelle imagined he would be a fussy little man, needing a hair cut, and wearing thick-lensed spectacles and baggy trousers, and that he would be very enthusiastic, very absent-minded, very good-natured, and very eager to receive his guests.

As soon as they reached Anguilla they realized that the characterization had been correct, except that he was neither absent-minded nor good-natured. He was, however, so eager to see them that he sulked angrily at their arriving so late. There was a storm coming, he said, and he was afraid to make the passage by night in bad weather. Now, they'd all have to wait at the insect-ridden little hotel until morning.

But next day, the waves were wild, so the little boat remained in harbor. Peter Wolfe was furious. He would tell them nothing of his experiment, save that it was imperative for him to return to his laboratory lest something go wrong. "Years I have labored," he growled, as the wind-driven rain slapped the rickety tavern walls. "Yes, years, and I grow old, older than need be, because I work so hard, and now the stage is set for us, and, through us, for all the world. Yet, because it chooses to storm, we must sit here in a hovel, while

things happen in my laboratory which would make your eyes bulge."

Next day the waves were higher and the rain fell faster. The barometer promised no cessation of mean weather. Day after day they waited and watched for a change. In spite of the flattening effect of the constant downpour, the whitecaps raced madly across the ocean from dawn till dusk. The local weather prophets merely wagged their heads and shrugged sympathetically. They thought it looked like a long-timer. It might blow over in a week, but they doubted it.

Peter Wolfe lapsed into silent contemplation of the sea. His imagination was afire. He pictured the possibilities. What he had seen resulting from a few hours of the great heart's stimulus, and what he knew of the effects of rain on tropical vegetation, made him shiver to think of Wolfe's Isle.

The great tapan in his laboratory, without its daily pruning, might crush the grafted eel, destroying it. Its creepers would be overrunning the house. He had wanted to keep them cut, not just to preserve order in his laboratory, but so that the moray eel might get the full benefit of the sap flow. He thought of the tapans scattered about outside, those with the hearts grafted in and the blood circulations. How they must be growing! How he wished he were there! What irony! Years and years of striving for all this, and now to be deprived of the sight.

AFTER exactly twenty days, agonized ones for Peter Wolfe, the restless ocean calmed and, although rain poured from gray skies, the little party put out to sea toward Wolfe's Isle.

Now they were by themselves, Wolfe had no hesitation about telling them of his work. He bragged of its originality, its tremendous importance as a future industry, its scientific significance. He described it step by step, from its original conception in his mind years before,

to his leaving the island and coming to meet them just twenty-one days ago. Estelle was completely awed. Rupert was frankly skeptical.

The old man explained his anxiety lest the plants got beyond control, but the wind was rising and the boat demanded his whole attention. As they neared Wolfe's Isle they could see the towering plumes of foam where the huge seas flung their force against the surrounding reef. They must make the little harbor before dark, else it would be almost impossible to find the passage through. "Perhaps the wind will go down as night comes on," he told them, but, as if to mock them, there came a blast with doubled fury.

The island loomed ahead like a shadow on the sea, fortified against the world by the white hell of the coral shoals. The wind was at their backs, and the engine was doing its utmost to make steerage possible; yet they bounded, and lurched like a mad thing, ever nearer to the flashing teeth of the breakers. A curtain of solid black was being drawn across the sky. Three frightened humans fled before it, yet it overtook them and stretched swiftly onto the farthest horizon, shrouding the sea with the darkness of night.

Sheltering their bodies against the stinging rain and spray, they peered anxiously into the gloom ahead. "I don't see the light," said Wolfe.

"Have you a beacon?" asked Seward.

"There should be a light in my house. My servant keeps it burning. It is her primary duty, while I am away." He strained his eyes tensely. "It should appear any instant."

But there was no light, and Peter Wolfe became utterly confused. He wondered if he had lost his bearings completely. Nothing was visible now save the lurid phosphorescent swirls in the wake and ghostly glow of the surf upon the reef. It was impossible to tell

how close they had come. Words half uttered were snatched away and absorbed by the shrieking wind. Speech became almost impossible.

Suddenly Estelle was pointing and gesticulating wildly. They stared in the direction she indicated and saw a tiny flicker of light which died away as quickly as it had come. Peter Wolfe spun the wheel and bore toward it. The little craft was now beamwise to the sea, and rolling dangerously. Its small cabin was so filled with the baggage and photographic apparatus that it afforded no shelter for any of them. For several mad minutes they ran toward the light which reappeared sometimes brightly, and sometimes as a dull glow, through the driving rain.

They heard surf pounding on both sides of them now. "We are entering the harbor," Wolfe shouted to his niece. Then, for a moment, the force of the rain was arrested and they could see about them. Immediately ahead giant waves rose and exploded in clouds of white spume. At their right and left were maelstroms. It was no passage they had entered, but a mere pocket in the outer reef.

WOLFE knew where they were now. He swung the little boat around and pointed her seaward once more. The maneuver was perfect, but it came too late. Caught in the lift of a monster wave, she was lifted bodily and carried more than thirty feet backward, and set gently but solidly upon the jagged reef of coral.

Next moment they were enveloped in a seething mist of white. As the wind dashed it away, a gray mountain rose toward them, loomed like a wall, curled above them and descended. Estelle, watching in round-eyed horror, flung up both arms defensively, then felt the crushing weight and relentless power of the mass.

Next moment she was swept from

her feet. She groped hysterically for her companions. Then something seized her legs, and for a few seconds she was again submerged in the thunderous tumult. When her head broke the surface again she was being lifted to the little cabin top. Some one was shouting in her ear. "Grab rail! Grab the hand rail!"

Bert was clamping her fingers upon it. "Hold tight!" Automatically, she clung, sobbing for breath between clenched teeth. Rupert's arm was still tight about her waist. "You a good swimmer?" he yelled. She nodded. He left her and consulted Wolfe, who was desperately struggling to open a small hatch in the bow deck.

Estelle felt her strength returning. She was being continuously drenched by the wave tops which foamed over her, but she met them stubbornly, with a grim determination to live. Bert returned to her side. "Hold on tight," he shouted. "I'm taking a line to shore as soon as Wolfe gets it on deck."

They could see the light distinctly now. It was a bonfire on the beach, within a couple of hundred yards of them. Bert stripped off his clothes, and gestured for Estelle to do likewise.

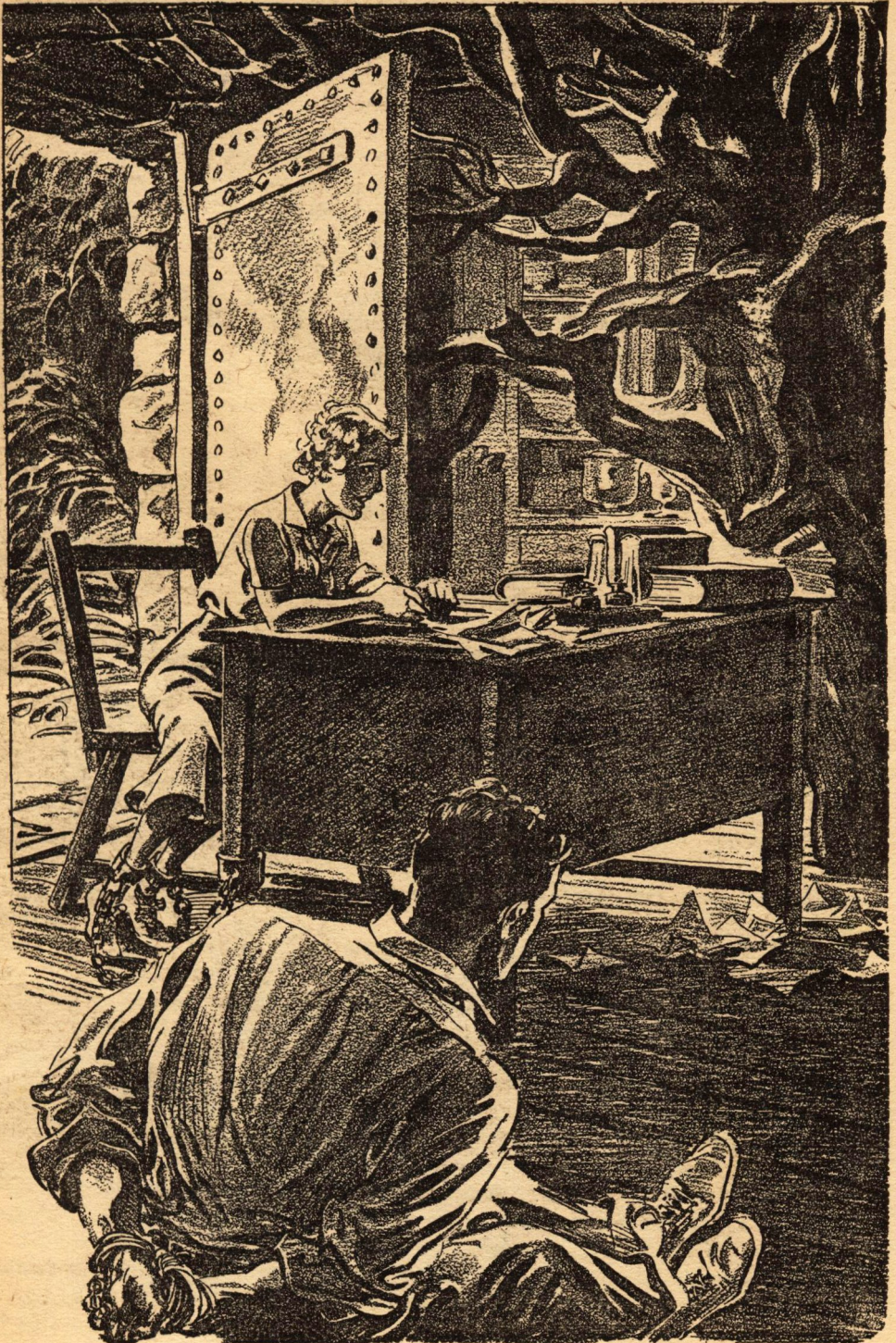
He tied the rope about his waist and watched Estelle with some anxiety. "You'd better strip. Get your clothes off! You may have to swim before I come back!"

She raised desperate eyes, but still clung tight to her handhold on the boat. Bert understood. "I daren't let go," she said.

But he was already busy, first her shoes, then the little jacket and a blouse which he ripped by main strength, then the skirt.

"Chin up!" he commanded, and kissed her. "We mustn't die yet. I've got some swell ideas. Tell you later." He grinned and vanished in the frothing chaos.

Never in Rupert Seward's life had





*The thing was hideous—mad! Cold-blooded creatures—deathless creatures—physical changes—*

he been so completely at the mercy of the elements. He was no sooner in that seething cauldron than he was thrown in to the air and flung upon a sloping ridge of coral. He tried to gain a foothold, but was immediately flattened and dragged, face downward, across the jagged mound, his body lacerated with a thousand small cuts.

Then, for a few seconds, the water retreated. He sprang upright, unheeding the daggers which thrust into his feet, sprinted a few yards and dived sideways into a large wave which overtook him. Fighting his way to the crest, he rode with it until it broke, or rather dissolved beyond the reef, in the quiet water of the lagoon.

Swimming was easy now, but he began to feel the drag of the rope, more and more heavily. He rolled over on his back and floated a minute to gain breath, but realizing the menace to Estelle and her uncle, he again struck out for the light on the beach. Now the rain was lessening and he saw a girl silhouetted against the glow. He bailed again and she ran into the shallows toward him.

A MOMENT LATER a strong hand was in Bert's own and was speeding him toward shore with smooth, powerful strokes. Then she dragged him toward the fire and examined him. He was so out of breath that she could make nothing of his words, but when she saw the rope, she understood. While he panted beside the fire, she ran up the beach and made the line fast about a stout palm.

Returning to Bert she plied him with many questions in labored English. "Have seen Mr. Wolfe? Have come to take me away? Have come from Anguilla? Would Mr. Wolfe come drive away spirit devils? Why has Mr. Wolfe not——"

Bert explained the plight of Wolfe and Estelle, and started back to them,

but the girl ran up the beach, beckoning for him to follow. A moment later she plunged into the lagoon, and Bert heard her climb into a dinghy. Instantly he joined her. It was a small task to pick up the rope and follow it most of the way to the stranded craft.

At the inner edge of the reef, Bert seized the line and leaped upon the coral. Aided by the rope, half wading and half swimming, he reached the others. Wolfe had made fast his end of the line and was getting some watertight bundles up out of the cabin. He was in a towering rage, but seemed relieved to know Bert had brought the dinghy.

He immediately took command of the situation and ordered Bert to transfer the packages of supplies and apparatus to the small boat. Then the dark-skinned girl appeared over the gunwale, and cringed before him like a worshiper. Wolfe's temper blazed anew, he screamed curses at her. It was her fault the boat was lost! It was her fault that they were nearly drowned! It was her fault, for not keeping the light in his house; and if this photographic equipment was damaged, he would kill her.

She begged to make some explanation, but he struck at her savagely with a short length of stout rope. Dazed by the onslaught and wearied by her exertion, she would have fallen back into the sea, but she was firmly held by a restraining white hand on her coppery arm. She looked up into the face of a beautiful white girl.

She smiled childishly. "I am Mermo," she said, and, assisted by Estelle, climbed up beside her new friend.

Once more she plied questions. "Would Mr. Wolfe save them? Would he take her away?" She told Estelle that she had not made a light in the master's house because the master's house was all gone except the big stone rooms which were always kept locked.



Besides, those rooms were now inhabited by spirit devils.

The girls were interrupted by Peter Wolfe. "Get ashore! Swim!" he shouted at Mermo. "You," he said to Estelle, "get in the dinghy with Seward." Bert picked her up and carried her bodily across the reef. She huddled at his feet as he rowed across the lagoon. She might now have worn some garment to protect her from the storm, but Wolfe had taken everything available to bind about his precious equipment, and had spared her nothing.

She was mystified by the few things Mermo had told her. "Bert, that girl says the house is gone—all but the stone rooms. She says they're bewitched—spirit devils or something."

"You know," said Rupert, "I've thought all along that your uncle was a maniac and liar. Well, I still think he's a nut, and a darned ornery nut, but I believe he's been telling us the truth about all that blood stuff and heart grafting and eel business."

"Listen to me," said Estelle. "When he ordered Mermo to swim ashore, she had just finished saying that, of her four servants, she was the last alive. All three, she said, have been killed by the spirit devils. She thinks the spirits came because my uncle was gone, and now that he's back he can drive them away."

Bert looked at the girl. "Excellent logic, but I doubt if it's going to be easy. I wish we were somewhere else. She told me that the spirit devils have got into the tapan vines. That makes sense, doesn't it? I guess your uncle will prove his point, but I'm damned if I'm going to have any spirit devils get at you. As I said before, I've got ideas for you and me, and they don't include tropical spirit devils."

Rain had destroyed every vestige of the fire, but they found the beach and unloaded their cargo. Bert ripped an oil skin coat from one of the bundles and

threw it about her shoulders, just as Mermo came up and joined them.

"Watch out for spirit devils," Bert called, as he pushed off in the dinghy.

HE SOON RETURNED with Peter Wolfe and what they could salvage from the power boat. Wolfe carried a five-cell flashlight and, taking as many of the packages as could be carried, they followed his lead along the beach.

He turned inland at a clump of palmettos, but proceeded only a few yards before bursting into astonished wrath. Forming an impenetrable barrier across the trail was a fantastic, twining and intertwining tangle of tapan vines. Wolfe probed their depths with the ray of his flashlight, but as far as it could penetrate there was only a monotonous repetition of the sinewy, twisted creepers, extending into the air thirty feet or more.

Mermo had been whimpering and begging the master to go no farther inland. Now he turned on her in greater rage than before, and would have struck her down had she not dodged the blow and run crying off toward the sea.

"For the present," he said, "it is an impasse. We cannot reach the house to-night, but to-morrow, with machetes, the trail can be cleared in a few hours. The men have been careless and I shall see that they regret their laziness." He broke off a twig and called his companions to look. "Here," he said, "you may witness the first stage of my miracle. Notice closely."

They bent over the fractured vine. Drop by drop, red beads glistened on the bark. "Taste it, Mr. Seward." Bert took some on his finger, touched it to his lips and shuddered. Estelle watched him closely. He glanced at her and nodded in response to her mute inquiry. It was loathsome business, and he heartily wished it was all over and done with.

The rain had almost entirely stopped.

Wolfe made a brief survey of the beach and suggested that they make themselves as comfortable as possible until daylight. "For myself," he announced, "I shall sleep as well here, as elsewhere." Accordingly, he scooped a slight hollow in the sand and threw himself down to rest. "Remember, don't sleep too near to the vines. I was not joking about that clock. My tapans are strong, and"—he chuckled—"they are fond of flesh."

Bert did not allow himself to answer. He was almost overcome with nausea. He stepped to Estelle's side and, touching her arm, beckoned her away with him. Out of Wolfe's hearing, he asked her to join him in a search for Mermo. "Wolfe is a fool not to listen to the girl," he said. "She knows what has gone on since he left. Let's find her and get the low-down on this devilish mess."

"Bert, do you know what frightens me?" She held closely to him, and he bent an arm about her reassuringly.

"I see much to puzzle me," he answered, "but nothing to frighten us."

"It's this," she said quietly. "These vines are not the ordinary tapans. I have broken twigs from them all along the jungle front, and they all bleed like the one he showed you. Do you realize that he told us he had transfused only in the interior of the island? It means this," she went on, "that all this new jungle has grown, not from normal plants, but from those new, more powerful plants which have conquered their primitive, sluggish brothers."

"I follow you perfectly," said Rupert, "but still I see no terror in it for us, so long as we are not caught napping too close to the beastly things."

"Do you realize the speed with which these—these monstrosities are growing?" she asked. "And that they can't possibly be controlled? Do you realize that this is probably the one space on the island not yet buried beneath that mountain of vines? And do you sup-

pose they will cease growing in this direction out of special consideration for us?"

The vines presented a solid front along the entire stretch of beach. There was still a considerable area of bare sand between the high-tide marks and the jungle—perhaps an acre in all. They walked in silence. Mermo was nowhere to be found. Bert wondered if this desolate little patch of sand was to be their last stronghold, from which they must inevitably be driven into the sea to perish.

He pushed such thoughts from him as though they were phantoms from some nightmare. The woman beside him was real, was of his world, and he loved her. He would waste no thoughts elsewhere, even if he must die to-morrow.

#### IV.

A GOLDEN SUN rose from out the sea, to shine upon another Adam and another Eve. Her head rested beside his own, her black wavy hair was tumbled upon his chest. Hand in hand, without a word or motion, they greeted a new day—a new world.

Peter Wolfe was awakened by the stench of blood in his nostrils. Opening his eyes, he gazed at a ceiling of broad leaves, a few feet above his head. He sat bolt upright in alarm. When he had gone to sleep there had not been a creeper within five yards—now he was surrounded by them, and there on the sand beside him, sat Mermo. A big clasp knife lay open in her lap, its blade red. About them were strewn hundreds of wilting twigs which had leaned too close.

"Master," she said softly. "Master?" Her eyes asked more than he could understand.

He looked at her uncomprehendingly and stretched his stiffened limbs. "I'm hungry. Get something to eat. There's

a crate somewhere out there." He pointed to the beach.

She started to crawl out through the vines, but hesitated and turned back. "Master will come, too?" She eyed him anxiously, but he ignored the question. "If the master dozed without Mermo beside him, master might never wake again." She fingered some leaves significantly.

"Get something to eat," he growled impatiently and, grimacing at the annoyance, he followed her out into the sunshine. An ominous sight awaited him. The beach had diminished while he slept. He hastily estimated that, at the present rate of growth, they would be driven into the sea within a very few days, unless they took decisive action.

A little later he gathered them together to decide upon their first move. "There is one place on the island," he said, "which is safe, or is, at least, strong enough to resist any crushing or prying of the tapans. My stone rooms—they are my laboratory and an adjacent bedroom. Beneath them is a cellar, also lined with stone. The rest of my house might crumble and fall—and possibly has, during our delightful visit at Anguilla—yet those rooms would stand alone. They were built for such an emergency. Our trail would have been kept clear for us if my men had fulfilled their duties. However, they all seem to have disappeared." He turned to Mermo. "Perhaps you can tell us just what became of them?"

"Master," said the girl, "they are all dead. The spirit devils have destroyed them because you were not here."

"Idiot! Your head is too full of superstition. That's why I wouldn't listen to you before. Forget what you *think!* Tell us what you *saw!*"

Mermo listened attentively to the rebuke, then went on unembarrassed. "Emul—that was so wounded in catching the shark for master; you remember?—was the first to die. The day the

master left us, the sun came in the afternoon and Emul, too weak for work, lay down to rest in the grove near the great house.

"At sunset I carried food to him, but he was dead. Tapan leaves and tendrils were all about him, sticking fast, and devouring him as they do insects and small birds. I called Ramen and my brother. They told me the spirit devils had got into the tapan vines because the tapans had never killed a man before. And surely they spoke truth, for the vines began to grow twice a man's length each day, and my brother told me a legend about how a spirit can come into a plant or serpent or even into a man or woman. He said perhaps it was better to be destroyed by the spirit devils than to have them enter your body as they had come into the tapans, so we sent up prayers like we had been taught in the mission at Anguilla."

ESTELLE AND BERT were listening closely, but Wolfe showed impatience. "Forget your damn superstition! What happened to the other two men?"

"My brothers and Ramen, they worked every day with axes and machetes to keep the trail clear. Sometimes I helped them, but it was very heavy work. The rain came harder and the vines grew so much faster that it was terrible to keep up with them.

"We had seen that the bad vines all had red sap, and my brothers said if we could trail those creepers and cut the roots, we could destroy them. But it was already too late. The jungle was too thick with vines, and even if we had cut our way into it, our trail would have been closed behind us and we should have been lost. Master cannot imagine such growth. My brother said we could only do our best and pray for master's return.

"Then the clearing about the house began to close in upon us, but we had

no time to fight that. We were too busy keeping the trail open for master. And every night, as master had ordered, I made a light in the window of the north room.

"In a few days the clearing was all gone and our windows were darkened by the jungle. Creepers began to find places to get in around the sills and through the floor. We cut them off, wherever they appeared, but we forgot to watch the attic, and one day, when I went up for some provisions, I found that the creepers had come in under the eaves. Great twisting arms had already pried the timbers apart at the joints and the walls were bending under the strain. Vines were so thick that I could hardly make my way about.

"That afternoon the wind came and blew off the roof. It hung from the great vines back of the house. All night we listened to the straining of the timbers as they were pried and twisted in our walls, and the tapans inched their way in at every crack opened by the wind.

"One day there was no place left for sleeping. Ramen suggested that we try to get into the master's stone rooms, where we could at least be safe at night. We climbed over the vines to a point where we could see the big window in that part of the house. The glass was broken; near the window there were no vines. It was as though some one had been cutting them away."

Peter Wolfe uttered a startled exclamation and stared excitedly at Rupert and Estelle. "Then—but I supposed it would have been killed by the vines!" The man was rocking in hysterical joy. "Then it has not been stifled by the vines—but has been feeding on them! And why not? The tapans have blood as well as any other creature. Oh, I am lucky! I am lucky!"

But Bert and Estelle were urging Mermo to continue with her narrative.

"When Ramen saw the broken win-

dow, he wanted to get a ladder up there and look in. My brother tried to argue him out of it, but Ramen was always curious about master's secrets and was determined. Besides, as he said, unless we could get into the stone rooms we would have no place to sleep. So he got up a ladder and crawled inside.

"We waited and waited for him to come out. My brother was worried. He said he did not trust Ramen, and he reminded me how master had often made us promise not to enter that part of the house. My brother was afraid Ramen would be up to mischief and that it would make the master angry with all of us. So he climbed up the ladder and looked in. "What do you see?" I called. But instead of answering, he threw a leg over the sill and started in. Then he cried out, and disappeared with a jerk.

"I screamed and started up the ladder. Then he was again at the window, struggling to get out. He fell down onto the vines below. He was a mass of blood. His leg was gone just below the hip, as if a big shark had done it. He was dying fast. No one could have staunched the blood.

He was crying in fright and pain, "Sister, go! Go to the beach! Go and stay! I have looked on the great spirit!" My brother got yellower and yellower, till he was pale like you are.

"He knew he was dying and begged me not to wait, but to run down the trail to the beach and stay until master came back. He said he had seen the great spirit himself and was glad to die rather than have the spirit enter his body. He said the spirit was more terrible than the mission priest had thought.

"Then he was dead, and I ran to the beach as he told me, taking what food I could carry. I also took my big clasp knife, for I would rather die than let the spirit devils enter my body.

"There was not much that would burn, but I tried to keep a fire on the

beach every night, for the master. All my food had been gone for days, when you came. I have had to catch fish and crabs by hand."

PETER WOLFE was mumbling to himself. "There is no need for us to wait here on the beach until the jungle pushes us into the sea. Let us go to the house without delay. I am sure I can control the moray and we can live and work there with some degree of comfort. You must both see for yourselves exactly what I have done. We will make many microscopic examinations of blood cells and of plant tissue, and then we shall see if we cannot vivisect the moray itself. That, I am sure, shall prove the most revealing feature of all. Then, while my niece is assembling her notes plus the data which I have myself collected, we must busy ourselves with preparing some rockets. Otherwise, it will be impossible to signal a ship."

"But the trail—there's no trail now," stammered Bert. "I could kick myself for not thinking of it before, only isn't it a bit risky for the girls?"

"Nothing dangerous about it," said Wolfe. "We'll do it, all right. We've got the rope from the power boat. If each of us ties it securely about his waist and uses a modicum of common sense and keeps moving, we should be able to reach the house in one day. Certainly that is better than just waiting here until some creeper catches us asleep and drains the life from our carcasses."

It looked like a fearful undertaking, yet there seemed to be no choice. Everything but the most necessary supplies and the photographic equipment had to be abandoned, as the venture was obviously difficult enough without too great a load to carry.

Peter Wolfe was first. On his back was strapped his precious camera, and in his pocket was the big clasp knife. About twenty feet behind him was Estelle carrying lighter, less important

articles. Next came Rupert. His was the heaviest burden of all, but he was game and would not attempt less. Last of all came Mermo, with bundles of household provisions.

It was as weird a trek as could be imagined. Not only was it difficult to reach the top of the swaying mass but it was equally difficult to remain there. First one and then another would slip down through the network and hang suspended by the rope, a dead weight upon the others. Then would begin the arduous climb all over again. Within an hour, the sea was out of sight, and there was no visible landmark to guide the way. Wolfe reckoned their course entirely by a pocket compass.

The sun rose high above them, and scorched them with such a glare that tears and sweat mingled in one flow upon their haggard faces. Lungs were laboring; muscles ached painfully and nerves were sharpened to a razor edge. But Peter Wolfe drove deeper and deeper into the jungle, taunting them and cursing them for laggards.

Rupert Seward regretted his brashness in attempting to transport such a heavy load, but, having begun, he grit his teeth and fought his way on. He kept a watchful eye on the girl ahead of him. "It would be so easy," he thought, "for her to injure herself on this nightmare journey." For that matter, any one of them might be disabled at any moment, and it would be almost impossible to carry them on. He shuddered to think of their fate if they should be overcome by heat or exhaustion among these tenacious creepers. He eyed them with hatred and disgust—these pallid, sticky young leaves which seemed to close about you as you touched them.

At noon Wolfe stopped by the top of a tall hardwood tree and waited for them to catch up to him. They slid to the ground, shed their burdens, and, for the moment, shaded from the sun's

glare, they rested and ate meagerly of the food supply.

With the exception of Peter Wolfe, all were too weary to talk. "I know the location of this tree," he told them. "The house is scarcely three hundred yards west of us. We could reach it in an hour, but I have a plan."

"If we can reach the house in an hour," Bert interrupted, "then we can afford to wait here until the sun gets a little lower, can't we?"

Wolfe ignored him. "I have a plan by which we can stop all this crazy growth, and there is no better time than the present." With the knife he scratched a rough map on the tree bark. "Here, you see, is the house, and here—are we. Between us and the house, in a semicircle—so—are the young tapans, in whose trunks I infused blood and grafted the experimental hearts. You understand that it is these hearts which provide this mountain of vine with its life fluid and which stimulate or, rather, force it in its continued expansion. It is my plan to visit now each of these trunks and, if possible, destroy the heart that beats within."

Estelle protested and so did Bert.

Bert said, "Let's get to the house, and get rid of all these things we're carrying and get a night's rest. To-morrow you and I can set out alone to kill those plants."

Wolfe calmly took up the pack which Bert had been carrying, opened it and withdrew a loaded automatic. "Perhaps I'd better carry this myself," he said significantly. "Of course you will not dispute my plans. Without my leadership you would be quite helpless, and I intend to be the leader. Remember that, Mr. Seward, and you, too, Estelle."

THEY again donned their heavy packs and continued their weary wrestling over the jungle. Long before they found the first plant, they knew of its

proximity by the presence of large pipe-like vines which seemed to be centering toward one point just ahead.

Sliding to the ground beside it, they gazed in amazement at the gnarled octopuslike trunk.

Wolfe placed his hands upon various parts of it. "There, feel that!" he said, pointing to a bulging area of the gray bark.

Mermo shrank away, but Bert and Estelle rested their palms upon it, quickly removing them as though touched by something foul, for they had felt the pulse of a beating heart. Naturally, they had half expected it, yet the actual contact was revolting.

With the knife, Wolfe chipped away a section of hard, scaly bark, and pressed the muzzle of his automatic upon the spot. "I have told you that the tapan has a sensory system. Probably this will reveal it." He squeezed the trigger twice.

Before he could remove the gun, a torrent of scarlet gushed from the trunk, drenching his hand and arm. Then a distant rustling grew audible, becoming nearer and nearer, until the very branches overhead trembled as with palsy. From a pack he drew a metal tube which he inserted deep into the wound. "I know too well the healing properties of this blood," he said.

For some minutes they stayed to watch the stuff spurting from the tube. It stood in pools and ran in rivulets along the ground. The quivering of the branches increased until a tremor seemed to shake even the great trunk. Then it began to expand and contract upon itself, spouting hissing jets of blood at each recurrent spasm. "You are now witnessing the death agonies," said Wolfe, "of a living creature."

On they went over the jungle, and again and again he performed the horrible rite. At last, weary beyond description and thoroughly sickened, Bert and Estelle by disgust and Mermo by

fear, they came in sight of the house. The stone part stood like a tower, unscathed save for its broken window. The rest of the building was a splintered chaos of vines and wreckage. Into that area they dropped, one by one, and, following Wolfe's guidance, they assembled before a great metal door in the basement foundations. "Drop your burdens here and rest," he said. "And do not fear the jungle, for I have killed it."

He turned a key and flung the door open. The surrounding vines darkened the entrance so that nothing could be seen distinctly, but after a moment he produced a flashlight and they surveyed the basement interior. Towering out of the musty earth, and passing through the ceiling above, was a monstrous, bulging thing, hardly recognizable as a tapan trunk. There was no need to lay hands upon it to discover the presence of the heart. The pulsing throbs were clearly discernible to the eye as that great muscle labored beneath the heavy bark.

Wolfe opened a medicine cabinet on the wall and removed a large bottle and syringe. "This, I believe, will render our subject quite harmless, while we examine him," he said, making a slow injection. "Come. The effects will be instantaneous and there is no danger."

He led the way up a wall ladder and pushed open a trapdoor with his left hand. There was a swish above, and a cry from Wolfe, as he was jerked from the ladder rungs and dropped to the floor below—to be still for a second and then reveal a ragged stump where his left arm had been.

His fear was immediately transformed to anger. "Mermo! A tourniquet! Hurry!"

But the terrified girl was too near hysteria to be of any use. Estelle ransacked a kit and found and applied the tourniquet to the mangled flesh.

The trapdoor had fallen open, and Rupert was cautiously working his way up the ladder when Mermo ran and seized his legs in an effort to pull him down. "Mr. Bert! Mr. Bert! Please, no! It is the great spirit! You will die like my brother."

"Dear Heaven, no!" screamed Estelle. "Bert! If you love me, stay here." She joined Mermo. Together they dragged him to the floor, and none too soon, for, at that moment, a gigantic gray-green head filled the entire opening.

Slowly, with serpentine grace, the hideous jaws and deadly little eyes came lower. It reached halfway toward them and hung swaying in mid-air. Its attention seemed to focus on Mermo, who had run and crouched beside Wolfe. Suddenly, she sprang upright with his automatic clutched firmly in her small brown hand.

She was not trembling now, and all hysteria was gone. The thing opened gleaming jaws and swung toward her, but she leaped back and emptied the gun in the side of its head. Purplish disks appeared where the bullets had entered the brute's skull. The thing disappeared back through the trapdoor.

A hellish confusion broke loose in the room above. The awe-stricken little group listened to the monster thrashing about, beating the walls, shaking the house with its thunder.

Peter Wolfe crouched on the floor, tightening the tourniquet on his arm and staring crazily up at the opening. "It must not die! It shan't die! It is my life's work. You hear me? You fools!" He glared at Mermo. "Give me that gun, idiot. If it dies—— If it dies——" He did not complete the threat, but his tiny gray eyes were dancing with hatred. Reluctantly, the girl returned the automatic. The tumult above grew less and less—became quiet.

"It must not die! It must not die!"

## V.

BUT the great moray did die, and although Wolfe, in feverish pain, labored over the lifeless monster for weeks, he failed to restore it. The brain was shattered and a gradual decomposition spread from the head, back along the body. At last he realized the futility of further effort. He spent long, solitary days in silent concentration, sometimes going over and over certain papers which he kept in secret.

He made no effort to conceal his hatred for Mermo nor his distrust of Bert, who was now utilizing his time as best he could by repairing the building, gathering firewood and such chores. Oddly, the supply of matches had been lost, so he showed Mermo how to make a fire with the sun, by using a lens from the laboratory. She was as fascinated by it as if it were a new toy. He told her long stories about the United States and was grateful for her companionship, as Estelle was so completely busied with compiling Wolfe's notes and data that she had little or no time left over.

"It's cruel," she told Bert. "It is horrible, yet it is wonderful. My uncle has truly performed miracles. It is all here, in these papers. When they are published they will bring the scientific world to its knees. As he says himself, he will be the most famous man on earth."

"Granted," said Rupert. "But I told you once I thought he was a nut. Well, I still think he's a nut, and I don't like him."

"He's a genius, Bert."

"He may be a genius, but he's still a nut," said Rupert. "And I still don't like him."

"I know you don't," said Estelle, "and he knows it. I can tell by his attitude. He doesn't trust you. Sometimes I think he's a little afraid of you. Oh, Bert, do please be careful. Don't do

or say one thing to rouse him. I should die if anything—anything—— We're so entirely in his power."

"Anything what?" asked Rupert. "Do you think I'm afraid of the old crab? He may be a whiz of a scientist, but he's a fizzle of a man. There's not one spark of humanity in him. Did you notice when Mermo told how her brother was killed? Was there any sympathy from him? Not much! The dirty beast sat there grinning like a monkey! Why? Because it was his, *his* little pet eel that had grown big enough to commit a murder, and he was tickled to death."

"I wish," said Estelle, "that Mermo hadn't fired those shots. My uncle says the eel would not have attacked her if she had lain quiet, and that the hypodermic would have paralyzed it soon enough without any injury. He hates her for what she has done and I am afraid for the girl. I believe he doesn't trust me as he did, for he won't speak plainly with me, but hints at horrible things. Please believe me—he is capable of any crime out of sheer malice toward her. And he's never without the automatic."

"Rot," said Bert. "Sweetheart, he's got you buffaloed, too." But secretly he believed Estelle's fears were well-founded; so, the next day, avoiding the eye of Peter Wolfe, he set out for the beach, hoping that he might, from some tall tree, get an idea of their exact geographical location or perhaps sight a ship and signal it. He no longer felt under any ethical obligations to this mad scientist, and wished heartily that he and Estelle might see the last of him.

A shocking change had overtaken the jungle. The myriads of vines were wilted and leafless; everywhere there was a faint but recognizable odor of decaying animal matter, sickening to the nostrils. His hands reeked of it after climbing but a short distance through the dying creepers.

He found the beach, climbed the tall-





*"Now I die!" she thought. And then—instead of crushing her to death—*

est tree and studied the ocean for hours, but saw no other land nor any ship nor sail, not even the smoke of a distant steamer. He turned his gaze on the cadaverous jungle behind him. A sense of horror, loathing, and isolation came over him. Well, he and Estelle were in it together, and somehow they'd get out of it together.

If he only had a map showing the steamer routes, they might attempt a get-away. He could build some kind of boat, on the sly, or, perhaps, if the currents were right, they could even escape on a raft. Estelle would welcome the chance, he knew, for her present devotion to her work was entirely inspired by fear.

Once before he had asked Wolfe for a map and had been curtly refused. Now, he grit his teeth with purpose and resolved that Peter Wolfe should deliver a map—or else—— Bert's nails bit into his palms in comforting contemplation. Nothing he'd like better than to smear that sour puss a few times. The more he thought about it, the happier he felt. Determined to have a good map or a good scrap—or both, he headed back toward the house.

He first entered the basement which had been arranged to serve as part kitchen and part workshop. "Mermo," he called softly, but no one answered. He listened for the clicking of Estelle's typewriter, the rustling of papers, or the monotone instructions of Peter Wolfe in the room above. No sound was audible. "Odd," he thought. "Perhaps the old devil softened up and gave her an hour off."

He had been ordered to stay out of the laboratory, but now he threw caution to the winds. If the big desk was unlocked, this might be his chance to secure a map undiscovered.

THE TRAPDOOR was no longer in use, so he went outside and climbed the stone stairway, paused on the steps to

listen, then opened the door and went in. A case of shelves was ranged across the center of the room. He walked around the obstruction and halted abruptly, his scalp tingling.

Mermo lay bound and gagged upon a workbench. On a near-by chair sat Estelle, also gagged. As Rupert entered, she raised her eyes toward him. He saw her rise to her feet and gesture frantically at something beyond him, then bright lights danced before his eyes and the world dissolved in blackness.

Shortly after that, a cup of water was thrown in his face. Bert opened his eyes. His head ached abominably. His ankles and wrists were tied securely. "You're a very unnecessary person, Mr. Seward," said Wolfe. "But since you are here to be a witness, a witness you shall be. And now," he went on, turning toward the bench, "let us continue from the point at which we were interrupted."

He cut the lashings on Estelle's wrists and tossed her some blank paper. "Take notes on each step in the procedure." He then placed a test tube over a burner. A brown liquid bubbled and steamed. "This fluid, sterilized and injected into warm veins, will have the power of reducing the body to conditions normal in those which we call cold-blooded."

He wrote the formula upon a slip of paper and handed it to Estelle, then turned to Rupert. "In order that you may have some faint comprehension of what you are to witness, let me explain that a cold-blooded creature, for instance, a fish or a tortoise, can be frozen in a chunk of ice, and at any time later it may be revived, in perfect health. Thus, you see, I have made it possible for a man to hibernate from one era to another, merely by using this injection, and then allowing himself to be frozen—chemically, of course—until the time of his preferred reincarnation. Consider those possibilities.

"Consider also the recognized fact that cold-blooded creatures almost *never* die of old age; and consider above all else"—Wolfe had reached so frenzied a state of excitement that he was almost screaming—"consider above all else that a cold-blooded creature can be nourished by the tap of my great tapan!"

With his one hand he nimbly filled a syringe with the brown fluid and inserted the needle beneath the skin of Mermo's thigh. "So," he shouted at the trembling girl, "you are afraid, were you? A afraid that the spirit devils would enter your yellow body? Well, here they come, Mermo!" He pressed the plunger home.

No sound escaped her gagged throat, but her body flinched and quivered; her eyeballs rolled in agony; then she lay still in a merciful coma. Estelle was white. Her eyes sought Bert's.

Wolfe removed the gag from Mermo's mouth and slid a thermometer beneath her tongue, then poured the remaining fluid from the test tube into a tiny phial, labeled it and placed it carefully in a rack. "For future experiments," he remarked, smiling.

Rupert met his look and shuddered.

"Temperature registers ninety-five," said Wolfe, bending over the prostrate girl. Ten minutes later. "Ninety-one." He placed his watch beside her and held her wrist. "Pulse normal." Ten minutes later. "Temperature eighty-eight," and then, "Pulse normal. Mr. Seward, within an hour this woman will have no more body warmth than that tapan." He pointed toward the grotesquely mangled butt of the huge trunk.

"The ungainly bulk of my moray eel has been removed only to make room for a more beautiful bit of grafting. You have probably observed that this girl, Mermo, has a strikingly handsome body? Please picture it then, one month from now, remembering, of course, that my moray weighed eight pounds when I

grafted it, yet its sections added up to almost three thousand pounds when I removed them this week."

RUPERT sat in frozen silence. He strained hopelessly at the lashings that held his wrists and commanded himself to think calmly. There must be some way to stop this man. He made no threats, nor did he plead for mercy, for he knew there was no chord of sympathy which he might touch in the selfish calculating mind of such a maniac.

Wolfe was deliberately planning a demonstration of the cruelest torture, to a woman who worshiped him. He was going about it with less feeling than Bert would have felt for a guinea pig or a white rat.

He was preparing now to give her a transfusion from the great tapan trunk. Mermo's eyes fluttered, and, regaining consciousness, she watched with terror as he opened the flow into a large vein. "Master," she breathed, a tremor passing over her.

He bled an artery to balance the infusion of sap. Her heart beat wildly. Wolfe watched her pulse and smiled. "Very inefficient—a human heart, far too much influenced by emotion." He gestured toward the tapan. "No fright could alter the powerful pulse of *that* creature."

Soon the transfusion was complete. He waited a while, then compared samples of her blood and the tapan's, beneath a microscope and pronounced them identical. "There's no need for further delay," he told them. "I shall now destroy her heart. She will no longer require it."

Bert lunged at the ropes which held him. "You murderous beast!" he screamed. "You torturing, crazy fiend!"

Wolfe came over to him and wrapped a strip of cloth tightly about his jaw, gagging him entirely. "I cannot afford to let you distract me, Seward. You are permitted to observe, but your

opinions are not invited." Addressing Estelle, he continued, "The girl has fainted again. That is good. I shall use no anæsthetic."

He set about the operation with no further preliminaries. Bert and Estelle watched the knife for several minutes as the one-handed man cut, pried, and sawed to make an incision through which he might reach the heart. He seemed more butcher than surgeon. Suddenly a gulping wave of red washed over Mermo's side and pooled across the bench. Estelle gave a sickened cry and fainted.

Peter Wolfe's arm was red to the elbow. Apparently it was a more difficult performance than he had anticipated. Furthermore, there was work to do with arteries and veins. He jabbered and raved while he worked, and cursed himself for having lost a hand. Nevertheless, within an hour he sewed up the long, ugly incision and announced that all was ready for the grafting.

Estelle, being unconscious, was spared the hideous scene that followed, in which Wolfe carried Mermo's limp body across the laboratory and laid it upon the broad stump of the tapan, then, after amputing her feet at the ankles, he set the shin bones deep into the sap wood, pressed the fleshy tissues against the cambium layer and, by means of slender metal tubes, he connected the principal arteries with the tapan's core.

"The circuit is complete," he said, and felt of her pulse. "Ah! Such a current was never before in mortal veins." Strutting like an actor, he paraded before his victim, applying wax to the wood about her ankles, thus sealing out all air.

Next, he plugged her nostrils with wax and sewed her lips together. "No longer a need for oxygen," he said. "Soon she will begin to grow fast like a tapan, nourished by the soil and the sun."

## VI.

THE FOLLOWING WEEK was one prolonged nightmare for Bert and Estelle. It somehow pleased Wolfe's vanity to have them watch every step in the growth of his monstrosity. For twenty-four hours the bronze body lay motionless against the bark. Then it slowly straightened up, first to a sitting position, then standing, flexing the fingers from time to time, and weaving slowly to and fro.

Her eyes had not opened, and Estelle prayed that they would never do so, lest they should find reality in what they looked upon. By the third day, Wolfe fashioned a whip and came to stand beside her. "Open your eyes," he commanded. The girl made no motion. He lashed her twice—three times. "Open your eyes."

She did, and from that moment on her eyes were on him constantly, following him, unblinking, hour after hour. There was a slight movement of her cheeks and chin and Bert believed that she was trying to say, "Master."

Estelle was allowed more bodily freedom than Bert. Taking no risks of her escaping, however, Wolfe kept her chained in the laboratory. He rigged a bunk beside the desk and kept her moderately comfortable, though constantly at work during all her waking hours. He bullied her mercilessly, and seemed to enjoy it the more because of the rages it produced in Bert.

Physical changes began to be apparent in Mermo. A deeper red suffused her whole body, and on the fifth day she seemed to be swelling. By night that growth was accompanied by a gradual elongation of arms and legs. Next day she was growing as an entirety, growing rapidly. Within a week she had doubled in size. Throughout all this time she showed no animation beyond her ever vigilant watching of Peter Wolfe. He made every effort to compel her to

show some intelligent response, but his whip and his commands alike were treated with indifference.

Then she began to show a certain childlike tendency to play with small objects. Hour after hour she would fondle a bright pebble or a piece of paper, rumpling it and straightening it and rumpling it again, or else tearing it into strips. She watched Wolfe less closely now and devoted herself more to her "new toys," as he called them.

As a precaution, he moved all his apparatus and shelves out of her reach, lest she should do some unexpected damage. Then she happened to get hold of a stone mortar which Wolfe had been using to pulverize certain crystals. He did not notice that she had it, but Estelle watched, fascinated. It was a heavy thing, yet it looked small and fragile in the great ruddy, bronze hands. She fingered it a while, then with a sudden motion, she broke it apart like an eggshell.

That inspired Estelle to take a daring chance. For some days Rupert had been removed from the scene of events and kept as a prisoner in the cellar below. She was sure that he would be Wolfe's next victim unless something intervened. The chain which held her ankle was too strong to break without proper tools and she had been unable to secure any. Once she had secreted a small bottle of acid, and, during Wolfe's absence, had tried to damage a few links, but he scented the fumes, discovered her subterfuge, and beat her with the whip until she cried for mercy.

She now conceived the idea that if Mermo was to get hold of the chain she might play with the bright links and tear them asunder. Accordingly, she watched for a chance when Wolfe would be asleep or temporarily gone from the laboratory.

The surrounding jungle, exposed for weeks to a withering sun, had become a

bleached tangle of crackly, dry vines, and she listened as the *crunch, crunch* of his footsteps became more distant. Then she sprang up and, seizing a loop of the chain, waved it flashing back and forth before Mermo.

The huge form swayed toward her. Immense fingers extended and seized, not the chain, but the slim white hands that held it. Estelle screamed as she was gathered into the arms of the giantess and pressed in a clammy, cold embrace. She thought, "Now I die!"

But instead of crushing her to death, Mermo began to sway from side to side, cradling her like a babe in arms.

That caused the chain to swing and glitter. With one hand, Mermo gripped it and tugged. The desk toppled and fell forward with a crash. One more tug and the chain snapped. Yet Estelle was not free, for Mermo showed no intention of releasing her. Struggle as she would, the mighty arms incased her, gently, but irresistibly, and continued swaying.

If she could only divert the thing's attention—something bright, something glittery. Suddenly she remembered the lens, the one which they had taught Mermo to use in making fires. It was in Estelle's blouse pocket. In spite of the powerful restraining arms, she twisted herself so that she could reach it. At arm's length, she flashed it before the great brown eyes. Immediately, Mermo's face showed an expression of childish delight. She raised both hands and seized it, as the girl fell to the floor below unheeded.

MINUTES were precious now, so Estelle hastened to the trapdoor. It had been too heavily barred from above that it seemed hours before she could pry it open. "Bert! Bert, darling," she called, and as she heard his answering cry, she looked about her for something to cut his bonds. There was a knife on the bench. She snatched it up and turned

to face Peter Wolfe. He was in a black rage, his features distorted and cruel.

For one fatal moment she hesitated; then she was gripped by the one powerful hand, spun about and borne to the floor. He struck her two hard blows back of the head and, dragging her to the trapdoor, he tumbled her onto the ground below. "Fool! Fool!" he screeched. "Idiot! I had thought to let you live. Now you can rot—or better yet, I shall use you as I will use Seward." He laughed crazily. "Think of it! We shall have a whole forest of giant human vegetables! Then I shall take some very interesting photographs back to America—and forget where they were made." His laughter shrilled as he dropped the door, and Bert heard him replacing the bars.

Half rolling and half crawling, he reached Estelle's side. Searching for a wound, he found the knife tightly clenched in her small hand. She was still breathing, and presently she regained full consciousness.

"Are you all right, dear?" he whispered. He was glad she had not heard Wolfe's threats, yet the knock-out was only temporary.

She felt for the knife and in a moment she had the ropes cut and he was standing upright, flexing stiff muscles.

They could still hear occasional peals of insane laughter in the room above. Then an exclamation of surprise, followed by curses. They heard Wolfe's steps as he ran across the laboratory toward the door, then outside.

Bert and Estelle stood close in each

other's arms, uncomprehending. There came a faint snapping and crackling, then clearer and louder. It became a roar.

"The lens!" she breathed. "Mermo has it to play with. She is enormous now and can reach the dead vines outside the window. They are dry like tinder and she has made a fire."

Peter Wolfe's voice could be heard now, flinging vitriolic curses in the very teeth of the inferno outside. Somewhere in that raging furnace was fighting flame with the same implacable hatred with which he had always fought during his entire frenzied career.

As his voice died on a hoarsely strangled oath, a new note rent the air, a scream louder than the voices of a hundred men. The walls vibrated to a blast like the trumpets of hell. The giantess, Mermo, in the teething oven above, had torn her sewn lips from their lacing; and the bleeding, burning flesh cried, "Master! Master!"

IT WAS thirty-six hours later that Rupert Seward and Estelle Wolfe emerged from their tunnel under the stone foundations, and walked by noonlight across a scorched and blackened plain to the beach. There on the sands they made a meal of shellfish, and lay back facing the eastward sea.

Her head rested beside his own. Waves of her black hair tumbled upon his chest. Hand in hand, without a word or motion, another Adam and another Eve greeted a new day—a new world.

*Next Month:*

## THE ETERNAL WANDERER

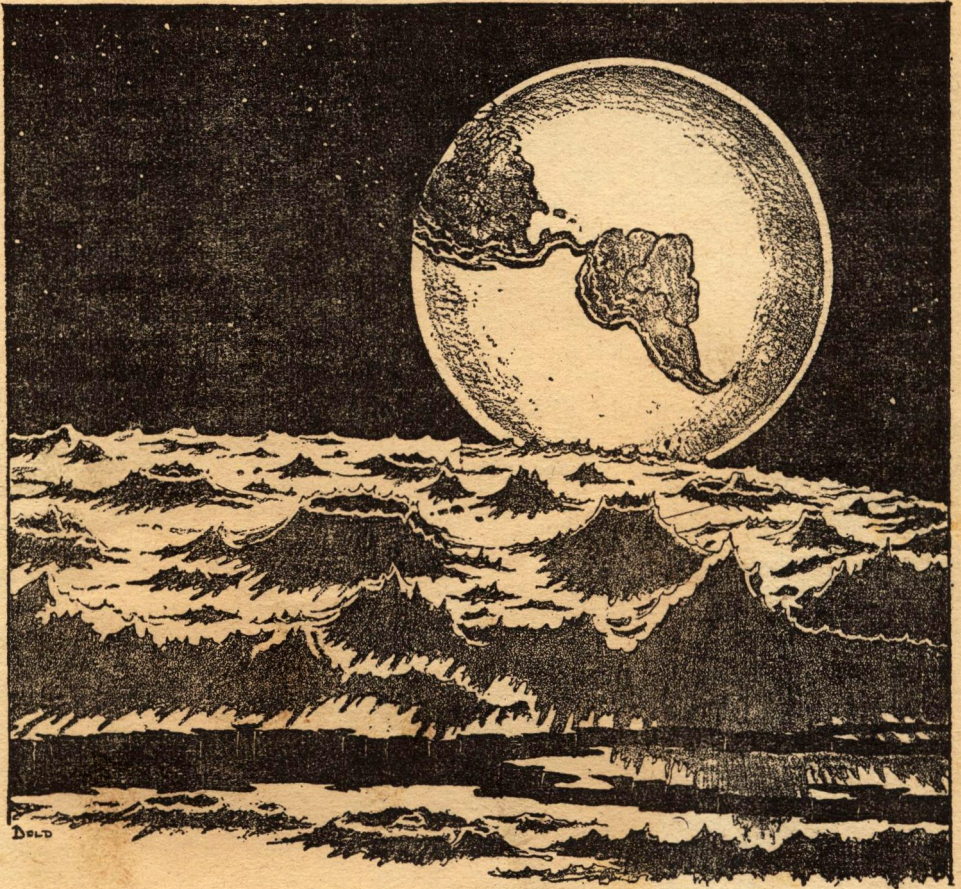
*by*

NAT SCHACHNER

## *A Study of the Solar System*

Article No. 5

by John W. Campbell, Jr.



# The Double World

**I**T IS HARD to write a short article about the third planet. Every one knows the simple things about Earth, the fact that it has atmosphere, that it is about 93 million miles from the sun, that it is 8,000 miles in diameter, with a temperature range in the lower half of water's liquid range. These simple things we all know.

There is an enormous mass of intensely interesting material to draw on: the slow, majestic wobble of Earth's axis; the strange, short-term wavering of that same axis; the magnetic poles caused by a flow of electric current of some 10 million amperes flowing ceaselessly about the Earth; the causes and histories of the great land masses.

But these are things no short article could readily handle; their bare statement would lose, by its mere factual presentation, all the interest of the deep thought that went to make them known: the solidity of the Earth is determined by measuring tides in little glass tubes, tides two thousandths of an inch high; the north pole, in midsummer, receives half again as much heat from the Sun as the equator, more heat than any other point of the Earth; the tides are draining the stored energy of Earth's rotation at the stupendous rate of 1,877,000,000 horse power, and slowing it, in consequence, one second in 150,000 years.

The simple things we know. The mass of more important data is too great to hope to use and explain here. Yet remember, an exact knowledge of Earth is an absolute necessity for the astronomer. Earth is, to the astronomer, not only the Earth on which he lives, and must mount his instruments, but also Earth, Planet Three, an example of a stellar satellite at close range.

Saturn, another stellar satellite, has a density bewilderingly low. How can that be? What are the density distribution curves? Perhaps the motions of the satellites can tell us? - Well, we can measure the density distribution of Earth fairly well, by earthquake shock and gravity pendulum experiments; we can chart the motions of our satellite, really our planetary twin, Luna, and see if the results check. But first we must know Earth's density distribution. Is it denser deep within? Much denser?

Again, is Pluto's slow orbital movement irregular, or is the polar axis of Earth rocking slowly and slightly? We have to find out—and incidentally damn the Moon. That twin of ours throws old Earth back and forth in a crazy sort of way, like an unbalanced flywheel on a one-lunger gas engine. The motion is not a simple oscillation either. The Moon is no mere satellite. Why, if Jupiter had one as large in propor-

tion it would be a major planet 22 thousand miles in diameter.

The Moon is one fourth as large as the Earth; naturally Earth heaves around a good bit to that huge thing. But, because Earth's pull is weakening very rapidly by the time you get 238,000 miles out, the moon isn't gripped rigidly and immovably. Of course the pull is fairly considerable. If you had a steel cable replacing it, the cable might snap, and on the broken surface leave room for Massachusetts, Connecticut and New Jersey; though 250 miles in diameter, a steel cable would snap like a pack thread under the titan pull of the Moon's centrifugal force.

BUT that is not a very solid binding in the solar system. A good binding is one that will swing a satellite in a day or two, not in four weeks. Earth swings the Moon once in 28 days, at 238,000 miles. Jupiter has a satellite at 261,000 that it snaps around in a day and three quarters! Things move under Jupiter's lash, and it takes a mighty pull to disturb their motion. But ours yields and wavers "in her circled orb" to every passing influence. It stretches out to the Sun; it wobbles aside to Mars, and ogles a bit when Venus passes near. Jupiter half a billion miles away lays violent hands on the orbit and twists it a bit. The Moon's orbit is not exactly a precise and steady thing. And since it is not an ordinary satellite, but, a planet in its own right, only by accident a twin to Earth, Earth rocks and shakes in its orbit every time the Moon moves and stirs a bit.

To express the Moon's motions, an equation covering some eight or nine pages of mathematical symbols is required; thousands and thousands of terms; the first describing the basic motions of the Earth-Moon system as though it were isolated in space, then a correction for the influence of the Sun, and a consequent correction for the



reaction of the Earth-Moon to that attraction; next, an expression of Mars' influence, and Venus', with resultant cross corrections on Earth's part.

And remember that since Mars' influence of the Moon depends on Mars' orbit about the Sun, then that expression of Mars' influence on the Moon must, of necessity, include the complete data for Mars' own orbit. The influence of Venus equally requires the complete and complex data of Venus' orbit. So in the end, to express to a fair approximation the movements of the Moon, the equation must include the movements of half the solar system.

Charles Fort, in "Lo," mentioned the inaccuracy that astronomy revealed at the time of the solar eclipse, some seconds' off the time given, some hundreds of feet wrong in space. The astronomers expect that; it's a real triumph to be as incredibly accurate as they are. It becomes understandable when we appreciate the superhuman complexity of the motions which are involved.

Earth wobbles like a run-down top; she heaves and pants like a worn-out horse. Every time she wiggles a little, the telescopes mounted on her surface writhe, too. The astronomer can't hope to make his telescopes less agile than the Earth, but he can hope to describe Earth's every inaccuracy of motion so accurately he can correct for it. That is one reason why he watches eclipses with such intense interest. If the Moon is out of its calculated position by one inch at the time of eclipse, that means a displacement of the shadow on Earth's surface, of 25 feet. One inch, mind you, does that. And the Moon is, 2,000 miles in diameter.

SINCE our every prediction of motion of other planets is based on observation made on Earth, since our every estimate of distances is based on Earth-founded observation, the immense importance of knowing Earth's position ac-

curately becomes understandable. We speak of the motions of the Moon, though accurately it is the motion of the Earth-Moon system. These motions have been described mathematically with greater accuracy, greater labor, and more infinite care than the motions of any other thing known to man.

The problem resolves itself always to that of making mathematical theory about 50 per cent more accurate than the finest telescope existent. It is useless waste of effort to get any closer theory than the telescopes allow in practice—like getting pi to 700 decimal places. Useless, because nothing in the universe is as accurate as pi to 700 places, except the imaginary circle you describe with it. I've forgotten the exact statistics, but it runs something like: "If you describe a circle, using Pluto's distance from the Sun as radius, the true circle and the inaccurate circle due to using only 700 decimal places would leave room for a filterable virus to pass, but not a microbe of ordinary size.

That is one phase of the importance of knowing thyself. Next comes the important fact that aside from Earth being our observatory, it is important as the only available planet on which we can make experiments. If you wanted to determine the properties of a make of car your neighbor had, an excellent way to do it would be to get one like it yourself and experiment. Unfortunately, our nearest neighbor, Venus, has a similar, but slightly different make, Mars has another, and Jupiter still another, and all the manufacturing companies seem to have gone out of business. But all the cars have certain, basic similarities; so have the planets.

We can't test Jupiter exactly by tests on our little planet, but we can get certain basic rules. Earthquakes show us something of the density and physical properties of the deep interior of this

planet, and hence of planets in general. Dynamical studies of Earth indicate certain things about the dynamical properties of planets. Studies of Earth's age and development make a fair data for the other planets.

One thing we want to know first is whether the deep material of planets yield to tidal stresses as a thick tar, or as a piece of fine steel, a spring. If it yields like soft tar, the tides are doing an immense amount of work distorting it, then pulling it back into a new shape; if it yields as a spring, the work done in distorting it is immediately restored by the return under its own power.

To determine this is obviously difficult because of the fact that we are raised and lowered with the tides; all our cities and mountains rise and fall with the deep tides of the very stuff of the Earth. That is why they measure tides in glass tubes. Ocean tides are perfectly fluid, since water is neither highly like tar, nor rigid and elastic like steel. Unfortunately, ocean tides near coast lines are influenced by everything from last week's garbage disposal to the shape of the coast line, and whether the mountains came down to the sea.

The Himalaya Mountains exert so powerful a gravitational attraction that the Indian Ocean is not at sea level. Remember that there is enough mass in those mountains to make up a fair-sized planetoid. The sea, like Mohammed, goes to the mountains, since the mountains don't come to it.

TO AVOID these influences—quite incalculable influences—the experimenters made glass tubes to house tides of their own, mounted them in a laboratory, and watched results under ideal conditions. The tides weren't very high—.002 of an inch—but quite enough to observe. They could calculate the difference to be expected between a viscous mass like warm tar, the elastic yielding of steel,

and the fluid nonviscous, nonelastic water, and so determined quickly enough that the Earth is almost purely elastic in its yield; it bounces rather than squashes under tidal forces.

But—if tides continued in one direction long enough, instead of moving about the Earth as the planet spun on its axis, the tidal yielding would cease to be elastic, and become a permanent flow. Cold tar will bounce, if dropped. But if you leave it there long enough, it will "cold-flow" and acquire a new shape, which it will now hold under a momentary force.

Now, that is the result of calculations made on Earth. Are there any other bodies like that? Would the other planets yield elastically to momentary—a month or so—tides, and set finally if the tide acted over centuries and millenniums? How can we tell?

No other planet has such tidal pulls as Earth. No other planet is part of a double planet, with a near-by twin of almost the same size—except, of course, the Moon.

The Moon is a twin, not a child, of Earth. There were originally two theories of the Moon's origin: one, that it was torn out of the Earth in a long-gone day, when the Earth rotated on its axis far faster than now, spinning once in 4 hours instead of in 24; the other; that they were children of the same birth, not child and parent. The final decision in favor of one or the other depended on dynamical theory, on the dynamics of the problem, and nobody had developed it; they didn't know how.

Modern dynamics show that a combined Moon and Earth would not break up. Rotating once in 4 hours, a small mass like the Earth-Moon body would be no less stable than Jupiter now, rotating in nine hours. It would be more flattened, yes, but not unstable. Emphatically, the answer is no; the Moon was not born of Earth.

But both theories, and the modern theory, now agree that at one time the Moon whirled round the Earth at a distance less than 9,000 miles, a monstrous, mad Moon, filling the sky. But even then our twin world was dying, the slighter, slighted twin, cheated at birth, being robbed by the greater world, clutched in the mighty, deadly grip of the greater world's gravity.

It was still struggling, rotating on its own axis swiftly then, but the immense grip of Earth's gravity was setting up enormous tides. These tides acted as a giant brake, slowing the axial span of the Moon, and by the reaction of the braking, driving it farther from the Earth. It went swiftly at first, for the tides were immense, both on Earth which the Moon slowed, and on the Moon slowed by Earth.

As the tides drove the Moon out, they hastened the natural tendency of so small a body to loose gas, atmosphere. So small a world could not hold atmosphere, even in its deepest canyons and buried caverns, for rocks are porous. But Earth was whipping and lashing the primeval atmosphere that remained, snatching it up in irresistible tides till it flew free. But free of the Moon was not free of Earth; Earth's far greater, far more far-reaching gravity gathered much of it in, to add to Earth's own atmosphere.

EVENTUALLY Luna was a dead world, airless, waterless, moveless, 90,000 miles from Earth, throttled by her stronger sister till she no longer rotated on her axis with respect to the larger planet.

Now the tides act constantly in one direction, century after century, millenium after millenium. Tides do not stop when rotation ceases; the distorting influence of gravity goes on forever. But the tidal wave that had moved about the Moon, ever slower, had come to rest

at last. Matter, stressed for countless ages in one direction, crept, and settled. The tidal wave remained forever a fossil tide, inelastic and unmoving. A tidal wave a mile high froze forever, facing Earth.

Earth still turned, despite the age-long braking of the Moon, continued to drive Luna farther out, past the 100,000-mile mark, past 200,000, out to 238,000 miles now. Five feet each century, Earth is still driving her. But that fossil tide remained.

At 90,000 miles Luna's orbit, being shorter and nearer Earth, required much less time for a circuit; the month was far shorter than it is to-day. Month and Lunar day were equal then. Had the Lunar day remained unchanged as the Moon was driven out, and the month increased in length, the Moon would have taken on an apparent reverse rotation. But the lengthening month was exactly balanced by the lengthening day, for Earth's gravity had crushed the imprint of its fingers into the Moon. Luna was no longer a sphere, but a neatly ridged body that gave gravity a perfect handle; the fossil tide that could no longer move.

Every attempt Luna made to turn again was hopeless, for Earth's gravity had the handle, and dragged it back. Calculations show that if the center of Luna's disk is so much as one fifteenth of an inch to one side of exactly facing Earth, gravity will drag it back. A two-thousand-mile sphere of rock and matter—quintillions of tons of matter—bound to less than a fifteenth of an inch motion!

At 90,000 miles Earth's work was done. Her smaller sister has been killed and bound, a lifeless, sun-baked, space-frozen world, airless, waterless, hopeless. Tamed to follow, a blind corpse forced to stare forever with dead eyes at her greater sister's finery—finery of air and water stolen from Luna as she was subdued.

# INFINITY ZERO

*The observations left no doubt.  
The hole was growing. Why?*

by DONALD WANDREI

CONWAY, a spot news photographer for the *Herald*, was staring moodily out of a grimy window when the telephone rang. He paid no attention to it because it wasn't his job to answer. Anyway, the telephone rang all day and all night long.

Across the Hudson rose the dark towers of Manhattan, limned against the faint glow of the sky. No lights shone in those giant structures, for the second year of the war had made cities the world over reluctant to use electricity after nightfall. Bombing raids of the German-Italian-Asiatic League had already ripped gashes across Boston, Washington, and other coastal cities. The government operated from the interior. The American-Soviet-Anglican group—a union of strangely assorted allies—had laid waste foreign capitals—Tokyo, Berlin, Rome.

A quick thrust and victory within a month had been forecast at the beginning of the war; but, as in the old World War, the opening thrust failed, and the war settled down to a steady, remorseless virulence that marked the beginning of the long-promised decay of civilization. Oceanic shipping had virtually ceased. Disrupted transportation, commerce, and communication upset the whole intricate balance of society, threw local communities back upon their own resources. There were no television broadcasts after nightfall.

Conway was conscious of some one answering the phone. He continued to

stare at the lofty spires across the river. When would it end, this senseless slaughter that mowed down millions by poison gas, explosives, plagues, famine, electronic radiations, robot planes and rockets laden with death? He himself would be out there somewhere at the front except for his limp that made the universal draft reject him. It didn't matter. He'd die just as horribly, though a civilian, during one of the periodic raids.

The night editor called, "Conway, cover this."

He turned around with a bored expression and lighted a cigarette while he listened.

"You know the way to the United Chemical Testing Laboratory?"

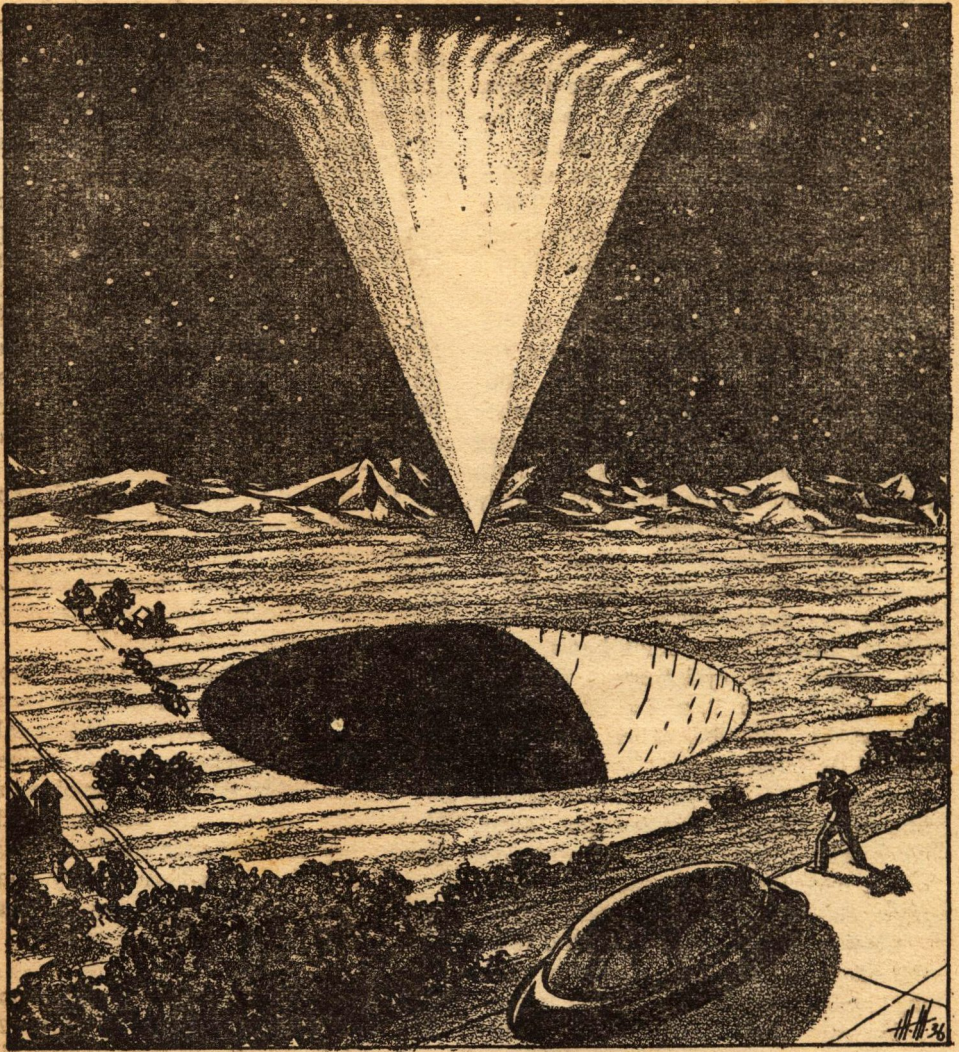
"Yeah. Thirty miles in and up the hills over roads that weren't even paved before the war started. Heaven knows what they're like now. The sentries and guards won't let any one pass."

"Get through. The place is on fire. Get a picture."

Conway said, "On fire? It can't be. It's all steel and concrete and fireproof. Somebody's kidding you."

"Maybe. It sounds queer enough from the flash—that a bomb struck the laboratory and it went up in flames. You'll have to cover the writing angle, too. There's nobody else to spare and the New York papers will want it if it's good."

"Check."



*The earth rock lay exposed in its natural state. Yet—something devoured—ate away—consumed it—*

Conway lugged his camera equipment outside and drove off. He didn't see any drifting lights in the sky or hear the roar of airplane motors, but he watched the glare that became increasingly prominent miles ahead. There were no sentries at the points where he expected to be challenged. He found out why when he parked his car by the gate in the wall that surrounded the U.C.T.L.

THE LABORATORY, before the war and since, had been a coöperative enterprise, a proving ground for the big chemical industries. It was stocked with everything known to chemists, and equipped to test any conceivable new compound, formula, or product. It consisted of only one building, a single story high, that covered seven or eight acres.

The staff, guards, and sentries stood

by helplessly, watching it go up in flames. Conway wondered why they didn't try to stop the conflagration. Probably they couldn't use water because of the deadly supplies within.

No one interfered as he set up his equipment and took pictures. There would no longer be any need for sentries around the property of the United Chemical Testing Laboratory.

Conway's astonishment grew as the fire flamed hotter. It was a sight the like of which he had never seen. Concrete, steel, walls, windows, and other inorganic material burned with a strange fury, an intolerable glare, like the light from a trillion electric lamps, as whitely incandescent as the birth of stars.

"What happened?" he asked a haggard-faced man standing near him.

The stranger answered without turning his head. "We don't know. We were using the cyclotrons and atom-smashers in Lab. 9, and a vat of phosphorus in Lab. 10, when the bomb landed between them. It must have been one of the new bombs, formula unknown. The stratoplane got away. Then this—a total loss. The way some of the men were blown to pieces before my eyes——" He shuddered.

Conway glanced him over, and noted the blackened features, shredded clothing, and wounds that still bled.

He shrugged his shoulders faintly. There was no battlefield in modern war. Civilians, women, children, the old and decrepit, the young, the sick, hospital units, dictators and idiots—it didn't matter which; bullets didn't select their victims. The war spared no one, and nothing.

Conway obtained a few statements from observers and returned to his desk. He wrote a brief story whose novelty saved it from being sandwiched between the war news. For him it was simply part of the day's schedule, and then forgotten.

Four nights later, when he returned

from New York City with some photographs of what remained after a rocket bomb had destroyed the Medical Center, the night editor said, "Good stuff, Conway, great for propaganda purposes. But there's a follow-up job——"

"The hell with follow-ups," Conway drawled evenly, a cigarette stub drooping from a corner of his pale lips. "I'm sick. There was an old lady on the operating table when the rocket struck. It killed the surgeon just after he'd cut for her appendix. They found her an hour later, just as dead as if the bomb had knocked her off; but the look on her face——"

"What of it? War is war. It can't be helped nowadays. Death is death, whoever goes.

"Anyway, hop over to the U.C.T.L."

"Again? I covered it a few days ago. Something new in the wind?"

"Yes, something queer; I don't know what. People are evacuating the towns around the place. The press report calls it a flame terror, whatever that may be."

"It's probably the débris smoldering. I thought the owners abandoned the laboratory as junk after the fire?"

"They did. I don't think they know anything about this new development. See what's in it."

CONWAY reluctantly drove off on a trip he considered a waste of time. As miles of the northern New Jersey hills slipped behind him, however, he noticed an odd glow in the sky ahead—a glow that reminded him, strangely, of a gigantic worm.

The dirt roads, the absence of traffic, the absolute quiet, and the black masses of vegetation intensified his loneliness. There was a loneliness abroad in the land itself, despite the warmth of the soft summer night. He was at a loss to account for this sense of desolation, until he gradually became aware that not a sign of life showed in the farmhouses he passed at rare intervals.

Conway knew that the residential colony for employees of the U.C.T.L. had been evacuated the day after the fire, when officials decided to abandon the site. But why had tenants of neighboring farms deserted their lands? Even the total destruction of the laboratory shouldn't have affected the farmers' means of livelihood in any way.

Conway's interest began to mount. Mystery lay ahead. Over him crept an uneasiness, an eerie unrest that he had not felt when the noncombustible materials of the laboratory defied the laws of chemistry. The burning of the laboratory had only superficially impressed him. In the past he had seen electric welding arcs, thermite, annealing ovens. He had assumed that the apparent inflammability of the steel and concrete work of the building was due to some peculiar chemical reaction launched by the explosion of the bomb, and intensified by the contents of the laboratory.

His old 1940-model Streamline crested a hill.

The broad, shallow bowl beyond it had contained, five days ago, the property and buildings of the U.C.T.L. Conway expected to find ruins that perhaps smoldered yet, and which would account for the rumors of sinister forces at work.

He stopped his car, and for a long time stared at the spectacle ahead. There was a basis for the whispers, but a basis of such startling and awesome nature that he sat in darkness until the rim of the moon pushed up on the eastern horizon and pale rays filtered into the basin.

Not that he needed moonlight to see, for above the heart of the valley, above the spot once occupied by the laboratory, hung a pillar of flame, absolutely motionless, approximately forty feet tall, and as gray, as lifeless, as the pallor of death.

The flame possessed other strange features: It did not, so nearly as he could estimate, emit any heat; no smoke

rose from its tip; its base failed by four or five feet to touch the ground; it assumed a most extraordinary shape, beginning with a pin point at the bottom, expanding like an inverted cone as it rose, and ending in a perplexing blur that tortured vision. The flame seemed to disintegrate at the blur, to splay in all directions and toward more than three dimensions.

The flame, moreover, did not illuminate the ground underneath it. Conway puzzled over the phenomenon, but could not find a reasonable answer. He clearly defined the leprous pallor of the flame; yet the flame did not cast sufficient light for him to see earth or vegetation.

He watched for at least a half hour before the moon rose. During that interval the flame had grown taller, Conway knew, because he could no longer see a couple of stars above the blur that capped the flame. Its pin-point base, also, was measurably higher off the ground.

As the rays of the moon flooded the bowl, Conway's eyes widened suddenly, and the hairs on the back of his neck tingled. A cold sweat broke over him. Fear seeped into him, and the instinctive horror with which human beings have always regarded supernormal manifestations that neither science nor knowledge could account for.

THE FLAME was poised above a gigantic pit, fully a mile wide, a half mile deep, and in the shape of a mathematically perfect hemisphere. The hemisphere expanded while he looked on, with a definite, and it seemed to him, an accelerating ratio.

Conway couldn't imagine how that colossal crater had come into existence after so short a period. If the chemical reaction that destroyed the laboratory had continued, then surely the edges of the great hole would be incandescently glowing. Yet the earth rock lay ex-

posed in its natural state. Yet something devoured, ate away, consumed the earth rock before his gaze.

The flame grew taller, but its grayness remained—and its curiously lifeless hue, its absence of heat. The flame and the solid rock behaved as though an invisible bubble was expanding, pushing them away, or rather, absorbing the earth and enlarging the flame.

Not a sound disturbed the stillness of the air.

The free destruction of matter releases energy—a transformation always audible to human ears. Conway heard nothing.

He watched the hemisphere swell, the flame mount taller, the blur on top of it broaden. It struck him that the hemisphere in the ground, continued through the space above, would form a true sphere at the top of which rested the pointed base of the pillar of flame.

Nowhere was there sight or sound of any living thing. The insects had gone, the birds had gone, the bats had gone, the rodents and the myriad little flying and walking and burrowing creatures of night, all had gone. Now even the wind was stilled. He listened in vain for the rustle of leaves, the faint whisper of grasses, the thirsting buzz of the mosquito. They all had ceased.

The worst loneliness of his life descended upon him. He felt like the last survivor amid a desolate world.

Conway got his equipment ready and bungled the job of taking photographs. He made every mistake possible, from exposing the same plate twice to forgetting to pull the slide out and failing to open the shutter. It was doubtful if one good picture would result from the dozen plates he used.

He didn't begin to regain his composure until he had turned around and was speeding away from that great, corrosive pit and the unflickering, monstrous, corruptly pallid tongue of in-

credible fire that towered threatening toward the stars.

Conway raced his decrepit Streamline at its limit on the furious drive back to town. He thought hard all the way. And when he finally squeezed the car against the curb, his game leg didn't prevent him from taking the steps three at a time.

The night editor glanced at him with an air of bored surprise. "What's the rush? Haven't seen you in such a hurry since the war started. By the way, a flash came through on two big battles raging around Moscow and Los Angeles. Casualties have already reached 400,000. That means another three-deck streamer across the front page, provided——"

"A three-decker, all right, but not that one," Conway cut in. "Yank everything off the front page. Send these plates to the dark room and tell 'em to drop everything else while they rush the prints through. There isn't going to be anything on the front page except the streamer and all the pictures that turn out. If only one is any good, enlarge it so it occupies the whole page. Start my story on Page Two."

THE NIGHT EDITOR bristled. "Who the devil do you think's giving orders around here?"

Conway flopped in front of a typewriter, ran a sheet of yellow copy paper into position. "I don't know who's giving orders and I don't give a damn. This is a bigger story than the whole war. What's the date to-day? August 7th? Thanks." He began pounding the keys as fast as his nimble fingers could fly, reeling off page after page.

"Is it a scoop? What did you dig up?" asked his boss, the nose for news triumphing over the dignity of office.

"I haven't got the foggiest notion, and even if it was explained to me in words of one syllable, I still wouldn't



know the answer. So I'll just write it the way I saw it and if nobody can make head or tail out of it they can just look at the thing. They won't be able to make any better sense out of it either, but that's their funeral."

"Have you gone out of your mind?"

"Yeah. I'm on the way to the bug-house, and so'll you be after you get a load of this."

Conway typed for a solid hour, without pausing to light the cigarette that his jangled nerves craved. He batted off 4,000 words of copy in that period, four full columns that went straight to the composing room as fast as he finished each page.

The night editor devoured the copy, and personally edited it only for typographical errors. It was a whale of a feature.

As Conway feared, the dripping-wet plates came from the developing tanks ruined for the most part. One good plate, however, would do for the front page, and two inferior pictures could be used inside.

The moment he finished his copy, he fished for a cigarette and looked at the wall clock. It was after one thirty. He picked up a phone and tried repeatedly until he got the number he wanted. The number was listed under the name of "Marlow, C. H., Physicist." Conway was not well acquainted with Marlow, but had interviewed him in the past and met him on other occasions. The write-up had particularly pleased the physicist.

Conway talked a blue streak. He beat down Marlow's reluctance and drowsiness. By the very vehemence of his tone rather than any argument that he was able to advance, he won his purpose.

The night editor noticed him hoofing out, and called, "Stick around, Conway. There'll be other stuff coming up."

"It wouldn't matter. It wouldn't be

important if Japan and all of Asia sank in the Pacific. And if you feel like canning me, go ahead. I don't think any of us are going to last long enough for it to make any difference what happens now. Personally, I've always thought you were a pretty decent guy, but you ought to chew cloves."

Conway sat in his car, idling with cigarettes, until a big fast sedan rolled alongside. He stepped into the other machine.

Marlow was a rather chubby man in his forties and given to nervous habits. Beside him sat another man, elderly and lean and white-haired, with a marked serenity of features, as though he had achieved the mythical wisdom of the ages and made his intellectual peace with all things that are. Conway liked him during the brief glimpse he got before climbing into the rear seat among a lot of shiny stuff.

Marlow said, "This is the newspaper reporter——"

"Photographer." Conway closed the door.

"—that I was telling you about. Conway, Professor Daël, the mathematician. He's been my guest for the past few weeks. I took the liberty of inviting him along. I also brought a few basic field instruments in case your report is substantiated. Where to?"

ON THE WAY toward the former site of the U.C.T.L.—"site" was good, Conway thought. How could you call an enormous hole in the ground a "site"?—he gave a résumé of his earlier experiences there. Both listened attentively, and waited until he had finished before putting questions to him.

Marlow grew excited, more and more enthusiastic. His attention wandered from the winding, hilly roads that they now traversed. On numerous occasions he scraped the young trees and second-growth timber that pressed in on the

lanes. But Daël betrayed no emotion, except for a speculative gleam in his eyes, as if the explanation of the mystery, the pure heart of it, the understanding and the knowledge, were all that mattered.

Conway liked him better because he didn't fathom the mathematician. He couldn't figure the man in black and white, but there was a definite comfort in Daël's presence on the trip, an aura of dispassionate, impersonal analysis.

And in the sky beyond, undimmed by the light of the moon that now stood well above the horizon, rose the worm-like pillar of flame, looming larger as they drew nearer, and, it seemed to Conway, unquestionably more monumental than it had been three hours ago.

When the car paused at the edge of the valley, he saw the rim of the crater dangerously close to the crest of the surrounding hills. The whole sphere must have increased its diameter by a quarter or a half mile since he had last seen it.

Above their heads, thrust high into the atmosphere, commenced the base of pale fire shaped like an inverted cone and capped with a voluted, splaying blur. He stared in fascination from the great flame vortex to the stupendous pit that was now more than a mile and a quarter in width and a half mile in depth. Projection in space of the full, true sphere would place the bottom of the flame at the exact top point of the sphere. And the edges of the earth rock dissolved before his gaze, soundlessly vanishing.

Professor Daël walked forward with a look of contemplative abstraction.

Marlow bustled among the instruments he had brought along and hastily set them up, Conway assisting him. The moonlighted darkness had begun to change in a ghostly, indefinable manner before Marlow was ready. Conway limped aside while the physicist took readings and measurements.

The twilight of dawn grew abroad, but as yet cast only a faintness of light, matching the pallid flame, when Marlow completed his field work. The physicist gave an exclamation of annoyance. There was no change in Daël's posture. He stood near the limits of the crater, retreating as it advanced.

"What's the trouble? Couldn't you find anything?" asked Conway. His voice reverberated curiously loud in the dead air.

Marlow snapped irritably, "The findings are either insufficient or impossible! According to the thermocouple, the flame has exactly the same temperature as the surrounding air—71.4° F; ash content, zero; no trace of gases; no emission of radiant energy. The walls of the crater in the field of destructive force are precisely at top soil temperature—62° F. It's utter nonsense. It makes a hopeless mystery!

"The encroachment of the pit would seem to be accelerating. I could calculate the exact figures after considerably more study, but roughly, the expansion started from nothing, from absolute inertia, and achieved a diameter of a mile in four days. It will be two miles at the end of the fifth day, six miles on the sixth, eighteen on the seventh, fifty-four on the eighth day, one hundred and sixty-two miles on the ninth day, and so on."

Conway whistled. "We've got to stop it!"

"Halt the total elimination or exhaustion of matter? How? Matter—rock, mineral, vegetation, everything, even the air—is disappearing into that sphere of space. It isn't being converted into heat, radiation, or any known form of energy. Some unknown force is operating. The flame offers evidence of the transformation, but the flame is mere candlelight compared to what it should be from the release of all the energy locked up in those millions of tons of

matter that have vanished. The phenomenon violates the basic laws of physics."

MARLOW walked toward the margin of the crater for a closer scrutiny.

Daël spoke sharply, "Marlow! Don't! Your life——"

But the physicist had already knelt by the dividing line, his head extended into the sphere of space.

Instantly the top of his skull disappeared as if sliced off. Surprise and horror briefly altered the remaining half of his face. His throat formed a full scream, but only a short, hoarse gasp issued from his lips as his body sagged forward.

The now headless torso toppled faster, a wave of invisibility seeming to sweep over it and to encompass it. Marlow's end was grotesque in the brightening dawn. His heels rose a foot from the ground. His shoes hung for a moment, soles up, the last earthly trace of him, before they followed his body into the void.

Conway's imagination played tricks on him. He thought that the flame quivered. He thought that he heard Marlow's voice sounding and resounding everywhere. Then the shock passed, and there was only the old, uncanny quiet.

Professor Daël turned away from the crater, a sadness on his face. He said, "I had just formed a hypothesis to explain what is happening here when Marlow's zeal carried him away. It's really rather simple. If only I could have warned him sooner——"

"Simple?"

"Why, yes. Our habits and modes of thought sometimes interfere with our ability to reason correctly. Otherwise I should have reached a conclusion in time to prevent my friend's death.

"We are accustomed to think of matter, whether it be a chair or a star, as

something that exists in space. We regard any material object as possessing a definite and measurable length, breadth, and thickness. It displaces an identical volume of what would otherwise be empty space. Is that clear?"

"Yeah, so far. I'm surprised."

"Well, what is to prevent space from displacing matter?"

"Huh?" Conway was startled. He frowned while he tried to grasp the concept. "What the dickens do you mean? If space displaced matter, there wouldn't be any matter, would there? And where would it go?"

"For a mind that was not scientifically trained, yours has gone straight to the main points involved. However, it will be necessary to remind you of several theories concerning the nature and structure of space before I attempt to answer your questions.

"The former concept of an all-pervasive ether has largely been abandoned by modern scientists. They still consider it as a possibility in any thorough effort to grasp the nature of space, but have not discovered the slightest proof of its existence.

"On the other hand, no intellect that I have yet encountered has found it possible to form a visual image of space under the three principal alternative concepts, nor am I an exception. These alternatives are: that space is finite, or affected by a curvature that makes it return upon itself; that space is infinite; that space is finite but expanding. The human mind is unable to establish a mental picture of either of these three states.

"The usual objections are, to the first: if space is finite, what lies beyond the limits? To the second: how can space be infinite, and continue forever in all directions? To the third: why should space be expanding, and what would exist beyond the fringes of expansion?"

"None of these concepts can be sup-

ported by tangible proof, hence the course of our reasoning must be theoretical."

"It's getting pretty deep for me, but I'm floundering along," said Conway wryly.

"SOME MATHEMATICIANS and physicists have considered time to be the fourth dimension of space, and from that theory arose much of the nonsense that used to be written about the possibility of traveling back and forth in time just as we move about in space. The scientists had a definite, specialized meaning for 'dimension' as a word concept. The popular mind associated dimension with the length, breadth, and thickness of objects, and thus confused time-dimension with space-dimension.

"To correct the popular error, time is not a dimension at all. It is a quality attending the existence of space and matter. It is a unit by which we measure the continued existence or duration of space and matter, of life and inanimate objects. If the public mind had been able to reason clearly, to use accurate definitions, and to emphasize distinctions, it would never have subscribed to the fallacy of time traveling."

After hard thinking, Conway asked, "Then, if we stick to the popular use of words, it would straighten itself out as a three-dimensional universe? And time would be off in another category, as a sort of necessary quality or attribute? That is, the three-dimensional universe couldn't exist without time, but time is a different yardstick by itself; whereas length, breadth, and thickness are three dimensions that belong together?"

"Yes."

"O. K. So we have a universe with three space dimensions and one time unit. Go on."

"Now, the great difficulty that has stood in the way of past attempts to

understand the universe is that men have tried to visualize the whole by means of its parts. Most persons think of space and the universe as a sort of gigantic ball or sphere or balloon. They form a hazy opinion of the whole by thinking in the habitual terms of the world to which they are accustomed.

"Under the old theory of a time-space continuum, this universe was approached from a four-dimensional viewpoint; but as I have just pointed out, the fourth dimension was time, which we have now transferred to a separate category.

"Next, let us leap out of our mental ruts. Whether space is finite, or infinite, or expanding is not the essential truth and knowledge that we seek. The essential truth is that, whichever of these concepts happens to be valid, there must necessarily exist a condition that we cannot understand because we are not there to see it and cannot visualize because it is greater than the universe of three space dimensions and one time unit.

"This state or condition must therefore be a true fourth dimension in addition to the other three dimensions and the time factor.

"That new, fourth dimension exists only beyond space, if space is finite or expanding, and exists only beyond infinity if space is infinite. It does not exist anywhere else, and is not present anywhere within the universe of three space dimensions and one time unit. It cannot exist within the known cosmos."

"What's this fourth dimension like? How does it affect the universe?"

"That I can answer only in part. You are looking at the affects of that dimension, however."

"What! You mean the crater? But you just said the dimension couldn't exist here!"

Daël nodded. "Think a moment and you will see what I mean. That di-

mension does not and cannot exist here. Therefore, it is eliminating matter, with its three space dimensions and single time factor. We are viewing the effects of that process."

"But what started it? Why should it happen here?" protested Conway.

"It could be called an inevitable development, but I believe that it came as a direct result of the bomb that destroyed the U.C.T.L. That building contained all the elements in the universe, all the compounds organic and inorganic known to science. At the moment of explosion, the whole universe was concentrated here in miniature, thus creating that new, fourth dimension of ultra-space.

"And since ultra-space cannot exist in our universe, the ultra-space from beyond instantly curved in to unite with the segment of ultra-space here. Together they are erasing, blotting out, eliminating the three space dimensions and the time factor. Our universe is vanishing. Space, matter, energy, time, and life are ceasing."

Conway, stunned, managed to gasp, "Why wasn't the whole business over in a jiffy, then?"

"It was!" came the electrifying answer. "From the viewpoint of our time factor, the process will be cumulative. It will be weeks before Earth vanishes, months and years before the entire universe vanishes. But if we could instantaneously transport ourselves into ultra-space, we would find that nothing existed except ultra-space with its fourth dimension and possibly additional dimensions that are wholly beyond my imagination. We would find no trace of this universe, and we would discover that we ourselves had died long ago."

A NERVOUS TREMOR shook Conway. It seemed to him that the margin of the expanding sphere was creeping and flowing, faster and faster,

at ever-increasing speed. And toward the sky, lightening with dawn, rose the vast, pallid, inert vortex of flame, like a finger of destiny, the sword of doom.

He couldn't linger. He didn't want to linger. He had to get back to his desk, send out bulletins.

Newark, Aug. 8 (WP)—The great crater discovered and described yesterday by Walter Conway is now two miles wide and still growing, according to the same eyewitnesses. The crater is locally known as the "flame terror" because of a strange fire above it. The expansion of the crater follows the predictions of the physicist, C. H. Marlow, who was killed while investigating it.

Newark, Aug. 9 (WP)—The great crater in northern New Jersey is now six miles in diameter. No means have been found to check its onrush.

To his previously published theory about its origin, Professor Daël to-day added that the crater is proof that a straight line would not meet itself at infinity, as mathematicians have hitherto believed, but that it would be absorbed and hence would disappear in ultra-space.

Newark, Aug. 19 (WP)—The great crater is now more than eighteen miles in diameter. Evacuation of near-by towns has begun.

U. S. Govt. HQ., Aug 10 (WP)—It was officially announced that an armistice had been declared by all warring powers effective at noon to-day (E.S.T.).

The proclamation comes as a complete surprise. Political observers are unable to account for the swiftness and unanimity of action by the hostile nations.

New York, Aug. 11 (WP)—Scientists from all over the world are speeding here by stratoplane to observe the great crater which to-day reached a diameter of fifty-four miles. New York is being evacuated amid scenes of wildest disorder. Among the victims was Professor Daël, famous mathematician, who was killed by an infuriated mob when he stated that the sphere of ultra-space would expand to embrace the globe within two weeks, and thus eliminate every trace of man's existence.

# Flight of the Typhoon

by CLIFTON B. KRUSE

WHEN I had gained my space legs sufficiently to leave the cushioned protection of my bunk, I shuffled along the spiral tube which terminated in the glittering fascination of the control room. Of the four mariners in the place, only the monstrous quartermaster, who was known to spaceman and planet dweller alike as "Mark the Massive," seemed to take any note of my entrance.

"We'll be blasting again soon, laddie," the big fellow counseled solemnly. "Better you be sitting tight. You're some wabbly as yet."

Nodding, yet saying nothing, I slid down to the bench, my eyes fixed upon the wondrous panorama of the huge semicircular perigraph just above the main panel.

Navigator Bloss was at the controls, with Captain Fritz Elber and Flight Engineer Darrow Riggs sitting at their stations just behind him. Every one was strangely tense. A soft throb of gently insistent energy seemed to permeate the ship, although all was peculiarly still at this moment.

The left panel, showing us a rear view from the ship, was half filled with the ruddy sphere of Mars, while dead ahead the fearful black of space was weirdly alive with the grayish dots of many hundred planetoids. I gasped in startled realization that we had come such a great way in so short a time. But then, of course, the *Typhoon* was not taking the usual, parabolic course from Mars to Io. We were blasting straight into the dreaded area of the asteroids. Our commission was to discover, if possible, a reasonably safe lane through the

asteroids, in order to shorten the present long and expensive course necessitated because of the millions of meteoric shoals and almost invisible rocks which hurtled through this belt with the speed of a bullet.

The Mars-Moons-of-Jupiter space route averaged ten passenger rockets and seventy freighters a year. If we could find a serviceable passage cutting through, instead of going around the asteroid area, the saving in time would be well over sixty per cent.

Mark the Massive was leaning toward me, his voice coming in a rasping whisper: "Not a mite fearful eh?"

The question stung me. The ponderous quartermaster was laughing as if he had just sprung a good joke. I was plenty nervous, right enough. This was my first trip in one of these speedy rocket cruisers of the Space Marines. But I was a cadet. I had passed the spaceman's exams honorably, had served my two-year term at the academy and was getting my required service experience, beginning with this official flight of the *Typhoon*. And to have this big ox kid me in that patronizing manner burned me up.

"Don't take it hard, Dannie my boy," the fellow continued. "We've a long, hard trek ahead of us and you'll make a spaceman of your fine, handsome self yet, laddie. Only I'm giving you this bit of thought: Any time you're perplexed, don't hesitate to come to old Mark. You won't, eh?"

Just then a call from Captain Elber drove all thought of pride and resentment from my mind.



*"He's shorted the power—and out there in space—his very body has turned into a searchlight——"*

"Shoal at Solar Angle 12. Stand by for flight orders!"

The peaked pressure helmet upon the navigator's head bent forward in tense concentration. As the thunderous voice of Captain Elber called out the flight corrections, Bloss' hands plunged upon the controls with the smoothness of a master musician playing upon an organ.

Then I saw thin-faced, blue-lipped Flight Engineer Riggs grasp the direction lever tightly.

"Fire!"

Timing his movement with the suddenly booming discharges of the ship, Riggs exerted brute force in quick, determined shifts of the lever. As if caught in the vortex of a cosmic mael-

strom, the *Typhoon* jerked, dived, twisted. Within the control cabin, sight and sound plunged into some terrible rhapsody of chaotic upheaval. Sibilant wails of energy-churning machinery were interspersed with the desperate pounding of swiftly released discharge valves. My head rocked back against the wall. The room swirled madly with that awful sense of speed.

NOW it eased. The *Typhoon* was plunging at an even velocity. We were spinning planetwise, and the dirge of hissing gas vents filled the ship with the noise of a speeding locomotive. The gravity disks were altered too. I felt suddenly heavy and strangely oppressed. The three officers relaxed now. Riggs moved the main lever experimentally as Navigator Bloss held the discharges at a steady blast. I noticed a hard, mirthless grin cross the captain's mouth.

"We're in it now," he said. "Every man aboard ship is personally responsible. Keep your heads up."

He was like that. Could whip a space ship around as easily as a wrangler would handle a spirited horse. And he expected such efficiency from every man in his command. Then he turned about suddenly. Those flint-hard, gray eyes of his were looking straight through me.

"Cadet Carter. Get over there beside Bloss. Finish this shift with him."

I flashed a salute and somehow managed to get my stumbling feet across deck. I was proud. Captain Elber was treating me like an officer. Navigator Bloss gave me a quick, tight-lipped nod and indicated that I was to keep an eye on the four obstruction finders.

Nor was this a typical errand-boy job either. I had my hands full, for at frequent intervals one or more of the obstruction gauges would flash the blue signal light. The needles would quiver, finally indicating the distance and approximate size of the solid body. We

had to judge the speed of the thing by the shifting of the distance needle.

At my calls Navigator Bloss would either jump the *Typhoon* forward or suddenly dive. But for the remainder of this watch we met with no astral body which was large or dangerous enough to give Flight Engineer Riggs any trouble. Nevertheless, I was now a part of the crew. I had a definite and worthwhile job. Then, before I realized how the time was passing, the triple chimes announced the change of shifts.

I soon discovered that off-duty hours on board a rocket scouter were little more than eating and sleeping until the chimes sounded out again. Indeed, there was no recreation room, nothing to read except a couple of texts on the mathematics of space flying. Nor were my fellow officers much inclined to talk. As a matter of fact, both Bloss and Riggs had joined Captain Elbert where the three of them worked upon the several charting sheets and route maps. The other members of the crew, Machinists Byrnes and De Grasse and the two first-class marines, Emilio Zivic and the funny little Frenchman named Loreau, were all, of course, busy at the controls.

For a while I had tried to wrangle a bit of gossip from the ship's cook, a wizened old fellow called Timothy Fleet-foot. But this soon proved dull, so it was almost inevitable that I found myself in the quartermaster's hold.

"I was watching you at the gauges this last period, Dannie," he said. "And you'll do. Old Cap Elder knows it, too."

"Thanks, Mark," I replied. "But I'm afraid he didn't pay much attention. In fact, he didn't utter a word all the while. Of course, he's got the charts to make——"

"I know; I know. But never you worry, for often did he cast those eyes of his upon you, Dannie. Trust the old red beard to see all, know all and say nothing."



SO it was that after a few hours of fitful rest in the cell which was my bunk I rejoined Navigator Bloss, all set for a full ten-hour stretch.

"Watch 'em close, Carter," the navigator mumbled sourly as I took my place. "We're in the heart of the belt right now. Anything can happen."

And this ominous warning was altogether too timely for comfort. Scarcely one hour had passed before two of the gauges began to waver as if subjected to some incalculable stress. The warning lights flashed on and off continually.

"Sand blast!" Captain Elber roared out over my shoulder even before I could call out any sort of warning myself. "Sand blast dead ahead. Riggs, cut under. Bloss, full power, upper ridge tubes—then charge it—fire!"

Scarcely had the command been uttered than the flight engineer was hauling upon the direction lever with main strength. At the same moment, Bloss discharged the upper ridge tubes so that the *Typhoon* became a veritable streak of fire as the ship dived end over end in this frantic lunge. Sirenlike, the screech of the machines rose to an ear-splitting pitch. The *Typhoon* seemed to drop through space at a crazy speed, only to be yanked again and again in the midst of deafening explosions, first in this direction, then that.

Then above this din there came a steady, nerve-cutting *rat-tat-tat*, like the beating of drums. Captain Elber groaned. Both Bloss and Riggs threw all their strength and energy into the live stuff of the instruments before them.

But still the staccato roar of grinding meteor particles pummeled the sides of the squirming, dodging, fire-spewing cruiser. I sensed rather than saw the massive bulk of Quartermaster Mark as he lunged across the deck and grasped the huge levers with Flight Engineer Riggs. Our ears throbbled with fresh

anguish now. The *Typhoon* became a screaming inferno, whirling madly, blindly, her discharges foaming from all sides as if she were some frenzied monster.

But the grinding of the meteor particles had ceased, only to be supplanted by the nerve-chilling wail of the emergency siren. Mute horror gripped every man of us in the control room. The hull had been ground through. Somewhere upon the *Typhoon* a hold had exploded, the inner pressure forcing the hull plates out at the weakened point. Choking out a curse, Captain Elber ordered Flight Engineer Riggs to take charge. Immediately the commander dashed to the underdecks in order to determine the extent of damage.

We were out of this first drive of the scourging sand blast, but by no means free of danger yet. We were still cutting and dodging like madmen.

Then, above the frightful din, the barking voice of Captain Elber roared out again. He was staggering into the room, carrying the inert bodies of Fleet-foot and Loreau, which he immediately lay upon the floor. The poor devils were horribly cut, their gaping wounds spilling into a bloody pool.

"Zivic and De Grasse—gone!" Elber panted. "I got there too late."

The announcement made me shudder. He meant that the explosion had probably blasted them to pieces. And from the ugly sight there on the floor I was not sure but what they had been more fortunate than these two. Fleet-foot especially—the poor fellow was blubbering out some kind of agonized cry.

At this moment the forward gauge became so brilliant that the tubes burned out. The remaining three were wildly erratic, too. We were charging head on into a planetoid!

Screaming in terror I leaped from the bench. I am not sure what it was that I said. For the moment my nerves were

lashed with horror. I was acting from pure instinct. But Bloss was not holding the controls. He had turned around at that instant. Only Riggs and Quartermaster Mark understood my meaning, for they were staring, wide-eyed, up at the lurid perigraph.

AS IF we were all parts of a single mechanism, the two of them hurled their bodies upon the levers, even as I was hammering at the controls. Had I stopped to reason, it is more than doubtful that I could, in my inexperience, have explained just what ought to have been done. It was a matter of pure instinct, as though my stabbing fingers were being directed by some superbrain. Yanking the T-bar release furiously, I cut away the underslung reserve storage bodies which were attached as separate units upon rocket cruisers of this type.

Then, in response to the new directional movement which Riggs and Mark had given to the *Typhoon*, I began to roll the lightened ship with all the force of the stubby side jets. Rolling and dropping, while we endured the torturing stress as best we could! Nor did we cease this move until the two at the main levers had steadied the *Typhoon*. Then, holding it to a normal afterjet discharge, we let her drive forward.

Not until this had been done was I really conscious of my part in the job. A sharp, incredulous cry from Navigator Bloss brought me to my senses. He grabbed at the controls, hands shaking and face drained of all color.

Bloss was easing the *Typhoon* into a coasting flight. The noises of the recent strain died down to a sepulchral silence, until only the groans of the two upon the floor could be heard. We were all too torn from the shock to speak. A moment before we had been face to face with death. The fact that the *Typhoon* had neither exploded nor crashed upon that charging planetoid

was still too fresh in our minds to be fully understood. Bloss had said something to the effect that that had been the only thing to do.

I heard the captain telling Mark to do what he could for Fleetfoot and Loreau. Vaguely I wondered what had happened to Byrnes. Had he been in the area of the ripping sand blast, too? Then I heard the fellow himself stagger into the control room and call out to Elber. They were conferring with Flight Engineer Riggs and from the tenor of their voices I realized that we were far from being safe.

"But the supplies are gone! When the navigator cut those undertubes loose he tossed all our reserves into space."

The remark chilled me. For the first time I understood the meaning of what I had done. The *Typhoon* was far out in the asteroid belt—with the bulk of her reserve of food and water lost. Then, after a bit, the slow, heavy voice of Flight Engineer Riggs was clearly audible.

"Right, sir. We'll dock somewhere and attempt repairs. Maybe yet—"

The *Typhoon* sprang to life. We were spiraling now. Upon the center of the perigraph the grayish-blue disk of some barren little asteroid began to grow. Bloss was making up for that moment of inattention now. Skillfully, even desperately, he was docking the crippled ship upon this uncharted rock. And doing the job with the *Typhoon* charging through space at top speed. We were encircling the tiny sphere now. Sight became impracticable. Great spirals of flame streaked the harsh blackness of the sky while a single beam of bluish light stabbed groundward, swathing the jagged terrain as Bloss measured our gradual descent to the surface.

It was a test of skill. A triumph of human mechanics. The *Typhoon* swept low, dropped to within inches of a narrow stretch of plateau. Then, suddenly,

she seemed to explode in a final splurge of pyrotechnic glory. The pulsations of her motors ceased. The flames died out. Silent and motionless, the little rocket cruiser rested. Navigator Bloss had docked her, crippled as she was, with scarcely a noticeable jar.

IT WAS a matter of eight or ten hours later—although the mere measurements of time had but one significance for us now—that I had the temerity to face Captain Elber. With his straggling red mustache spearing across each side of the thick, square jaw, and the peaked pressure helmet glistening in the blue-white light, he looked like some ancient viking warrior. We had welded the double plate upon both primary and secondary hulls of the ship. Another two hours, or three at most, would be consumed while Riggs and Byrnes were making certain adjustments in the side jets. Our food had been entirely destroyed by the sand blast, in addition to the loss when I had dropped the two storage tubes in that wild attempt to prevent the collision.

"With your permission, sir," I asked, "I should like to join the quartermaster. He thinks that if we explore around a bit——"

Quite gruffly the commander interrupted with: "Don't tell me that overstuffed walrus thinks anything could grow on one of these infernal rocks?"

At this moment Mark the Massive chanced to waddle into the room, whereupon he sounded off without so much as a respectful salute in approaching the captain.

"My dear Elber," the big fellow murmured, "you are totally lacking in the instincts of a gentleman. As for that, there's not a human aboard who knows better than I of the improvident ways of these places. Food indeed will we not find."

"Mark, if you weren't such a damned pig."

"I?" Mark looked positively hurt. "You do me wrong. I was but going forth to bury the dead."

"To bury the—what!" Captain Elber stood up, glaring first at the quartermaster and then at me.

"The venerable Fleetfoot," Mark replied, "has ceased to rant against the bitterness of our ways, captain. He died only an hour ago."

So it was that the monstrous quartermaster and the ship's cadet hauled the battered little body of poor old Fleetfoot out upon the forsaken plain. We carried him a hundred yards or so to where was a pile of loose shale. For a moment Mark the Massive intoned some mumbled word above the corpse and then we set about covering the remains with the shale.

Crude and heartless it seems, and yet it was done in all kindness. Back in the *Typhoon* every man was fighting against time in order to rearrange the firing jets to obtain a speed sufficient to carry us on to Io before we would starve to death. In a way, Fleetfoot's burial was heroic. He had died in line of duty and his body rested in honor upon this flying tomb.

Through the radiophone of our space suits I could hear Mark the Massive chanting some harum-scarum ballad of the spaceways. This he stopped long enough to instruct me to search for a broad flat stone of suitable hardness. But for what it might need be suited I could not even guess. However, after a bit of searching about in the awful glare of Mars light, which was accentuated by the absolute black of the shadows, we did select two slabs of granite-like material. On our way back to the ship I finally nerved myself to present my troublesome problem to the fellow.

"It's my fault, isn't it, Mark? I mean, don't you think that Captain Elbert and the others feel that I—I blundered when I jumped ahead of Navigator Bloss? About those storage tubes——"

"Enough of that, Dannie." And the

huge fellow threw one immense arm across my shoulders. "Did I not myself say that you had the makings of a spaceman? You saved the *Typhoon*, Dannie. It was the finest, bravest stunt—but whist, none of that talk, for the captain is strong against soft words."

"But he didn't say a word," I argued. "Neither did Bloss."

"Sure they didn't. But no more worry. When back to Mars again you'll find a neat citation attached to the proud name of Cadet Dannie Carter. But here we are—give me both stones; you manage the ports."

WE HAD GONE twenty hours without food when Captain Elber, grim-faced and hard-eyed, sounded the gong for the flight. There were six of us huddled in the crowded control room; the seventh, Spaceman Loreau, having been placed in his bunk cell to live or die according to the strength of his body. The air lines heading to the lower decks had been twisted beyond use, so it was that for the ten days estimated as necessary for reaching Io we would all be confined to the control room or the spiral tube which led to the sleeping cells.

The take-off from the planetoid was grandly made. And it was cheering to feel the fierce drive of the rocket cruiser as she hurled herself off into the perilous black. Captain Elbert, Bloss and Machinist Byrnes took off over the first of the four-hour shifts. Due to the fearful task ahead of us—of taking the *Typhoon* the rest of the way to Io on empty stomachs—Captain Elber had decided that four hours' work and four hours' rest was as much as could be expected of even the best of us.

I was all set to follow the example of Darrow Riggs and try to get my four-hour sleep when Quartermaster Mark crooked his finger at me. I was to don a space suit and go to the now airless lower decks and secure a chest of space suits. The suits were in the engine

room, Mark informed me, and were spanking new.

By the time I had returned I was beginning to feel the first bad effects of hunger. Strange aches and pains tormented my insides. I felt feverish and my head seemed to have swelled. But the thought of the many long hours yet to be endured was the cruelest torture. I felt myself burn with futile anger, and my eyes blurred with tears until I could no longer see the colorless, strained faces of my companions.

"Steady, Dannie my lad," Mark's voice buzzed in my ear. "Here—use this knife."

Something to do was a salvation. I must keep busy. So it was that I worked with frenzied energy in cutting out the long, narrow strips of leather from the suit. These were placed upon the largest of the stones and then with two smaller ones we pounded these strips until they were frayed, flattened strands. Frequently we applied drops of water, but did so in a miserly fashion. Fully half of the first watch had passed before the quartermaster seemed at all satisfied. Next he secured a huge kettle, and dumping the mashed strips of leather into the pot he filled it with water. This he placed upon the improvised electric stove which he had made by removing the boxing from a certain section of power cables.

It was then that Captain Elber took note of our queer activities. He questioned Mark as to our purpose. And when the incredible fellow assured us solemnly that within a few hours we should eat, the tension broke. We all laughed, crazily, drunkenly. Oh, it was good to laugh. We had been so long under a terrible strain, that it was a wonder we were not all quite mad.

"An old trick of the buccaneers," Mark the Massive explained. "And there is leather enough for all of us—if only our water holds out."

Six periods of work, and one day was

gone. Slowly, torturously, the one day stretched to two. And still we flew the *Typhoon*. We had ceased to become men. Ceased to speak save in grunted monosyllables. Our fevered brains were able to concentrate only upon the mechanical details of keeping the *Typhoon* charging through space.

Occasionally a chance meteor or the horror of a sand blast would force us to think. Yet even then it seemed that our hands performed maneuvers with the controls without conscious volition. And eat the tasteless rubbery stuff from the stinking pot we did; although not infrequently our stomachs would seem to revolt against it.

Only Mark the Massive remained a man, despite the fact that his ponderous torso seemed visibly to shrink as the awful hours went by. Now and again I would rouse up from a nightmarish doze only to hear his ridiculous voice bellowing a song. Nor did he seem concerned with what he sang, chanting whatever chanced to come into his head, be it an operatic aria or some obscene ditty such as one hears chiefly sung by the common run of spacemen when on their regular sprees in the ports from Mercury to Pluto.

IT WAS WELL into the mid part of the ninth day when the cracked voice of Captain Elber sounded the cry of: "Clear flight—blast for the crest."

It was a ghostly cheer we gave, but nevertheless, sincere. The captain was calling for one more spurt and then the *Typhoon* would have reached a point at which the gravity of Io would pull us to her moon. From there on it would be only a matter of steady braking and gradually easing the speeding ship into a spiral descent. Already we could imagine the cutting shriek of wind as the *Typhoon* would encircle the little globe, slowly settling groundward.

Like one in a dream I staggered across the room, nearly sprawling upon

Navigator Bloss. Tears streamed down the fellow's lean, leatherish face, and his hands shook as they pressed upon the controls. For the moment I forgot the eternal gnawing of my stomach and the burning ache in my head. I was proud of the *Typhoon* and her valiant crew, proud that I was one of them. We had made a grand run. Even including our stop upon the barren planetoid we would make a record trip from Mars to Io.

Perhaps Bloss was overanxious. More likely the strain and horror had clouded his judgment. The fellow was shooting a full flow of nitrolin into the white-hot drivers, forcing the ship beyond its capacity to withstand the strain.

The sudden explosion was like facing the dazzling glow of the Sun. I felt myself hurled bodily across the room. And so terrible had been the sound that for several minutes I was completely deafened. The *Typhoon* seemed a dead thing. Soundless, motionless, and without a spark of light. As soon as my ears could receive sound again I heard the moans of the others. Where were we? What had happened? Then I heard the shrill cries of Bloss, shrieking out that he was dying. But I was too sickened and weak at the moment to get to my feet.

After a while I saw the sharp beam of a flash spearing about the room. Then it fell upon me. Blinking against the glare, I attempted to get up when a powerful arm reached down and pulled at my arm. It was Quartermaster Mark.

"The drivers blew up—engines wrecked!" I was babbling insanely.

The hoarse voice of Captain Elber jarred me to clear-headedness.

"Got to do something. Here—who's this? Byrnes? Get up, man! Get alive! Where's Riggs? Bloss?"

"They're both done in." Mark the Massive kept shooting his flash here and there. "Just four of us up, captain. You and Byrnes and Dannie and me.

But the devil's to pay. Do you know we're moving?"

"Moving? What the hell——"

"We're falling, captain."

"Then we passed the crest!"

"No, sir. It's not toward Io. Jupiter herself has got us in her clutches."

"Lord help us! We're done for. The crash'll flatten us."

"Can't we budge a single tube?"

"Hell, no—here, bring that damned light over this way, Mark. Look, it's worse than dead—we've opened up the rear end of the ship. Do you get it men? All that's left of the *Typhoon* is the blasted control room."

Byrnes was laughing hysterically.

"Coffin!" the fellow was shouting.

"She's a blooming coffin, that's what!"

"Shut up! I said keep your heads,"

Captain Elber roared out. "There's a chance yet. If we could get a signal to the base on Io."

Mark cut in sharply: "You mean they could grapple us with a freighter before we hit Jupiter?"

"That's it. We've got ten or fifteen hours—maybe more. Get out the reserve gravity cells. There's power enough there."

"I thought of that—but how are we going to flash?"

"Get them out! You, Byrnes—and Carter—lend a hand—and while you rig them to the flasher I'll try to get the thing in shape."

We toiled like madmen. Ripped up the flooring, re-aligned cables. And as we worked it was Mark the Massive's calm voice that steadied us. Less than an hour later we had the connection made. The ship's motors were totally wrecked. This was our only chance.

Then came the hideous realization that the flasher, the ship's signal beam, was destroyed. We were lost. Our last hope was gone. I can still hear old Captain Elber standing there cursing in the dark. It was weird. Then, suddenly, he belated out: "Where's Mark? Where's

that damn flashlight of his? I've got to do something!"

Then we saw the glow in the perigraph. The crazed quartermaster had climbed to the outer hull of what was left of the *Typhoon*.

"He's signaling with that damned flashlight. Trying to signal clear to Io!" Byrnes screamed. "The loon—why it's—it's—oh——"

Both the captain and I joined in this last gasp of amazement. For suddenly, upon the nose of the slowly spinning *Typhoon*, the massive figure of the huge quartermaster had suddenly become incandescent.

"He's shorted the power," Byrnes murmured. "And out there in space he—so help me, his very body has turned into a searchlight!"

For a full thirty minutes the body of Mark the Massive gleamed across space, a grotesque, ghostly thing of dazzling light which slowly faded as the power of the *Typhoon's* gravity reserves burned out. Yet not in vain. For stanching what revulsion he might have felt, Captain Elber forced himself to the signal dials where he flashed a code call to Marine Observatory, Io.

OF THE TEN who had started upon that terrible journey but four of us reported to the governor of Io: Captain Fritz Elber, Machinist Byrnes, Flight Engineer Riggs and myself. Of course, there were praise and honors and all that, but strangely they don't mean much. Captain Elber saw that a citation was written into the records for Cadet Dan Carter. I'm proud of it, but not as I'd have been before this trip upon the *Typhoon*. I understand now why there is so little of boasting among real spacemen. And over and over again I seem to hear the voice of old Mark the Massive saying: "You'll make a spaceman of your fine, handsome self yet, laddie."

Now, I'm really proud of that!

# About Brass Tacks

*I've just finished assorting the letters for Brass Tacks—and I feel good. The number of actual discussions is growing. Science is becoming a major subject in our correspondence, and that is good.*

*The story discussions are becoming, for the most part, helpful. Mention is made again and again of scientific errata in connection with the themes or text detail. I like this because I know the writers read Brass Tacks to learn what they can of the relation of the audience to their stories.*

*I believe that for the first time in the history of magazine publishing we are working together, you and I, harmoniously, as co-editors. That alone is a triumph of which I am proud.*

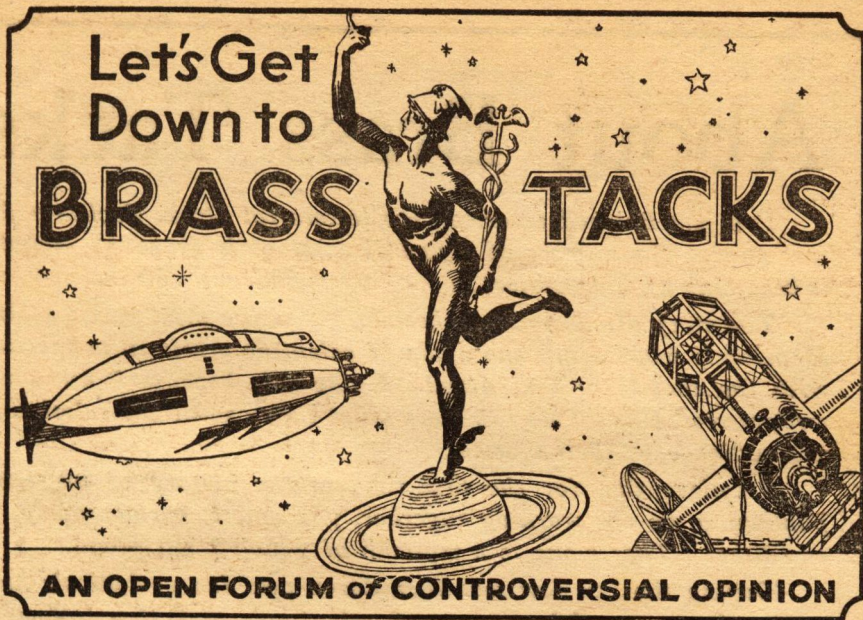
*During the last few months a dozen new fan periodicals have appeared, sponsored by groups of ardent science-fiction followers. This is a healthy sign. Three years ago it couldn't have happened; but now a growing interest in stories of superscience is in universal evidence.*

*And during all this period, Astounding has been battering at the consciousness of America's vast reading audience, seeking and finding new friends, new loyalties, new interests. I have a program laid out that should bring us to a new peak of interest by the end of 1936 and launch us toward the highest peak of all in 1937. I can't explain plans which are still in a formative state, but I think, looking back, you will agree that I have never failed to step our magazine up a notch every year. It's a pleasant surprise when it happens, I know.*

*It has been most pleasing to note the approval which has greeted the science articles on the solar system. It has been almost universal, and that guides my thoughts along a promising channel of interest.*

*I hope you like this issue. I felt a surge of power as I put together the names that followed the stories in the list of contents. And remembering the interest the stories held for me, I feel confident that new members and more new members will join our reading circle as we build the finest interest that any group could possibly have—the future science—sugar-coated, to be sure, in story form, but sound and true as an arrow speeding to its destined objective.*

*The Editor.*



### Brass Tacks is Bigger This Time.

Dear Editor:

The monthly gabble again. I just have to annoy some one.

Cover: Excellent, except for the Paulish sky. But that's all right as it attracts customers and might be a sunset anyway.

Stories: *Australano*, not an extra new plot, but well written with lots of human interest—which is one of the main points in any story, science-fiction or otherwise. *Frictional Losses*, written in the typical tragic style of Stuart—almost like Frank Kelly. Superbly illustrated by Wesso. Give him a couple more stories to do. Also more Saaty and less Dold.

Thompson and Hopper and Flatos aren't science-fiction artists. Please let us know who does which drawings when the artist doesn't sign. Brown's illustrations on the inside are much better, especially on weird, ruined buildings. Be sure to have him do all Lovecraft stories.

*Pacificca*: Just a shade ahead of *The Virus*. The new Campbell series is good. Keep 'em up. How about a new, super, super Wade, Arcot, Morey, and Fuller story? That quartet is one of the immortal characterizations of science-fiction.

Can hardly hold off from *The Cometeers* until the next issue. Let's have a Burroughs story, a Merritt tale and a Kelly yarn.

Van Lorne is making a good try at filling Weinbaum's shoes. I think he will rattle the least of any in them.

Too bad Brass Tacks is being split to make room for the science-feature. Robbing Peter to pay Paul. All the endless beat for a quarterly! Drops of water will wear away a stone in time so I'm hoping that these drops of ink will inevitably wear down your story resistance—or at least get a good reason why we can't have one. I'll also join Jack Darrow's eternal squawk for Paul, although I can scarcely hope for that.

There seems to be quite a controversy about the question where lightning strikes. If hasty, slightly dense persons will take the trouble to go to a library and consult a good physics text book before they start making fools of themselves in writing, they will find that lightning strikes upward. Ripley says so, too, so that settles it.

Hah! I thought something was missing. No

Old Faithful Gallun! It's like a big hole in the middle of the magazine. If this gets into Brass Tacks, I would like to hear from other C. C. C. lads in other parts of the country. Would also like to renew my acquaintanceship with Doc Lowndes and Lynette Hamakami, if they are willing? Anybody in South America read science-fiction? If there is, drop me a line.—Arthur L. Widner, Jr., 119 Co. C. C. C., Waterbury, Vermont.

### Another Defense of Lovecraft.

Dear Editor:

I am sending this letter to show my appreciation for the improvement which has become so obvious in *Astounding Stories* recently. The adoption of the trimmed edges, which places this magazine above its former level in appearance, and the return of artist Wesso have contributed to the making of a remarkably fine magazine. I know that *Astounding Stories* will continue to improve as the months go by.

If I were to name three of my favorite science-fiction authors, I should certainly mention the name of H. P. Lovecraft. Like W. B. Hoskins I am at a loss when it comes to giving the reason for so many readers failing to enjoy the works of this master of unusual fiction. *Astounding Stories* implies that the stories strike with amazement; they do just that, especially the masterpieces of Lovecraft. So please give us readers more stories by him.

As to the requests for a quarterly: I would advise against this. I would much rather see *Astounding Stories* issued semimonthly.

I would like to make a few suggestions, though many of them would perhaps prove impracticable: go semimonthly as soon as possible; give editorial comments to letters in Brass Tacks; devote one page of each issue to a thumb-nail sketch of authors—one each month; print a photograph of the author under discussion; do the same with illustrators; organize a guild of science-fiction; publish plans for the construction of rocket ships, strange weapons, etc.; revive "Strange Tales."

I will not take up additional space by naming stories, but I will repeat: let's have more of Lovecraft.—Donald Campbell, 1533 Alter Road, Detroit, Michigan.



### Too Many "Future" Stories?

Dear Editor:

Just a few lines to let you know my opinion of the July issue of *Astounding*.

One thing hit me right between the optics when I finished reading the mag: TOO MANY "FUTURE" STORIES. This type of story is O. K. as long as it isn't overdone, but too much is too much, so please try to vary the types of stories in one issue as much as possible. Notwithstanding my opinion, I enjoyed *Pacifica*, and *The Virus* was passable. I disliked *The Time Decelerator*, and I finished *The Train That Vanished* with an effort.

There is one thing I disliked especially, and that was the announcement that the mag contained 160 pages. Now, I don't believe that real fans care very much how many pages you have, just as long as the grade of stories are good. For the love of Pete, Mr. Editor, make some attempt at commenting on the Brass Tacks; surely you can find something to say to your "brickbat-throwers" and "bouquet-handers." The illustrations were good, with the possible exception of the cover.

CALLING ALL SCIENTIFIC LEAGUES! Please send me information on your activities, aims, etc., and oblige. (Mr. Editor, perhaps you can help me, how about it?)

Well, the old "Brain" (!?) is beginning to petrify and fold up on me, so I'll have to bid a fond adieu.—M. Redfern, 336 Caron Avenue, Windsor, Ontario, Canada.

### In Appreciation of Accuracy.

Dear Editor:

I wish to thank you for the article *Accuracy* in the latest *Astounding Stories*. I've waited about four years for some magazine to do it.

May we have more detail in the future articles even if story space has to be sacrificed? I am looking forward to the coming issue with great expectations.—William Chruscilo, 152 Fifth Street, Elizabeth, New Jersey.

### Another Call For Science.

Dear Editor:

We have enjoyed your fine story, *Australano*. However, how did the locomotive get in the comet in *The Train That Vanished*? I agree with a Brass Tacker in the July issue. *Mathematica* was the wanderings of a demented mind. Why not have a story with a trip to electron No. 2 on the slide rule?

Let's have more *Lo!* and other scientific truths. I am glad to see your smooth edges. It will make my reference library of *Astounding Stories* much neater. Keep up the good work.—B. O. Hankstatter, Richmond, Virginia.

### Disappointed? Well, No!

Dear Editor:

After seemingly interminable æons had made immeasurably slow fusion into the past, I found myself possessor of four trim copies of *Astounding Stories*. With indescribable anticipation I composed myself to enjoy to the utmost the long-awaited sequel: the *The Legion of Space*. Disappointed? I should say not! The high standard maintained by Mr. Williamson in *The Legion of Space* was maintained throughout the sequel. And, in my opinion, *The Cometeers* in parts surpassed its predecessor. Character descriptions and emotional portrayals—though the latter seemed slightly overdone—were unusually fine. Giles, lovable old disciple of Epicurus, furnished excellent comic relief. Well, so much for *The Cometeers*, another supernal milestone in the history of science-fiction.

*Proteus Island*: An excellent novel with an

equally excellent and interesting theme, by one of the greatest authors of science-fiction.

Raymond Z. Gallun has produced another little gem in *The Scarab*. Sequel please. Even a series would be highly acceptable. Mr. Gallun could handle it very easily, methinks. By the way, how about a sequel to Gallun's other little gem, *Derelict*?

John W. Campbell's series on the solar system are coming along splendidly, but just the same I wish he would write another fictional classic.

*A Leak in the Fountain of Youth*: Splendid burlesque. More of Mr. Long in the future I hope. As usual Nat Schachner wrote an excellent yarn. When do we get an *Astounding* quarterly?—P. L. Lewis, 2701 Lower Azusa Road, El Monte, California.

### In the Voting Spirit.

Dear Editor:

I am writing this letter as an earnest plea that you print a ballot coupon in *Astounding Stories* and let your readers vote on what they like and dislike about the magazine. Or you could make the ballot in the form of a questionnaire. And here are a few suggested topics to vote on: Reprints—should they appear in *Astounding*, be reprinted separately or be completely ignored? Should we have a quarterly, annual or a companion magazine; a science-fiction forum and scientific editorials; letters answered in Brass Tacks department? You could also take votes on numerous other topics: favorite authors, artists, size of the magazine, etc.

I was glad to see Wesso get such a large proportion of the illustrations in the August issue. I note a letter in the August Brass Tacks which says that it is many years since Wesso was at his best; but the illustrations for the August issue were the best that I've ever seen by Wesso. That automatically makes them the best that any science-fiction artist ever drew. I believe that if you let Dold, Wesso and Schneeman do all your inside work, you could dispense with all your other artists, with the possible exception of Thomson. You would have the perfectly illustrated magazine. As for covers, I've nothing against Brown, but I would like to see one by Wesso.

Aside from the illustrations, I have only one major complaint. But first I wish to say that I do not consider *Proteus Island* one of Weinbaum's best stories. I think it was one of the poorest by Weinbaum that I've ever read. But then, a poor Weinbaum story is as good as many other writers' best.

The J. W. Campbell series is very interesting. It is not only informative but it is well-written—more like a piece of fiction than dry fact.

And now for my constant complaint: Where are Hawk Carse and John Hanson? I promised you a long time ago that as soon as either of these characters appeared in *Astounding*, I would immediately take out a subscription. That promise still holds good. And here's something else: If you print one of those stories, I'll go out and get at least one other subscriber and possibly more than one. You profess to run the magazine in accordance with your readers' wishes, but Hawk Carse and John Hanson have been asked for many more times than anything else and have not yet appeared.—J. J. Johnston, Mowbray, Manitoba.

### A Scene from "The Incredible Invasion".

Dear Editor:

I have just finished reading your August issue of *Astounding Stories* and am lost in a fog. I have been trying to find some relationship between your cover painting and one of the stories in this issue. Will you please tell me what story—if any—the cover is related to?

I have been reading *Astounding Stories* since '32 and finally grew tired of it this winter. I

stopped buying it for several months, but now I am back at it harder than ever. I think for a while that your authors forgot that the stories were supposed to be science-fiction. They gave us the science but forgot all about the fiction.

I think *The Cometeers* was good, but not as good as *The Legion of Space*. *A Leak in the Fountain of Youth* was great, and *Proteus Island* was fine. *En Route to Pluto* was only just O. K., while *The Scarab* and *Black Light* were the worst ones of the bunch. I can't say much about *The Incredible Invasion* as this is only the first part, but I think it will be good.—Howard Patterson, 96 Abbott Avenue, Ocean Grove, New Jersey.

### Or Martians Either?

Dear Editor:

Here is my rating of science-fiction artists based on a study of some two hundred illustrations.

	1.25	(limit)
Dold	1.00	
Wesso	.96	
Marchioni	.96	
Schneeman	.89	
Paul	.89	
Brown	.86	

Brown's covers are very good. Marchioni draws ludicrous machinery.

C. D. Lewis is right about *The Shadow Out of Time*. It is far superior to *At The Mountains of Madness*.

An idea: Are there collectors of original manuscripts of science-fiction tales? Autographed manuscripts of great stories ought to have value for Astounding readers. Think of it! Manuscripts of *The Mad Moon*, *The Invaders*, *Strange City*, *Davy Jones' Ambassador* and others! What a great collection that would be! I have read no letters from Utopians in Brass Tacks. Are there none who read Astounding?—Harold Thomas Gordon, 71 Center Street, Holyoke, Massachusetts.

### Says August Issue Is Worst.

Dear Editor:

It gives me no pleasure at all to inform you that the August issue was the worst in a long time. The only tales of any value were *Proteus Island*, *A Leak in the Fountain of Youth* and *The Cometeers*. Don't feel discouraged, though, for accidents will happen. Your line-up for next month looks great.

I was both amazed and disgusted at the condemnation of Lovecraft. I was glad to see that he was supported in some quarters. W. B. Hoskins carried my opinions and sentiments, so just reread his letter. It was the finest letter I've read in a long time.

Did you know that Lovecraft's *The Color Out of Space* received the highest rating in E. J. O'Brien's list. I'm sure I don't see some of the blood-and-thunder stories that his critics praise in these lists.—Sidney Slamick, 199 Callender Street, Dorchester, Massachusetts.

### The Old Authors Are Good, Too.

Dear Editor:

I have read science-fiction for a good many years, and I would like to give a few impressions it has left with me.

If I am not mistaken, Gernsback edited the first science-fiction magazine. The first author I definitely remember was Harl Vincent. Since then much has changed: The magazine has been reduced to a neater and more compact size; the readers have more and more influence. In the last several years I have noticed science-fiction is appealing to young readers, despite the fact

that the old blood-and-thunder, hackneyed plots are gone. We have new, young authors. This is quite apparent, as the late David R. Daniels was only twenty-one. There is no doubt that there are many authors almost as young— young people, with young ideas. Put the two together and you have your present-day Astounding Stories.

I, personally, read Astounding Stories for the relaxation it gives me when I get through work. Science-fiction has a wide and varied group of readers. While it would be an impossibility to please all with each story, if you doubt Astounding's statement that they procure the best stories in the field, pick out any so-called science-fiction story in any pulp magazine not in the field and judge for yourself.

I am going to contradict myself now to say that I still fail to see stories by W. K. Sonneman, and Philip Barshofsky, whose *One Pre-historic Night* was a masterpiece.—R. J. Bone, 203 West 9th Street, Coffeyville, Kansas.

### Not So Good.

Dear Editor:

The August issue was the most practical I have read for some time. *Proteus Island*, although not Weinbaum's best, is by far the best of the stories. Leinster's *The Incredible Invasion* seems promising, *A Leak in the Fountain of Youth* and *The Scarab* are trash. How in the world did you ever let them slip by? In the former the author evidently tries to be humorous, but it is so poorly constructed that it merges on sickliness.

Since I've seen Wesso's work throughout practically the whole issue, my advice to you is to keep him. He is far better than any of the others, including Dold.

Why do you keep Williamson and Fearn writing for your magazine? They must make their own science-fiction. Instead of writing along popular scientific ideas, they ingeniously invent machines of impossible conception—gravity trippers, etc. *The Cometeers* is a fine example of the point I'm trying to hit.

I would like to purchase some second-hand Astounding Stories—with covers—for five cents each. Any one interested please contact me, mentioning the date and feature stories of the issue you wish to sell.

Please put a comment after each letter.—Gerard T. Wilson, 428 East 67th Street, New York City.

### No Praise—and Yet—

Dear Editor:

It has been several months since I have put in a choice morsel for your literary fare. I am not going to write a long, detailed letter of praise about every story in your magazine. I shan't even tell how good your cover was this month. I must say, though, that I am looking forward to the next issue of Leinster's latest.

The main purpose of my missive comes under several headings: I have not seen many comments of this type, but I am sure there are others who feel the same. It is the matter of fabulous tales of adventure in some hidden valley or cavern that is just chuckful of treasures or horrible monsters.

This type of story, in itself, is seldom objectionable. It is the ending that annoys me. They always end in the destruction of said cavern. The hero barely escapes, minus any treasure, to end up in an insane house to tell his story in a "believe-it-or-not" sort of way. How about letting the poor fellow bring back just heaps of treasure that would appeal to our mercenary side, or at least let him bring back some proof.

I think it would be a swell idea for you to hold a contest every half year or so. It would be an inspiration to ambitious young people and you might find a promising young author.

There are several methods you could use:

Write a story based on a picture printed just for that purpose. Write one on a title or new invention. Give them a free rein and see what happens. You could run the winning stories in your magazine.—Lyle Dahlbom, 601 Benton Street, Rock Rapids, Iowa.

### From the Feminine Viewpoint.

Dear Editor:

May I push my feminine presence upon a male gathering? I have just read the August issue of *Astounding Stories*. I found much to please and little to vex. *The Incredible Invasion* is excellent so far, although the plot was a little apparent for the first part.

I did not gasp over *Proteus Island* which, however, does not mean that it was not a good story. I have a fixed faith in *Astounding Stories* that even a really bad story couldn't shake.

*Return of the Murians* left me a little groggy. To think a space ship should journey five thousand years and then return to the same place it started from was too much for my feeble intellect to grasp. Stupendous circle!

Now I am going to make an announcement that hurts me as much as it does you. West's *En Route To Pluto* was bad. Imagine a feathered female who monotonously sings her comments upon the most ordinary trifles. Boring, isn't it?

Reading *A Leak in the Fountain of Youth* was like a drink of cold water—absolutely enticing and wholly refreshing. Nothing cramped or stuffy about Long. Let's have some more. *The Scarab* was good. Farley fell down on *Black Light*.

Jack Williamson brought *The Cometeers* to a finish in a blaze of glory. Let's hope his name appears often in the table of contents.

This is my first letter to you and I hope I shall see it in *Brass Tacks*. I have been an ardent follower of *Astounding* and shall continue to be one. Where did *Strange Tales* disappear to? I think every one agrees with me that it should be brought back. Romance should not be taken from science-fiction stories. It puts human interest into what would otherwise be a mechanical story.—Ruby Wylie McDonald, 1212½ Hickory Street, Flint, Michigan.

### Lovecraft Again.

Dear Editor:

*At the Mountains of Madness* and *The Shadow Out of Time* are the best stories of the year! They are an outstanding literary accomplishment. Whatever you do, don't lose Lovecraft. In looking over your August issue, I am pleased to see so many stories illustrated by Wesso. He is even a little better than Dold. Let him do at least one cover.

Isn't it time that you published a quarterly? Print two or three book-length novels in it that would ordinarily appear as serials in *Astounding Stories*. Then, in *Astounding Stories* you could print complete stories.—E. M. Stubbs, 5308 Wayburn Avenue, Detroit, Michigan.

### No Answer On Paul—Yet.

Dear Mr. Tremaine:

All compliments on the August issue of *Astounding*. It is truthfully the most generally interesting issue of the year—so far. *The Incredible Invasion*—that incredible story—was incredibly good. Leinster, one of the modern pioneers of science-fiction—still at it.

*Proteus Island*—an example of what we will no longer get—by Stanley G. Weinbaum.

Schacher and *The Return of the Murians*—enough said.

In the shorts we have varied types, all of

which I liked. I especially got a kick out of Long's humorous tale.

With the concluding installment of *The Cometeers* I can give an opinion on the story as a whole. It is the best-written story he has turned out and one of the most interesting.

The article by Campbell, Jr., was very good. How about one of your scientific science-fiction serials, Mr. Campbell? Arcot, Wade and Morey for instance.

Wesso is going full stride again. Excellent! But don't let down on Dold and Marchioni. I wonder if you would give me an answer on this Paul question? The readers ask for him. He is no longer illustrating any other science-fiction magazine. He should be in *Astounding*. Is it true you have nothing to say about the art work? You have everything to say about the magazine! Anyway, you should tell your art department that Paul is wanted.—Jack Darrow, 3847 N. Francisco Avenue, Chicago, Illinois.

### Medicine for Schachner.

Dear Editor:

Here I am back again! You've put out another good issue. Keep it up. The new serial is starting out great and it seems that the really exciting part hasn't been reached yet. Weinbaum's *Proteus Island* was superb. I didn't care so much for *The Return of the Murians*, *En Route to Pluto* and *Black Light*.

*The Return of the Murians* was dry and without any real science, unless you call something about Lemuria and Muria being one and the same, science. West's short is the kind that the readers don't want any more. It's like the W62 series. Remember such shorts as *Old Faithful* and *The Machine*? If you can, give us more of those kind of stories. If you can't that isn't your fault and no one can blame you.

Say, Dold has only one illustration this month. How is that? I'm not kicking so much because Wesso's illustrations are very good, but so are Dold's, so give him more illustrations. Brown's cover was very good. By the way, who illustrated *En Route to Pluto* and *Black Light*? Marchioni's monsters and machines were all right, but he spoiled the pictures by the awful men he drew.

There has been so much controversy about Lovecraft that I decided to stick my oar in. I never finished the first chapter of *At the Mountains of Madness* because it was so bad. *The Shadow Out of Time*, as most fans will tell you, was much better than the former story. *At the Mountains of Madness* was dry throughout and without realism, while the other story had realism at the end, which saved that story from being on the level of the serial. Another hint: tell Lovecraft to put conversation in his stories. That helps a lot.

That series of articles by John W. Campbell, Jr., gets more interesting every succeeding month. Mr. Baltadonis says that he doesn't like them. How does he get that way?—John J. Weir, 223 John Street, South Amboy, New Jersey.

### A Question for Discussion.

Dear Editor:

Isn't life wonderful? Here I am again! This time in the guise of a critic. First in order comes a compliment: *Accuracy* is without a doubt swell! No, excellent! A few more additions of this type and there will be very little more that you could do.

I notice that you still maintain your Buddha-like reserve, even in this issue. Can't we readers get anything more than a comment out of you concerning our views in *Brass Tacks*? By gosh, by golly, I'll get my tickler ray out after you one of these days!

My opinions of the stories in the August issue are as follows:

*The Incredible Invasion*: This story is inter-

esting but not unusual. I do not see any reason for the title.

*En Route to Pluto:* Trite. This type of story should be done away with.

*A Leak in the Fountain of Youth:* A step toward a humorous yarn. How about a few humorous yarns? I am sure the readers will appreciate them.

*The Return of The Muriens:* Poor, nothing new about it. A reshaped plot is the correct term for it.

*The Scarab:* Short but sweet! Though the trend of the plot is more or less unoriginal the story is fairly good.

*Black Light:* That story belongs in a detective-story magazine. Can't these weeds be filtered out of the Garden of Eden?

*Proteus Island:* Far, far—too far—below Weinbaum's level.

*The Cometeers:* This story for a while promised to surpass one of the best stories ever written in this field, *The Legion of Space*. But alas, old Giles wasn't the same, nor were any of the other characters. The end was a flop, though the preceding installments were pretty good.

There seems to be war raging in Brass Tacks concerning *At the Mountains of Madness* and *The Shadow Out of Time*. Therefore I throw my two cents in and say they were rotten. Why, oh, why, did they elude the wastebasket? For the benefit of the reader who wants this type of story the magazine should be renamed "Ghost Stories for Five-Year-Olds"—so they will be able to know where to find these bedtime stories.

I wonder if any of your readers could enlighten me, without too many technical terms, by informing me how an atom if smashed will create tremendous energy.

Mr. Arnulfo G. Gutierrez be prepared! I have come to defend myself! What do you mean by the digit in which those numbers end? In your experiment involving the paper you mean to infer that the line along the edge is straight, and yet it has no end, correct? If you do I must point out the fact that a straight line is the shortest distance between two points. The line that you use in your experiment is not a straight line but a warped line.

When you argue to the effect that space is curved because of gravity you are wrong in part and agreeing with me in part. Gravity cannot have any pull on space, because space is a vacuum. Space in reality is something that does not exist, for there is nothing there. The curvature statement is in accord with my statement about space being shaped like a bubble.

Why should the line follow the curvature of space instead of being stopped at the extremity of space? After all there is no force or reason that will cause it to follow the curve of space.

When you make a statement to the effect that the ends of space meet you are insinuating that space is either in the form of a sphere or a figure similar to a loop. Thus you prove nothing with that statement.

I believe that the fourth dimension, though it might be time, is weight. The term dimension means extent or size. Surely weight gives a better clue toward size than time, or age. Anyway there is very little that one can discover about age when handling an iron cube.

Well, I've exerted myself and now I must rest, but remember the editorial notes. Signing off until further aroused.—Herbert J. Rosenthal, 158 Van Buren Street, Brooklyn, New York.

### Thanks for the Last 3 Paragraphs.

Dear Editor:

I was greatly surprised to see so many illustrations by Wesso in the late Astounding—August. My surprise was carried still further when I saw the serial by Murray Leinster and also the somewhat increased size of the Brass Tacks section over July's. And boy! what a line-up of authors!

Looking over the covers for the last four months I don't think the May cover was such

a bit. And who let those overgrown bugs crawl all over the June cover? The July cover—well, now there's a cover! That, in my estimation, is about the most attractive cover of the year. The August cover is fair.

Now for the stories: *Mathematica Plus*—finely written, but still a puzzle; *Doomed by the Planetoid*—a good yarn as far as adventure is concerned; *Spaun of Eternal Thought*—great; *The Shadow Out of Time*—Bah! I wish some one would take that guy Lovecraft apart and see what makes him dream so much. Then when they finish him, take Tremaine apart and see what makes him publish such stuff. I agree with many that Lovecraft's yarns do not belong in Astounding. I suggest he quit writing until he can create characters and action like Weinbaum and Williamson.

*At the Mountains of Madness*—well, to tell the truth, I read the first installment and struggled part way through the second, slowed up and stopped in the middle of the second installment, unwilling to waste any more of my time. The story actually stuck to the name, because it really was madness reading it.

Now you can come out from behind your desk, because I'm going to stop throwing bricks for a while. Congratulations on Campbell's new science articles. They are extremely interesting. Why not have a section of science-fact clippings by readers?

Speaking of sequels, *Reverse Universe* and *Glagula* are badly in need of one. In the July issue, *Pacifico*, *Australano* and *Frictional Losses* are all top-notchers by top-notch authors. The shorts were all very good. Oh, yes, I just finished *The Cometeers*—a supreme story.

Having only read two short stories in the August number, I can't submit a very good opinion of it, except that Brass Tacks is as good as ever, if not better.—Lloyd A. Kennedy, Jr., 45 South 4th Street, Steelton, Pennsylvania.

### He Doesn't Like Sequels—

Dear Editor:

Although I had been reading this type of fiction long before Astounding Stories made its appearance, I have never written to any discussion column.

In my voracious pursuit of science-fiction, I have read every story except one that Astounding has had between its covers. *At the Mountains of Madness* did not appeal to me and when *The Shadow Out of Time* started in that same inactive, conversationless way, I quit; hence the exception.

I have one complaint: I don't like sequels. When the author tells his story, reaches his climax and ends as he should, why does he try to continue in the form of a sequel? *The Skylark of Valeron* was fine, but its sequel was not so good; it wasn't new. The magnificent distances had been covered, the great machines had been described, we had become familiar with the people of the whole galaxy. Then came the sequel in your magazine; I could barely get through it. What we thought had been the destruction of Loring and Du Quesne was changed, I suppose, so the sequel could be written. *Old Faithful* was a good story, but the sequel wasn't. *The Legion of Space* was good, but I have misgivings about *The Cometeers*.

It seems the endings of lots of stories now are not limited, certain or precise, and thus a cry goes up for a sequel. *Mathematica* is an example of this type. If I were an author and a cry went up for a sequel to my brain child, it would seem to me that I had failed to finish the story. You said at the top of Mr. Taylor's letter, "We Can't have a Sequel to Everything," and it begins to look like it.

I don't care for Campbell's stories on the solar system. We got all that in high school. Another story comparable to *The Mightiest Machine* would be better.

*Frictional Losses* was the best in the July issue. The April cover was your best so far.—Paul Murray, 321 Grant Street, Longmont, Colorado.

**Accidents Do Happen.**

Dear Mr. Tremaine:

I received the August issue of the magazine yesterday afternoon, and I've read the whole thing except the serial.

You can see by that that I don't like any of the stories—much. The best story in the issue was by our unforgettable author, Stanley Weinbaum, *Proteus Island*.

*The Return of the Murians* rates second place—a very well-written idea, although not so original. *Black Light* was good, but nothing exceptional. The same applies to *The Scarab*. *En Route to Pluto* was a good yarn, but I wish Wallace West had made it into a longer story.

By the way, I noticed a couple of typographical errors. On pages 123 and 125 I find the running head for *Proteus Island* instead of *The Cometeers*. Fearn's name is on that marvelous cover, but no story by Fearn.

Speaking of the cover, it's great, much better than the July issue. I now make a plea for something we fans have been hollering for since October, 1933: make a few comments at the end of each letter to Brass Tacks. As it is now when we ask a question we might as well have spoken to a dead Plutonian.

And say, Editor, when are we going to get a story by Ackerman?—Roy Test, 251 East 69th Street, Los Angeles, California.

**About H<sub>2</sub>SO<sub>4</sub>.**

Dear Editor:

I was going over the April '36 issue of *Astounding Stories* and I happened to read the letter of J. E. Watson. It was an excellent letter, but he evidently slipped up on his chemistry. He states that concentrated sulphuric acid acts upon zinc. It does not; but hot, concentrated H<sub>2</sub>SO<sub>4</sub> does react with zinc with the revolution of sulphuric dioxide, a pungent gas. As he did not specify hot H<sub>2</sub>SO<sub>4</sub>, I naturally concluded he meant the acid was cold. I have yet to see the chemistry manual which says that tin reacts with H<sub>2</sub>SO<sub>4</sub> without special treatment, i. e., heating.

I have tried both points experimentally, and in both cases it is necessary to use hot concentrated H<sub>2</sub>SO<sub>4</sub> to get any reaction with tin or zinc.

Now that that load's off my mind let me say a few words about *Astounding Stories*. Smooth edges have greatly improved the appearance of "our" magazine. Your stories are excellent. Your science feature by J. W. Campbell, Jr. is an ideal department. Keep that up by all means.

I was very sorry to hear of the death of Weinbaum. As an author he was superb. His novel *Proteus Island* was really remarkable.

I believe that I'll close now, trusting that you will publish this letter for the enlightenment of Mr. Watson concerning the reaction of lead and tin with H<sub>2</sub>SO<sub>4</sub>.—Henry Bott, 6309 Grace Street, Chicago, Illinois.

**Writers, Attention.**

Dear Editor:

Some time ago I read a story in which men were lowered from a space ship into the Red Spot of Jupiter, where they found a race of strange beings. I don't believe it was in your magazine. The great Red Spot on Jupiter has been classified as a "floating island of solid ammonia in an ocean of liquid hydrocarbon." This should end stories dealing with similar plots.

Nearly every story concerning Mars mentions the canals. In a recent experiment, a teacher took a map of Mars, erased the canals and set the map up against the wall. He then trained a weak telescope on the map so that it appeared about the same as the planet does through a

large telescope. Almost every one drew in the canals! Any one noticing the canals of Mars will notice that they remain straight at all times. Would they not bend as the planet rotates? Wouldn't these and similar experiments seem to show that the canals are an optical illusion?

Regarding *Astounding Stories*: Brown fell down on the cover this month; the people look lifeless, uninterested in the struggle. The line-up for next month looks swell. Stay as far ahead of your rivals as you are now and you'll always have a fan named—G. R. Griffin, 1 Mounment Street, Portland, Maine.

**We Have Too Many Artists?**

Dear Editor:

*Astounding Stories* is the best illustrated magazine published to-day. All the artists turn in magnificent pieces of work—that is, all except Saaty. Why do you continue using his sloppy work?

In the July issue the illustrations were exceedingly good, with the exception of Saaty's illustration for *The Train That Vanished*. Glad to see Dold back with his usually fine interior illustrations. Wesso's illustrations of *Frictional Losses* are truly masterpieces. Let's have much more of Wesso than we are getting now. Brown's cover for the July number was exceptionally good and his interior illustrations are getting better and better. Schneeman and Marchioni are good, but Flatos is only fair, though his July illustration is good. You have too many artists now, so drop Flatos and Saaty.

I haven't read the stories yet, but the line-up of authors is very promising. Schachner is always good. The same goes for Don A. Stuart, Kruse, and Williamson. But I can't stand Van Lorne's mushy writing. Campbell's scientific articles are interesting.

Hoping you continue your present standard.—John Michel, 1717 Bleeker Street, Brooklyn, New York.

**Outstanding Stories.**

Dear Editor:

Have been reading your magazine for the past two years and each issue gets better than the last. These are the stories I class as outstanding since you took over the magazine:

*Ancestral Voices*, *Colossus*, *Rebirth*, *The Man Who Stopped the Dust*, *Sidewise in Time*, *The Legion of Space*, *The Skylark of Valeron*, *Old Faithful*, *Before Earth Came*.

Glad to see Wesso at work again. How about Paul?

If you want to step your sales up another notch, get Lawrence Manning. By the way, what happened to Edmund Hamilton?

Thanks for *The Cometeers*.—Thomas Tompkins, 290 Chandler Avenue, Detroit, Michigan.

**A Birthday Letter!**

Dear Editor:

Congratulations! Yours are the combined thanks of all lovers of science-fiction, for you have done an excellent job in safely bringing *Astounding Stories* to the age attained by the old magazine.

It is particularly fitting that the July issue should take the form it does. No world beater, it is one of the most average copies ever issued.

The serial is standard—no more and no less. It falls far below the level set by its famous predecessor, as it passes the three-quarter mark.

The short stories are rather poor—nothing to compare with the short stories of the inimitable Stuart.

Schachner's novel, *Pacifica*: the month's

thought-variant is full of terrific ideas jammed into a far too short story.

The novelettes were the greatest redeeming feature of the issue. *Australano*, that delightful bit of scientific froth by Van Lorne, is one of the most easily assimilated, interesting stories you have ever published. *Frictional Losses*, somewhat of a thought-variant, is the finest story of the issue—one of the all-time best. After reading this beautiful story, I believe that Stuart will take over the throne of the brilliant Weinbaum, the undisputed king before death took him from us.

You may do what your conscience tells you to do with these meaningless wanderings. However, I should like to have you publish the following:

I should like to gain correspondents through *Astounding Stories*. Qualifications are: Any one answering this should be of high-school age, of either sex, and a reader of science-fiction; one who takes a real interest in it as a definite part of the modern literary field, not just as different, overimaginative foolishness to be read and immediately forgotten.

To you Mr. Tremaine: May you lead *Astounding Stories* far above the highest standards you have ever hoped for, even in your dreamiest moments.—Oliver C. Davis, Box 673, Big Pine, California.

### Correspondents Wanted.

Dear Editor:

I say with pride that I am among the ranks of enlisted readers to the one and only *Astounding Stories*, the science magazine which beats them all.

Although I am not of a scientific turn of mind, I do enjoy reading your magazine. I have as yet to read an issue that is not packed full of entertainment which cannot be beat. Since you have decided to cut the edges of *Astounding* I have discovered that they make a much neater volume if I should ever have them bound, and also they are much easier to file and handle.

About your illustrations: I think they are all swell. I also compliment you on your inserting of pictures within the stories, as well as the ones that appear on the front of the stories.

Well, I'm afraid I must say adios as my time is getting short. I will finish this letter now. If this should appear in *Brass Tacks* I hope that there will be other readers, male or female, willing and kind enough to write to me from any English-speaking country.—Joseph Anker, 145 Philip Street, Albany, New York.

### How About This?

Dear Editor:

If you will allow a novice in the field of science to try to correct an authority, I would like to do just that. In *Pacifica*, Nat Schachner states that one pound of force will exert a total force of 1,000 pounds if applied to one square foot of a liquid whose total surface area is 1,000 square feet. Of course, I may be wrong, but this sounds entirely illogical to me. Wouldn't the correct way of putting it be to say that 1,000 pounds applied to one square foot would produce one pound per square foot of the area of 1,000 square feet?

Now that my aspersion on Mr. Schachner's veracity is cast, let's see the rest of the issue. I liked every one of the stories, despite the fact that there is usually one which doesn't click with me. *Pacifica*, *Australano*, and *Frictional Losses* run a pretty close race for first place. The series of articles on the solar system is quite interesting.

If any one has an extra copy of this year's January and February issues would they please get in touch with me. I don't have these two issues in my collection of *Astounding*.

Best wishes for bigger and better—if possible—*Astounding Stories*.—Alton W. Mackay, 415 Wheeling Street, Morgantown, West Virginia.

### We'd Like the Radio, Too!

Dear Editor:

Impressions of the July issue:  
Cover—One of Brown's best, but I would like to see a cover by Doid; *Australano*—very good; *The Time Decelerator*—fair; *The Solar System*—rotten; *Frictional Losses*—excellent; *The Virus*—good; *Pacifica*—excellent; *Code of the Spaceways*—fair; *The Train That Vanished*—good; *The Comets*—excellent.

Please get A. Merritt, O. A. Kline, Cummings, Hal K. Wells, and Burks to write for you.

When are stories by Zagat, Smith, Moore, C. C. Campbell, Vincent, Ziska, Starzl, Fisher, and Diffin coming?

How about a semimonthly? Please kick Haggard out. He hasn't turned out a good story since he started writing. How about *Astounding* on the radio?—Raymond Barry, 528 W. 123rd Street, New York, New York.

### Need an Answer?

Dear Editor:

Your magazine is complete! It has a combination of good fiction, science, love, adventure, fact, and humor. The humor for the most part may be found in the back of each issue, under the heading of "Brass Tacks." Screamingly funny are some of the comments of some of "our dear readers."

Pick out some of the would-be artists and ask them to draw an illustration of something they have never seen. Ask others to try and sell a publication without lettering on the cover. Ask them to print a perfect magazine with trimmed edges, nice, shiny paper, beautiful covers, no ads, perfect stories to please a thousand different viewpoints and a size to please every one—all for twenty cents. You readers that want first-class paper! What do you do with the pretty pages? Cut paper dollies? Does this make the stories better? Don't you know that this diffusing light causes eye strain?

If you print pictures of rocket ships for Ernest Kay I must have some snapshots of Martian bathing beauties!

If some of the ill darlings don't want girls, etc., in the stories, make them first grow into long pants before they comment on such a subject.

I think the best letter that has ever been published in *Astounding* is Jack Darrow's—April number. Congratulations, Jack!

Besides eating, I would rather read and argue science-fiction than anything in the world. So drop around after lunch, some of you brick throwers.—Francis Rossman, 212 N. Third Street, Ripley, Ohio.

### Weinbaum's "Proteus Island".

Dear Sir:

Without the slightest bit of doubt, the August issue is the best yet. If every forthcoming issue equals the present one, *Astounding* will be nearer to perfection than any other magazine ever has been.

Although every story composing the issue was above average, I unhesitatingly pronounce Weinbaum's *Proteus Island* the star story. I have given first place to every Weinbaum authored story that has yet appeared, and my record has not broken this month.

The G-man stories in this issue. Well, they're everywhere else, so why not in *Astounding*? I

would like to see more of Arthur Curtis, the hero of *Black Light*. Take a hint, Mr. Farley.

A *Leak in the Fountain of Youth* lived up to the reputation of *Scandal in the Fourth Dimension*. Miss Long is runner-up to Stanton A. Coblentz when it comes to satire. More from Miss Long's pen, please.

Wallace West's return to science-fiction was made conspicuous by his excellent short story *En Route to Pluto*. I will never forget his story, which was based on mythology; *Golden Fleecce*, I believe, the title was.

Schachner's *Return of the Murians* was another nifty yarn. I have yet to read a lower-than-average story by Nat Schachner. *Mercury*, like the preceding articles of Campbell's series, contained a wealth of information.

The illustrations of Wesso were magnificent. I like the idea of double-page illustrations; continue them, by all means. Why not divide the art work evenly between Wesso and Dold?

My pet aversions are Clifton B. Kruse—when he writes these so-called action stories—and the readers hollering for editorial comments after the letters in the readers' department. They should realize that if we have editorial comments, the number of letters printed will necessarily be less than before.

Keep up the good work, Mr. Editor.—Robert A. Madle, 333 E. Belgrade Street, Philadelphia, Pennsylvania.

### Eleven Years in Review.

Dear Sir:

I suppose I should start with my qualifications as a critic, as that seems to be the style with a first letter. I started reading science-fiction when a sophomore in high school, which would have been about 1925. Of course, not with your magazine, which I believe was not in print at that time. However, I think it is now the best of the lot, and it is the only one I have taken regularly for the past two years.

In the past eleven years I have never written to any magazine. I merely read the issues from cover to cover—if they aren't too hard to swallow. What finally jarred me loose was a letter in *Brass Tacks* signed by Cameron D. Lewis calling Mr. Coblentz to account for his physics. I would like to ask Mr. Lewis if he ever drove a car, say forty-five miles at a speed of forty-five m. p. h., and then checked up to see how long it took to go the distance. You have about the same problem in the story he refers to.

If it isn't too personal, I would like to know if all the letters in *Brass Tacks* are genuine. Some of them seem too childish to be real. It seems to me that the most effective way to express disapproval would be to stop buying the magazine.

Since I have been reading your type of fiction, I have never seen anything to equal the *Skylark* series. When do we get another? I appreciate very much the new binding and edges, but think the stories are more important.—Herbert Cory, Box 35, Smithland, Iowa.

### More About Lovecraft.

Dear Editor:

It is almost a matter of personal concern to me when I see, month after month, so many unjust criticisms of Lovecraft by a bunch of puerile readers who haven't got enough power of concentration to enjoy his stories. I respect the opinions of persons like Mr. Davidson, when they present a reasonable argument and hold a fairly open mind, but when the fourteen-year-olds contribute their paragraphs of ambiguous and boring misstatements I want to put in my word for his defense.

Mr. Corwin Stickney has said exactly what I want to say—and probably in few words—that Lovecraft will attract more readers who object

to the trash of Fearn and Van Lorne than he will scare away weak-willed persons who read the magazine because in doing so they believe they are being scholarly and "above the rabble."

Don't misunderstand me. I don't like Lovecraft because he writes literature—which is more than any other science-fiction authors do. I stand up for him because I enjoy his stories more than any you have ever published, and because, as Wild Bill points out, they stand re-reading so well. I've bought extra copies of all these stories for the purpose of binding them separately, which is more than I've ever done for any others.

As Mr. Hoskins also remarks, Mr. Brown has again exercised his remarkable imagination and turned out some intriguing but interesting monsters for these stories. He and Wesso stand alone; but he is better qualified for science-fiction, since Wesso's illustrations would, however fine, fit for the most part, any pulp.

Thanks for the superb stories in the last two issues, and tell Brown that his finest covers to date have been the last four.—W. Miller, Jr., 69 Halstead Street, East Orange, New Jersey.

### Another Discussion Point.

Dear Editor:

Congratulations on your July and August issues! Both were swell. Just keep up the good work. *Pacific* led the field in July, with *The Time Decelerator* and *Frictional Losses* close behind. However, I noticed one similarity between *Pacific*, *Australano*, *Frictional Losses*, and *The Virus*. In each the human population of the Earth had been, or was, about to be decimated by an interplanetary war or by a terrible disease. There could have been a little more variety!

*The Cometeers* probably took the cake in the latest issue, nearly equaling *The Legion of Space* in the swell climax. However, Mr. Williamson, I hold the mind or soul to be absolutely indestructible. As Mr. Fearn stated in *Mathematica Plus*, matter and energy are the canceling variables, but the mind is unresolvable, indestructible even by the Creator.

*The Return of the Murians* was very good, but here I want to bring up another point relative to this tale: I consider all the stories of Atlantis and Lemuria to be fables, legends, and myths—nothing more. If, as geologists claim, man evolved some five to ten millennia ago, how come one race should develop a higher civilization—as the Murians—some 30,000 years before our own, when all the rest of man was struggling to keep alive in caves, with very primitive weapons? Certainly this high race, if it did exist, would colonize the whole Earth, and teach and civilize the other races of man. Naturally they would have left their mark on most of the continents and early civilizations! How about it?

*Incredible Invasion*: Comment will be forthcoming when I have all the installments.

*The Scrab*: A cute story, if you get the drift. Interesting, too.

*En Route to Pluto*: I don't think the idea of feathered wings is natural. Since they are humans—supposedly—and therefore mammals, wouldn't the Martians have wings more like those of bats?

*Proteus Island*: A very logical, good conclusion. Very good.

How many stories did Weinbaum write? He was a swell author.

Those April and July covers were swell. Space ships appeal to the astronomical in me. To Calvin Pine, re the June cover: If you have read *The Cometeers*, maybe you understand now what it was about. Usually the cover is related to the story whose title appears on it.

To Mr. Dollens and others who want Wesso: Are you satisfied? Nine out of fourteen illustrations in the August issue were done by Wesso. Pretty good, too.

Messrs. Ruzella and Aprea: I see you agree with me about that awful *At the Mountains of*

*Madness*, but I do not hold the same opinion concerning *The Shadow Out of Time*.

Campbell is doing a swell job on those solar-system articles. Marchioni was excellent in *The Cometeers*. Who says he can't draw humans?

You are filling the issues with some swell authors, Mr. Editor. If you can only keep it up!—Cameron Lewis, 268 Shepard Avenue, Kenmore, New York.

### Superscience Is Coming.

Dear Editor:

The ray gun has been invented! On June 6, 1934, at the National Inventory Convention in Omaha, Nebraska, a death ray that turned blood to water was spoken of. Because of its dangers to humanity, its inventors agreed to suppress it. The president of the congress witnessed a demonstration. He said it killed cats, birds, and dogs at quite a distance. They died instantly.

This article came from one of our daily newspapers, and although it may not be news to some, it will be to others. I'll send you the clipping if you want it.

Your magazine is the acme of perfection. In fact, it's the finest science-fiction magazine I've ever read. I am twenty years old and interested in anything that pertains to science. How about some letters, brother science-fiction readers?—Vincent Neece, 2118 Minnie Avenue, Kansas City, Missouri.

### Defining Science-fiction.

Dear Editor:

The last time I wrote you was concerning a certain crank known as H. H. Welch. But if he is a crank, what are these supposed science-fiction fans who maintain that H. P. Lovecraft is not a science-fiction author and that his masterpieces *At the Mountains of Madness* and *The Shadow Out of Time* are drivel. What in the Heaven's name do they consider science-fiction, if they are not? I suppose a lot of ponderous rot that vaguely and impressively describes crazy science machines and devices is what they consider the height of science-fiction.

I consider the criteria of science-fiction to be the fact that the story advances a theory, explains a fact, is based upon a fact, factualizes a theory, theorizes an observation or something along similar lines. Of course, the facts or theories are scientific.

Perhaps I'm wrong; but if I'm not, then Lovecraft's stories are science-fiction. For instance, his main theory is that there were pre-dawn civilizations—a plausible theory if one remembers the age of the Earth compared to the comparatively short period that man or even manlike creatures have roamed. This theory would, of course, deal with paleontology, anthropology, history, archaeology, and biology.

The stories also theorize in geography. What else could one ask for in a science-fiction story? Neither can you find fault with the word choice or writing technique and certainly not the illustrations. In fact, I consider both of Lovecraft's stories among the best that I have ever read, because of the theories advanced, the illustrations by which Brown seemed to catch the spirit of both the stories, and principally because of the way Lovecraft writes.

Enough is enough and I've said plenty, although I haven't even touched the innumerable points I might have.

Now for a few comments on the magazine itself: I think you have steadily improved since the February, 1936, issue, in illustrations, stories, covers, appearance of the magazine—print, paper, and smooth edges. But a quarterly and answers to letters are needed to add the finishing touches. However, good old Astounding as

it is, is just about all I could ask for for twenty cents.

I sincerely regret the passing of the late Stanley G. Weinbaum, who was one of the best authors science-fiction has ever seen.—John Crockett, Iowa Falls, Iowa.

### The Ranks Aren't So Meager Now.

Dear Editor:

Before another legion of enraged readers swoop down upon you to hail you before their own tribunal court on charges of treason to science-fiction and worse, I should like to express a bit of appreciation for your alleged crimes. Printing something that is a little different—something commendable and conducive to true thought—and quite obviously greater than many of your readers' assimilative capacities is a mortal sin; you shall be burned in effigy by many, no doubt. Men hate and fear thought more than anything else, you know; so the outburst of unfavorable criticism; resentment, and ridicule upon Mr. Lovecraft's truly remarkable contributions is not at all surprising.

*At the Mountains of Madness*, it is true, does not conform to any so-called science-fiction yardstick, and viewed from the angle of most machinery-filled, space-ship-laden tales, is out of place in Astounding Stories to say the least. Almost entirely descriptive, human-character element slightly hurried over, sensational man action sadly missing, it is no wonder that Mr. Lovecraft is accused of contempt of science-fiction technique. The fact that his two stories come very close to perfection, in the style he employs, is to be used against him. Allow me to join the meager ranks of the despised minority and state that I can never thank you enough for publishing two stories which most editors would have placed on the index expurgatoribus.

Personally, I enjoyed *The Shadow Out of Time* more than its predecessor; perhaps because I had it all at once, while the other was read in bits. When I can get the issues in which the first appeared again, I'll reread it and mayhap revise my opinion. But of the two, the latter did have the greater scope, more outlets for meditation, and impinged more on what we blithely and foolishly term reality. Anent the abundant use of the words "hideous," "horrible," "blasphemous," etc., a case might be brought up in unfavorable criticism. Yet, it is such a minor flaw, and a little thought will soon justify the employment of these terms.

Even though—to the true scientist and unashamed thinker—the Great Race is beautiful and entirely wondrous, they may be also termed hideous, blasphemous, horrible. Anything that tends to upset man's mental equilibrium and give him a glimpse of actual truth may be called horrible, dangerous, hideous. The truth is not exactly pretty nor easy to face. Man's position in the world is so precarious, so at the mercy of what in the face of the cosmos are trivialities, that it may be indeed well for him to be ignorant upon many matters. A few brave minds can look upon the face of truth unshaken, but for the masses, it is better not so. Let them keep their sense of security; little by little they will grow stronger in mind.

Water quenches thirst, but water also drowns; fire cleanses, but fire overwhelms; truth liberates, but liberty is often fatal. Man's terror-filled mind is set at rest by the thought that he is a special creature, first-made, and anything that would tend to upset this theory, to show that there were other entities far greater than man before man was thought of in the cosmos, may well be called blasphemous. But to the true thinker, there is no fear; the thinker followed light, but not too quickly, for light also blinds. I hope you can find it possible to print more of Mr. Lovecraft's work in the not-too-distant future.

A few words about recent issues: Van Lortie's *Glagula* enjoyed. He seems to have a good conception of alienage and some of the difficulties actually to be involved in the case of an out-



sider. His style is not very good, but is improving.

*The Cometeers* made a nice sequel to *Legion of Space*, but Giles Habibula was the whole story. Congratulations on publishing P. Schuyler Miller's *The Chrysalis*—another splendid thought-conductive, off-trail yarn.

Words cannot express my joy at seeing Wesso's marvelous drawings in the August issue. The three full-spread effects are worth the price of the magazine in themselves. After the epoch-making improvement of the last year, am almost ashamed to ask for more, but truly, your comments after each letter printed would be appreciated. And Wesso—or Dold—is the one for the cover. I will readily admit that Brown has improved, but still insist he has not the scientific technique—likewise Saaty, Thomson, and Flatos. Schneeman shows real promise, though. In conclusion, let me add this small voice to the multitude asking for one of Dr. Keller's priceless gems, and wish you all the fortune that you deserve—which ought to make us all happy.—Robert W. Lowndes, Box 384, Canaan, Connecticut.

### Want to Correspond?

Dear Editor:

I haven't read all the stories in this month's *Astounding* yet, but I had to write and tell you how much of an improvement this month's issue is over last's. To tell the truth, the magazine had been going down for three or four months, but this month's issue is fine.

Before I read *The Return of the Murians* I racked my brain for five months trying to remember a story which I supposed this to be the sequel of. Falling in this I put it down as having come before I started my quest for science-fiction. It was fine, but just a few oversights spoiled it. How in the world did the Murian vessel get turned about after it left old Sol, so it could come back? It certainly didn't go far enough to complete the curvature of space, and if the vessel just turned around, the turn would certainly be noticeable to the Murians by the apparent turning of the stars.

Another thing: when the Murians' continent sank, why didn't they go to Venus in the first place, instead of chasing all over the universe in search of a planet? For that matter they could just have moved to another Earthly continent. Also, I don't like stories in which three or four happenings hook up, such as the finding of the fragment at the same time as Sloan pulled the fragment out of his pocket—at exactly the right moment. Two things happening together would be rare, but four or five!

*A Leak in the Fountain of Youth* sets a new record for number of words in a title, doesn't it? *Proteus Island* was, as is usual for Weinbaum, far above the usual run of stories—almost as good as his best.

I'm thirteen and would like to correspond with some one of my own age or a little older. I remain a faithful booster.—Harry Warner, Jr., 311 Bryan Place, Hagerstown, Maryland.

### Schachner Improving.

My dear Mr. Tremaine:

Indirectly, you are the cause of a broken resolution. Heretofore I had always waited for all parts of a serial before beginning it, but your acceptance of the Murray Leinster serial, *The Incredible Invasion*, consigned that little resolution to the limbo.

In my opinion your second greatest step forward this year is obtaining that story. It is good, superbly so. Not even *The Skylark of Valeron* will equal it, I believe, if the remaining parts are as good as the first.

But I am too slow in getting to the real reason for writing this letter: There seem to be many ideas as to what science-fiction is. Of course, none of us will say that our present-day fairy stories are science-fiction; many will

say that they never were, but I am not with the many. Still others will contend that real science-fiction is seldom, if ever, found, as that which appears under this heading to-day is to-morrow's basic fairy tale. I'm of this school of opinion.

We'd certainly have a hard time proving that Nat Schachner's *The Return of the Murians* in the August number is anything other than a modern fairy yarn. Yet it is, in the modern conception, a science-fiction story to the nth degree. There are no new, to me at least, theories compounded, a few technical words and confusing phrases employed into beguiling the reader into believing that he is a sincerely avid addict of gospel science sugar-coated with fiction, and there is a startling lack of the use of other arts of the trade.

We have only a space ship, weapons that are common in this type of literature, human folly and other accepted necessities—nothing radical or unusual. However, it is science-fiction, if ever a science-fiction story has been published in *Astounding Stories*, and I'll defend it as such against anybody who will state that it is not and who will give an example or examples of their ideal.

Though I like an occasional story of this type, don't give me too many. I tire of honey, even, sometimes.

Schachner is improving. Few highly voluminous writers ever do this; they usually develop one style and are content with it. Consequently, they seldom rise above the average and are forgotten the week following the publication of their last story. I cannot believe that this will be the case with Schachner; he is revealing too many signs of expansion and growth. With a little revision he would become better than merely good.—Lawrence Larkey, Macs Springs, Virginia.

### A Careful Summation.

Dear Editor:

I have been reading *Astounding* for two years and no other science-fiction even begins to compare with it. I firmly believe that science-fiction ought to be put on a higher level.

The last few issues have been exceptionally good, but the August issue is the best yet. There are a few small points that I don't like, though. The cover picture has so much action in it that it looks as if a child drew it. *The Incredible Invasion* will probably turn out to be the best story *Astounding* has ever published. *Proteus Island* was very good—but remember that the story is published in *Astounding*, not a love story magazine.

*Return of the Murians* is the best story I have ever read, except for one small point. The illustration on page 73 is worded thus: "Then with every telescope in the world trained on it, the great metal ellipsoid braked its speed and arced in a smother of flame and cometary splendor over northern New York." I don't remember the author saying anything about X-ray telescopes which would pierce the Earth.

*En Route to Pluto* was good. Give us more of Gallun. The story by him, *A Leak in the Fountain of Youth* was one of the best short stories I ever read. *The Scarab* was equally good. *Black Light* had a good start but the plot wasn't so good. Your scientific articles on the solar system are swell. Keep it up.

Now for *The Cometeers*: This story is colossal—the best serial I have seen so far. Let's have more of them.

A word about last month's issue. *Out of the Mountains of Madness* and *The Shadow of Time* were gripping. Cold chills ran up my spine, but I don't like the long, drawn-out, excessive detail and explanation in the first paragraphs. If it wasn't for these drawbacks they might have equalled *The Cometeers*. If Lovecraft would cut out the explanation he would be about tops. When do we get our bimonthly. Good luck and keep getting better.—D. Dobbs, Minneapolis, Minnesota.



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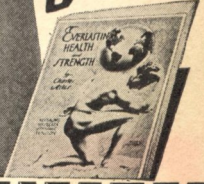


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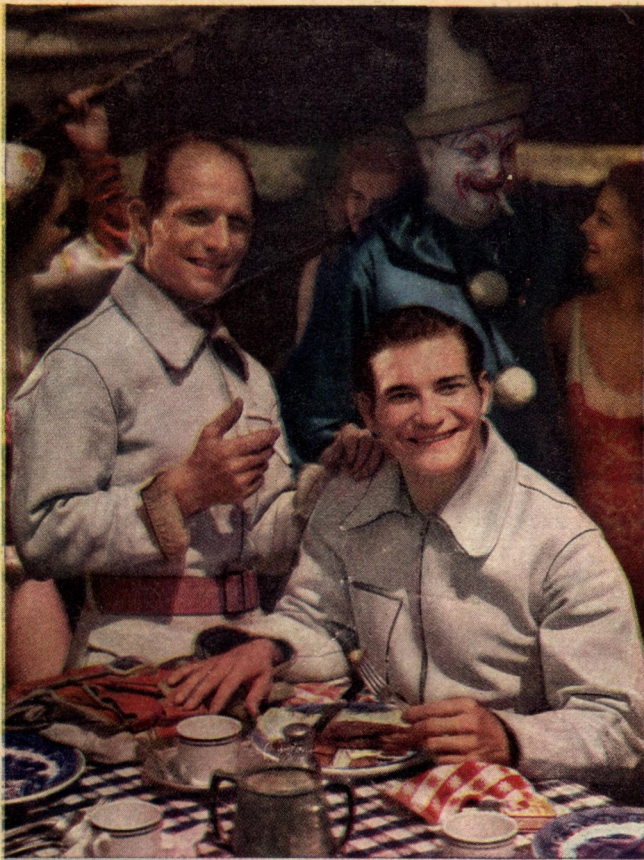
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