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# STARTLING STORIES

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FEATURING

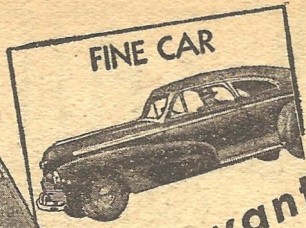
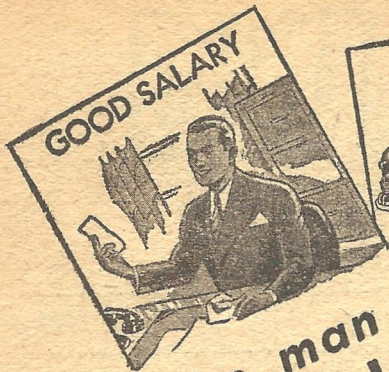
## **FIRE IN THE HEAVENS**

*An Amazing Complete Novel*  
By **GEORGE O. SMITH**

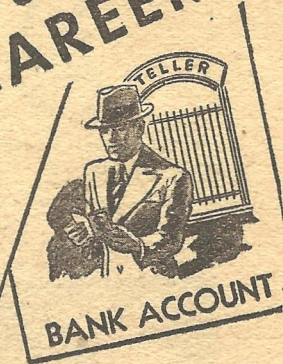
**HOLLYWOOD  
ON THE MOON**  
*A Hall of Fame Classic*  
By **HENRY KUTTNER**

A THRILLING  
PUBLICATION

Missing  
Inside  
Front  
Cover



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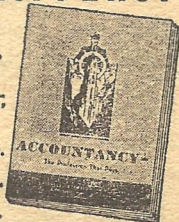
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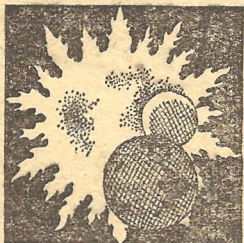
# STARTLING STORIES

Vol. 19, No. 3

A THRILLING PUBLICATION

July, 1949

## A Complete Novel



## FIRE IN THE HEAVENS

By **GEORGE O. SMITH**

*Outside the world of science, Jeff Benson was a man of no importance—until the day he stumbled on the mistake in the law of conservation of energy!* 9

## Two Complete Novelets

- THE SACRED MARTIAN PIG**.....Margaret St. Clair 78  
*Delivery of an inanimate object of worship from Mars seemed simple—but it involved George Baker in amazing escapades!*
- HOLLYWOOD ON THE MOON**.....Henry Kuttner 108  
*Drive along Lunar Boulevard and dine at the Silver Spacesuit with Tony Quade in this Hall of Fame classic reprinted by popular demand*

## Short Stories

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- TRANSCIENCE**.....Arthur C. Clarke 125  
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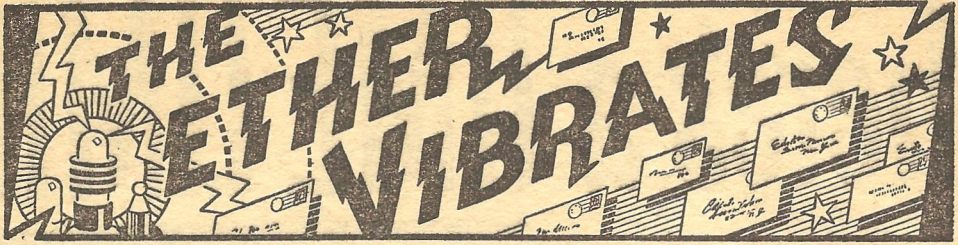
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**T**HOSE who read on into the ETHERGRAMS portion of this department will therein discover a letter from Russell Harold Woodman in which he views with alarm the projected artificial satellite whose development was recently promised by former Defense Secretary Forrestal.

It is his view that the "satellite" is impossible by the nature of things and that its launching will result in the "murder" of whoever boards it.

Mr. Woodman is, by his own statements and admission, a disciple of the late Charles Fort, who disbelieved in every astronomical theory of the cosmos. If by any chance the satellite proves successful, most of his pet theories must perforce go out the window. Since he believes in them, he is alarmed.

And this despite the fact that the basis of all Fort's reasoning was that no accepted theory is worth belief since it must ultimately be discarded in favor of some other theory in the light of new discoveries. Somehow we don't think Fort excepted his own theories from such abolition. He must be having a chuckle in his grave over the tenacity of some of his disciples.

### Away With Old Theories!

More generally, Mr. Woodman's letter is alarming because today, as never before in the history of mankind, open-mindedness and readiness to accept change are of vital importance. With atomic developments promising not only rapid conquest of space but elimination of the necessity for labor from human society, we've all got to be prepared to throw old maxims and theories away.

It is only in recent decades that people generally have been able to accept the fact that environment, as well as heredity and "sterling virtues or lack of same, plays a vital role in human existence.

Many millions of folk are currently over-

stressing the factor of environment—making it all important.

And now we are or soon will be in a position to alter our environment almost at whim. Which is going to make it a negligible factor just when most people have become aware of its importance. What will happen to the theories of Karl Marx in a society which has only one class—a leisure class? Your guess is as good as ours.

But to achieve this Utopia we've got to get rid of most of our current systems and shibboleths and so-called "basic" theories and rules—always, of course, excepting the Golden Rule.

And we've got to do it fast if we are to prevent our own scientific Frankenstein monster from destroying us.

### A Paradoxical Situation

The situation is paradoxical. To take just one example—no one voluntarily mines coal. It's a dirty job that stems from economic necessity. We have at hand proven methods of mining coal and most other metals almost entirely by machinery. Yet men who loathe mining are continually battling against the introduction of such machines lest they be deprived of their sole means of income. And management, ethically unable to pay wages for jobs no longer in existence, is at a similar dead end.

It's going to take time and patience and thought—lots of all three of them if we are to master the machines we can now create, rather than have them master us. There is no pat answer, no easy way through the transition period.

But we've got to keep working away doggedly at the problem or we may never be able to solve it.

Space travel or something else may give us a relatively easy solution—but not as long as people cling to outworn ideas. And Utopia

may pass us by if such people prevail—such people and the machines!

## SCIENCE FICTION FAN CLUB LISTINGS

**L**AST December, in our companion magazine, we received an extremely disappointing registration for an announced science fiction fan club listing and then stated that if such registration was no better for this issue of **STARTLING STORIES** we would discontinue the idea.

Well, the gang, or gangs, turned out in something close to force this time and we are happy to list them again for the benefit of those interested in sf who would like to know where and how to communicate with the nearest group of their kind.

The listings—

**THE AMERICAN SCIENCE FICTION ASSOCIATION**, 931 North Jackson, Topeka, Kansas. Formerly the Topeka Science Fiction Club. Contact Linda Bowles. Tel—Topeka 4-2097.

**CAROLINA SCIENCE FICTION ASSOCIATION**, Sergei Burgess, c/o Graham Memorial, University of North Carolina, Chapel Hill, North Carolina. Varying membership and programs. Dues, 50¢ per quarter.

**CENTRAL NEW YORK SCIENCE FANTASY SOCIETY**, 584 East Monroe Street, Little Falls, New York. Contact Harold W. Cheney, Sec-Treas, at above address.

**THE CINCINNATI FANTASY GROUP**, Address Donald E. Ford, Treas & Rec Sec, 129 Maple Avenue, Sharonville, Ohio. This is currently the hottest group of them all, what with the Seventh Annual World Science Fiction Convention on its slate for the coming Labor Day weekend.

**THE FANTASY ARTISANS CLUB**, PO Box #696, Kings Park, Long Island, New York. Address Franklin M. Dietz Jr., Pres, at the above address. Dues \$1.00 per annum, include club magazine (Science, Fantasy & Science Fiction) subscription.

**THE FANTASY VETERANS' ASSOCIATION**. The title tells the story. WACS, WAVES, SPARS and lady Marines eligible. Address Temporary Commander James V. Taurasi, 101-02 Northern Boulevard, Corona, L.I., New York, or Temporary Secretary Raymond J. Van Houten, 409 Market Street, Paterson 3, N. J.

**GOLDEN GATE FUTURIAN SOCIETY**, PO Box #868, San Francisco, California. Address Secretary William D. Knapheide at above.

**INTERNATIONAL SCIENCE FANTASY CORRESPONDENCE TRADING CLUB**—interested in promoting widespread sf fellowship. Write

(Continued on page 140)

# To People who want to write but can't get started

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*"There is more room for newcomers in the writing field today than ever before. Some of the greatest of writing men and women have passed from the scene in recent years. Who will take their places? Who will be the new Robert W. Chambers, Edgar Wallace, Rudyard Kipling? Fame, riches and the happiness of achievement await the new men and women of power."*



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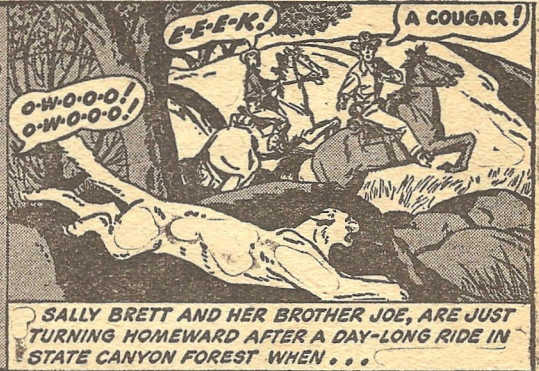
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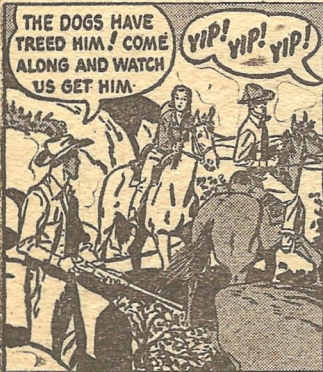
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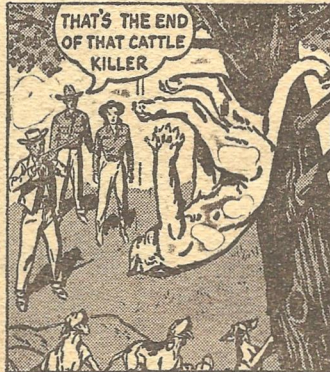


SALLY BRETT AND HER BROTHER JOE, ARE JUST TURNING HOMEWARD AFTER A DAY-LONG RIDE IN STATE CANYON FOREST WHEN ...

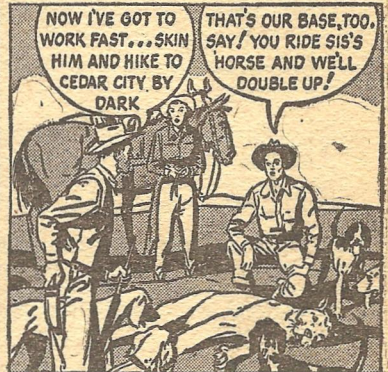


THE DOGS HAVE TREED HIM! COME ALONG AND WATCH US GET HIM.

YIP! YIP! YIP!

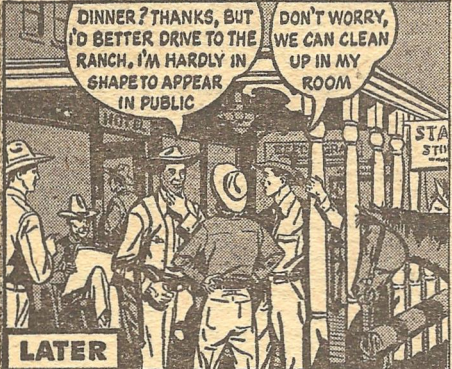


THAT'S THE END OF THAT CATTLE KILLER



NOW I'VE GOT TO WORK FAST...SKIN HIM AND HIKE TO CEDAR CITY BY DARK

THAT'S OUR BASE, TOO, SAY! YOU RIDE SIS'S HORSE AND WE'LL DOUBLE UP!



DINNER? THANKS, BUT I'D BETTER DRIVE TO THE RANCH. I'M HARDLY IN SHAPE TO APPEAR IN PUBLIC

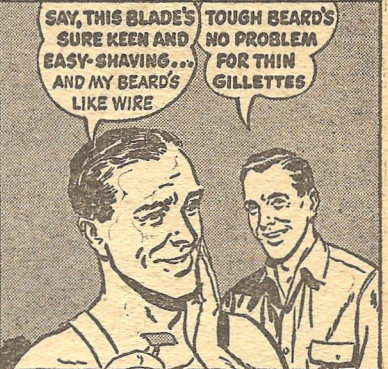
DON'T WORRY, WE CAN CLEAN UP IN MY ROOM

LATER



RAZOR? SURE THING!

SHE'S A BEAUTIFUL GIRL



SAY, THIS BLADE'S SURE KEEN AND EASY SHAVING... AND MY BEARD'S LIKE WIRE

TOUGH BEARD'S NO PROBLEM FOR THIN GILLETTES



I SURE WISH YOU'D ACCEPT, THERE'S PLENTY OF ROOM AT THE RANCH AND...

WE STILL HAVE A WEEK, SIS. HOW ABOUT IT?

I'D LOVE IT

HE'S SO HANDSOME!

YOU SKIM OFF TOUGH BEARD SLICK AS SILK...GET BETTER SHAVES AND MORE OF 'EM...WITH THIN GILLETTES. THESE KEEN, LONG-LASTING BLADES FIT YOUR RAZOR EXACTLY...NEVER IRRITATE YOUR FACE AS DO MISFIT BLADES. ALWAYS ASK FOR THIN GILLETTES IN THE CONVENIENT NEW 10-BLADE PACKAGE



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Outside the world of science, Jeff Benson was a man of no importance—until he stumbled on an error in the law of conservation of energy!

a novel by  
**GEORGE O. SMITH**



# FIRE

Lucille turned like a mannequin (CHAP. III)

## in the HEAVENS

### CHAPTER I

#### *Collusion*

**T**HERE was a rustle like that of a wind through autumn leaves as Lucille Roman swept into the lawyer's anteroom, where a baker's dozen of hopeful bidders for the physical properties of the Hotchkiss Laboratory were waiting. The fact that the rest

of the bidders were male and that Lucille was unquestionably one of the most decorative young women in her hemisphere accounted for some of the stir.

But to Jeff Benson, occupying one of the uncomfortable wooden chairs along a side wall, the rustle seemed to hold more than the normal masculine reaction to the presence of a magnificent specimen of femininity. There

## With the Sun on the Brink of a Nova,

was an undercurrent of anger, of savage resentment, in the whispers that cross-meshed the atmosphere.

"We might as well all go home," the man in the chair to his right muttered.

"What's that?" said Jeff. "Why?"

"That's Lucille Roman," said the man, eyeing her as if he had vivisection in mind.

"I've seen her picture," said Jeff. "Who hasn't? What do you suppose she's doing here. It seems hardly the sort of place a wealthy playgirl—"

"Playgirl, my foot!" The man interrupted savagely. "She's here to bid on the Hotchkiss Lab with the rest of us. And if she wants it she'll get it."

"What do you suppose Lucille Roman wants with it?" said Jeff thoughtfully. Perhaps the ablest builder of precision scientific instruments in America, he had come to the auction not so much because he hoped to be able to buy the laboratory as because he wished the run of its instruments and hoped to make a connection with the winning bidder.

"She's probably got some gigolo on the string who wants to tinker with test tubes," the man on his right said viciously.

"Hey!" said Jeff, surprised. "Isn't that a bit rough on Miss Roman?" His eyes turned to study the assured serenity of her perfect profile. If she was at all aware of the intense feeling her appearance had aroused—and she could scarcely not have noticed it—she was not allowing it to ruffle her poise.

"Do you know her?" the man asked Jeff.

"No," Jeff told him. "I've never seen her before in my life."

"Well," said the man, his voice still low, "she's the roughest, toughest girl in a business deal since David Harum retired. She gets what she wants and heaven help the poor sucker who gets in her way."

He turned away as the man on his other side plucked his elbow. There was a short whispered conversation. Then he turned back to Jeff.

"Would you care to toss in with us?" he asked. "We're going to pool our interests. We'll run up the price to the limit to make her pay for it."

"But—" began Jeff.

"Don't worry," interrupted the man. "If

she's here she'll buy it. But just in case, we'll have enough to cover if she doesn't bite."

"I thought the conditions of the auction specifically forbade combines," said Jeff, frowning. He was a good-looking young man in a quietly intelligent way. He found himself disliking the conspiracy forming around him. Surely a dozen men should not gang up in violation of specified conditions against one woman.

"Lucille Roman is a whole combine in herself," the man said persuasively. "It may be cheating, but if you knew la Roman better you'd be right with us. Take my word for it." He had a bluff air of sincerity which carried conviction.

The door to an inner office opened then and an elderly man with a high-blood-pressure complexion appeared, clad in striped trousers and cutaway and carrying a small stack of cards and envelopes, which he passed out to the bidders assembled in the room.

"As the representative of the trustees of the Hotchkiss Estate," he said in an expensively cultured voice, "I am free to announce that the first sealed bid is in favor of Lucille Roman at forty-five thousand dollars. This will be the second bid. Please write your name and your offering price for the Laboratory on the card. Then seal it in the envelope."

JEFF BENSON took his envelope and card and poised his ball-point pen thoughtfully. Then he scribbled, *No bid. J. Benson*, on the card, stuffed it quickly inside the envelope as instructed and handed it to the man in the cutaway coat.

The latter did not leave the room. He opened the envelopes and removed the cards, glancing at them quickly and shuffling them so that the highest figure offered was held on top. Finally he finished and looked at the man beside Jeff.

"Charles Horne," he said, "has offered one hundred thousand dollars for the laboratory and all of its physical assets."

There was a quick gasp from the others in the room, a gasp composed partly of surprise, partly of suspense.

Horne took a deep breath.

"It's going to work," he muttered to Jeff. "She'll go to one and a quarter. And it isn't

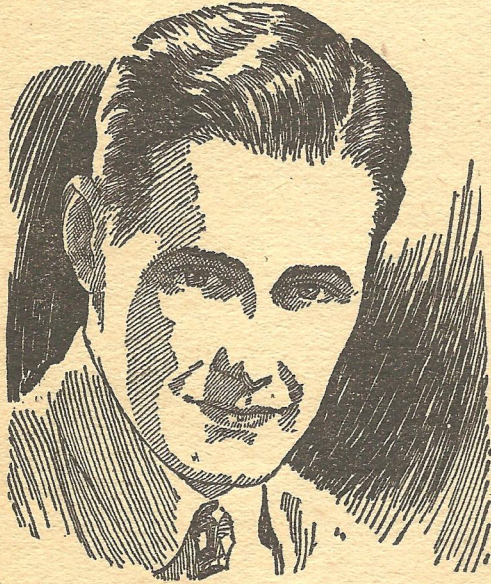
# the World Cries - Cherchez la Femme !

worth sixty thousand." He chuckled softly to himself.

"May I ask the status of the rest of the bids?" Lucille Roman inquired in a clear and ringing contralto.

"It's highly irregular, Miss Roman," said the man in the cutaway suit courteously. "However, I feel that I am betraying nothing when I state that your bid was second high."

"Thank you," she replied coolly, as though



JEFF BENSON

a hundred thousand dollars were a mere bagatelle. Jeff, who seldom had one per cent of that amount in liquid cash at one time, found himself admiring her quiet incisiveness.

The attorney in the cutaway coat said, "There will be a third and final bid immediately. Are there any questions?"

Jeff suddenly found himself on his feet, blurting, "Just what was meant by the specific disbarment of combines?"

"It meant," said the attorney, "that each man should bid by and for and solely by and for the interest he represents. A group could bid at the initial offering but was not to combine or pool interests once bidding began. Is that clear?"

"Perfectly," said Jeff. "I should like to state now that I am not acquainted with Miss Roman but I hate to see her—"

"Shut up, you idiot!" snapped Horne from the side of his mouth.

"—taken for a financial ride in this affair," said Jeff, looking down at Horne with a faint smile. To his surprise Horne merely shrugged and returned it.

"It will get you nothing," he said clearly.

Jeff glanced around the room and saw, somewhat to his surprise, that without exception the other masculine bidders were regarding him either with open hostility or contempt. Doggedly, however, he set himself to finish what he had begun. It was not in his nature to quit any course of action upon which he had embarked.

"Mr. Horne," he said, "and some of his—er—colleagues have just combined to run up to almost twice what the Hotchkiss Laboratory is worth. I was invited to join them."

"Is this true?" the attorney demanded of Horne. Horne nodded ruefully.

"It might have worked if our idealistic young friend"—he regarded Jeff with bright shoe-button eyes—"had not chosen to throw a spoke into the machinery." He shook his head a trifle sadly and added, to Jeff, "You'll get nothing out of it—you'll see."

The attorney looked as black as his cutaway coat. "This, if I may say so, is a shocking disclosure, Mr. Horne, if not technically an illegal one. I see no reason to prolong matters further. Since Mr. Horne and his associates have violated the agreement and terms of this auction, I hereby and in order to prevent further chicanery call the auction closed as it lies within my power to do.

"Only the first bids shall be valid, which means that the title and properties of the Hotchkiss Laboratory will shortly be transferred to Miss Lucille Roman."

"Thank you," said Lucille Roman calmly, ignoring her competitors. The attorney hesitated, then walked over to where Jeff Benson was sitting.

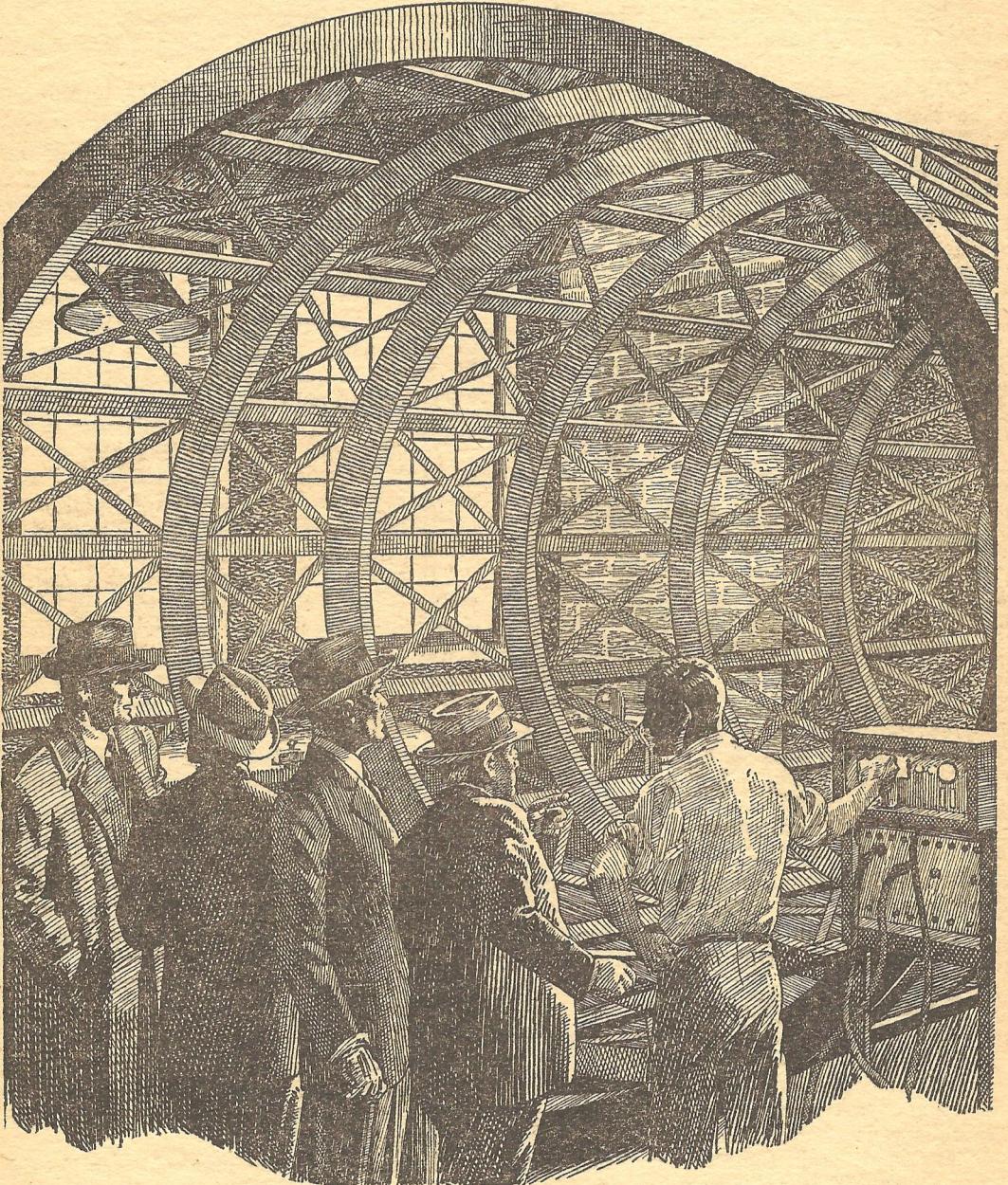
"I believe that the man who saw justice done deserves thanks," he said, extending his right hand. "Everyone likes a good loser. What was your name again?"

"Jeff Benson."

"Oh," said the attorney. He nodded to

himself, then said, "I am very glad to meet you. And, although we all like Miss Roman very much, I'm almost sorry your—er—bid was not high enough to win. You're the sort

Jeff with a grin. "As a matter of fact I never expected to win. So you see Miss Roman isn't taking anything from me. And, I'm sorry to say, I'm not a particularly good



of young man this firm likes to do business with."

"I withdrew my bid on the second round when I learned what was happening," said

loser. It's just that I believe in playing by the rules."

"But, Mister Benson, your action puzzles me. Why did you enter the bidding at all if

you didn't expect to win?"

"What I really want is a job. I need a bigger laboratory than the one I possess at present to continue certain experiments I've been working on for some time. I'd like a chance to continue these experiments in the greater facilities of the Hotchkiss Laboratory."

"That doesn't seem unreasonable," said the attorney. He turned to Miss Roman. "Is any such arrangement possible?"

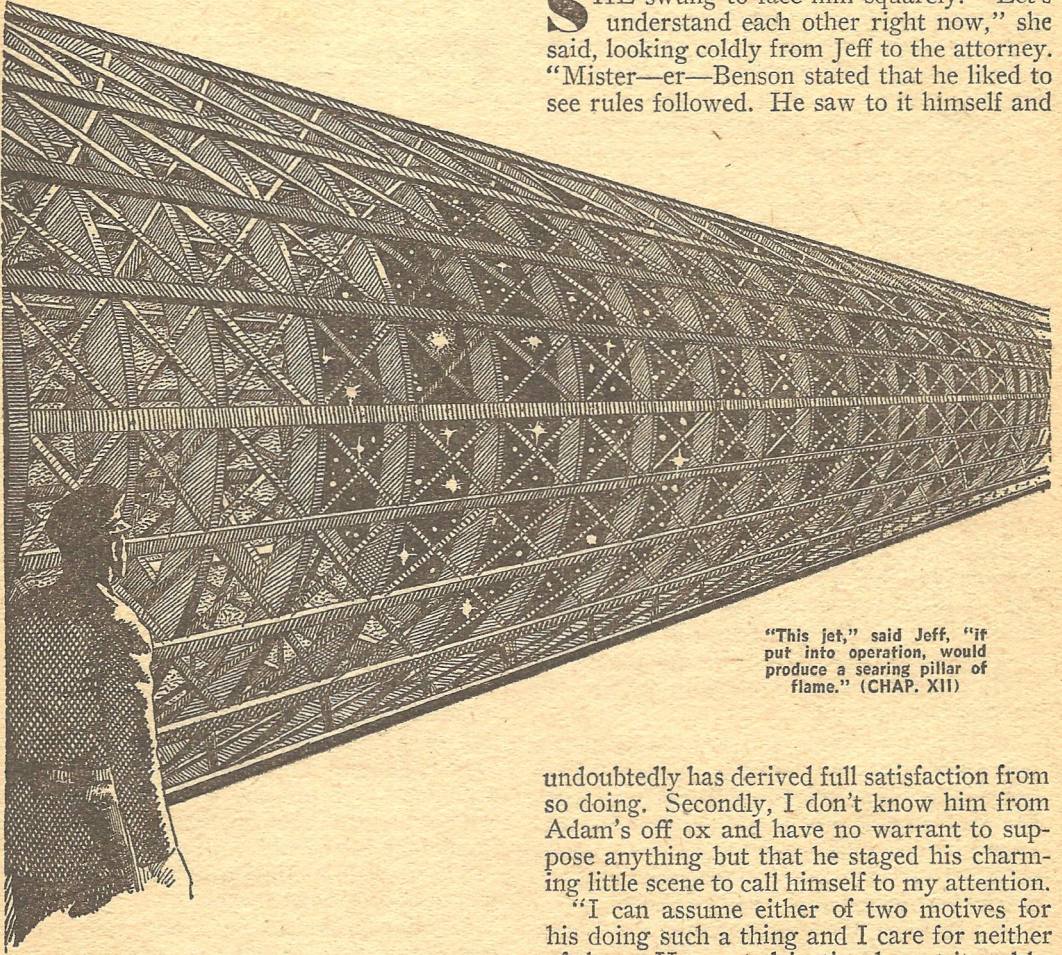
"Thank you, Mister—er, Bunzen, was it?"

"Benson—Jeff Benson." His answering glance was as cool as hers although he was inwardly seething.

"My apologies. I must leave. But thank you again for your interest in abstract justice. It is very rare." Her voice was an insult as she turned to go.

"But, Miss Roman," said the attorney, patently disturbed. "Surely, you'll—"

**S**HE swung to face him squarely. "Let's understand each other right now," she said, looking coldly from Jeff to the attorney. "Mister—er—Benson stated that he liked to see rules followed. He saw to it himself and



"This jet," said Jeff, "if put into operation, would produce a searing pillar of flame." (CHAP. XII)

"Hardly—at the present time," she said as she tugged at her long black gloves. "I take it that the deal is all but closed."

"Oh, quite," said the attorney, visibly nettled. "The rest is mere formality. But, Miss Roman, couldn't you—"

"Then I'll be going," she said serenely. She flicked a casual glance in Jeff's direction.

undoubtedly has derived full satisfaction from so doing. Secondly, I don't know him from Adam's off ox and have no warrant to suppose anything but that he staged his charming little scene to call himself to my attention.

"I can assume either of two motives for his doing such a thing and I care for neither of them. He wanted justice, he got it and he should be very happy. If he wishes a job with any of my enterprises he is free to apply through the regular channels to my personnel director. Good day, gentlemen."

With that she turned on one spiked heel and left the room abruptly.

Jeff blinked. The attorney looked shocked and helpless and flustered. He stuttered as

he tried to apologize. But Jeff managed to smile.

"It's too bad," he said, "but it's hardly your fault." And he followed Lucille Roman from the room.

\* \* \* \* \*

Jeff Benson let himself into his laboratory with a slight wince of envy. His own place in a large garage was a far cry from the gleaming tables and the polished instruments he knew were in the Hotchkiss Laboratories and he could have used them all. He looked at the thin walls and shrugged. How much energy escaped through them he could only estimate, and his estimate was far beyond his control.

At one end of the laboratory stood a large tank. It was coated with a furry substance and several pipes led from it. One was a lead-pipe, the rest were temperature control pipes to stabilize the contents at exactly—or so he planned—one hundred degrees absolute. He knew it varied and he cursed the crudity of it all.

It should have been in a double tank with a vacuum between and with circulating vanes and a thermo-control that would stabilize the thousand kiloliters of liquid methane at the one hundred degrees absolute and maintain it there within one tenth of a degree. But what can one do in a garage with a limited sum of money?

Ten flow-gauges dotted the pipe that led the methane out of the tank to another chamber. One flow-gauge of high precision would suffice but Jeff Benson read all ten gauges and averaged them. It was not good enough.

He had the same trouble with the oxygen supply.

With a grim smile Jeff Benson opened a valve and pressed a button. A muted roar came. The methane was oxidizing in a chamber that would—nominally—collect the energy released. This energy could be measured with certain limits of accuracy and the conversion factor could be calculated.

If you knew the precise amount of fuel—if you knew the precise initial temperature of fuel, oxygen and the caloric chamber—if you released the chemical energy locked in the fuel by combining it with the oxygen—and if you could measure precisely the amount of energy thus released—then you could match the easily calculated energy locked in the fuel against the energy you had measured and you would prove the Universal Law of the Conservation of Energy.

*Or if the figures did not match, you could disprove it!*

It was five years now since Jeff Benson first had reason to believe that there was a flaw in the law—a minute flaw but none the less a flaw. It was a flaw that had no tricks in it, a true flaw whether applied to atomic energy, chemical energy, electrical energy or sheer mechanical energy. It was a flaw in the law of the conservation of energy and that law includes the conversion of energy into matter and vice versa.

**F**OR five long arduous years Jeff Benson had been literally burning his money in various manners. His experiments were rough, far too rough. All too often his experimental error exceeded by many times the amount of the flaw.

Sometimes his measurements gave him more energy than his calculations—sometimes his measurements gave him less. A fraction of a percent of error here, plus or minus another fraction of a percent of error there, plus another and another, all added up to a large experimental error.

Yet Jeff persisted because, after five years of experimentation, he found that there was a slight trend toward the minus side. The majority of his answers added up to less energy rather than more.

Statistically it was crude proof that every time potential energy was released as kinetic energy a minute percentage was lost.

Lost—to what and where?

Jeff did not know. Let him measure the quantity accurately first. Let him prove that the same thing happened in electrical devices, in steam engines, in the atomic piles, in the fall of a stone of known weight from a known height. Let him prove this beyond argument and present it to the world of science as proof that another of the so-called immutable laws had been repealed.

Then would be time to ask the question of where and to what it went.

Let him prove his point and Jeff Benson would never again have to choose between a loaf of bread and a gallon of methane or build a thermo-control and wish he had at hand a precision instrument. Then he could have as complete a laboratory as Lucille Roman had purchased.

What did Lucille Roman want with such a lab anyway?

Employment office—melodrama—"right triumphant"—to blazes with Lucille Roman!

## CHAPTER II

*Reaching Toward Space*

MONTHS passed as the data piled up slowly, bit by bit. Each experiment added to the overall average but no real advance was made of Jeff Benson's main problem—the elimination of experimental error. It was a problem in absolute measurement:

To determine exactly what percentage of a large heap of sand lies in a thimbleful one must know precisely the quantity in both the large heap and the minute thimbleful. And both measurements must be of an accuracy far exceeding the expected result. Jeff Benson often felt that he was building watches with a pile driver or trying to engrave his initials on the head of a pin with a garden spade.

While Jeff was struggling over a problem in his crude laboratory Lucille Roman watched progress in the shining place she had acquired. The metal sign over the door now read *Roman* instead of *Hotchkiss Laboratory*. Where a driver could formerly go all the way to the main portal before being stopped Lucille Roman had a guard planted at the gate in the stainless steel fence that surrounded the grounds.

A would-be entrant had to satisfy first the guard, then a few other buffers before he finally got inside the main offices. The top of the fence needed no danger signs—four-inch insulators gave plenty of warning.

Inside there was progress—progress and bafflement.

Doctor Phelps looked away from the eyepiece as Lucille entered but she waved him back, saying, "Finish it, Doc. It may be important."

She sat down and lit a cigarette, casting a glance over the table beside Phelps. There were several pages of paper filled with a tabulation and a number of filled-in notations. A couple of volumes of the International Critical Tables were laid atop one another at the far side of the table and the M.I.T. Spectrograph Wavelength Table was spread open to a middle page. A log-log slide rule was cocked edgewise in the gutter of the book to keep the place.

Phelps turned the knurled knob of the wavelength spectrometer and made another

notation on the pages of notes, then turned to Lucille.

If Charles Horne had been making snide remarks about keeping a gigolo he was dead wrong. Doctor Phelps was a man of slightly over fifty. His head was completely devoid of hair save for his eyebrows and eyelashes and his forehead was furrowed horizontally, a result of deep thinking or squinting into instruments or frowning, though his face was amiable enough.

It was marked with a deep-set pair of caliper-lines that enclosed his mouth, an indication of much smiling during the course of a lifetime. His hands were bony and his fingers were long. They looked as though they should have a bit of tremor but they were rock-steady. Louis Phelps was obviously no gigolo. He had another business and he was quite capable at it.

"What were you doing?" asked Lucille as he left the spectrometer.

"Trying to figure out what it is," he told her, a frown lining his forehead.

"Got any ideas?" asked the girl indolently. She looked out of the window above the spectrograph, where a long thin lancet of brilliance was searing vertically. The window was of a heavy dark glass but the lancet burned through the glass with an eye-blinding whiteness. It was about a quarter of an inch in diameter and fully four feet high to where it tapered to a needle point and died.

Considering that the flame was fully a hundred feet from the little room that housed the pair of them and that it cut through a heavy dark window-glass, the flame must have been intolerable to the naked eye—if not to the naked flesh itself.

Doctor Phelps shrugged and shook his head. "Hydrogen, mostly, or I should say roaring protons. Nitrogen, carbon and oxygen—the latter not too plentiful but not too scarce. Helium—or at least helium after the high-energy alpha particle collects its set of electrons in the upper part of the jet. Of course we know that the jet hurls alpha, beta and gamma in one of the tightest cones known to man right down to its axis."

THERE was a one-inch circle marked on the underside of the roof a hundred feet above the floor. Ninety-eight percent of the radiation from that coruscant jet was encircled by the one-inch mark. And the radiation that fell outside of a ten-inch circle centered on the axis of the jet was negligible.

"Carbon, nitrogen and oxygen," repeated Lucille. "That might just be torn-up air."

"I thought of that but the quantitative spectrograph doesn't give anything like the correct proportions. Frankly, the velocity of that jet is such that one might think we've tapped the sun itself!"

"The sun?"

Doctor Phelps shook his head. "Nope," he said with a smile. "I don't know too much about solar physics, but Russell's investigations show that the sun consists mostly of hydrogen and with a large percentage of the conglomeration known as Russell's Mixture."

Doctor Phelps opened a book and riffled through it until he came to a tabulation. "Russell's Mixture," he said. "Hydrogen we have in plenty—or as I said, high-energy protons. Oxygen we have too but in nothing like the proportions found in the solar mixture. The rest are metals, a half dozen of them. We have none of them in anything but the barest trace. No, Miss Roman. I give up."

"Well, whatever it is we've got it," she said. "And we can use it."

"But I'd like to know what it is."

"Someday we'll find out. Life, Doctor Phelps, is composed of two kinds of people. One kind spends its time trying to find out what makes things tick. The other kind just enjoys the tick for the sake of ticking and to heck with the motives."

"Could be," he said, looking sidewise at her. "And which am I?"

"Up to not-so-long ago you were one of the kind that tries to find out why. I've been doing my best to move you into the other pigeonhole. You'll find life more interesting once you learn that it is more important to use your discoveries instead of handing them to someone else to use while you continue working on them."

"Now, Doctor Phelps, I'd prefer that you forget the problem of what it is and where it comes from and bend your efforts toward the fabrication of eight of these things large enough to handle a couple of hundred tons of spacecraft."

"Spacecraft?"

"Spacecraft."

"You intend to navigate—"

"I do not. I intend only to prove that such a thing is possible, practical and profitable."

"But the chances of finding anything of intrinsic value on any of the other planets

is very small."

"Correct."

"Then why—?"

Lucille Roman smiled. "I wasn't out of three-cornered pants when they were tinkering with rockets. They still have to do more than tinker. I intend to do it."

"But—"

"Why do you suppose they want space travel?"

"Since there cannot be much of value on the other planets or the chance is too low to risk all the money needed, I'd say that about the only value space travel will have is its value to pure science."

"Not entirely. Remember, Doctor Phelps, we are still all bound together on a little ball of mud, which is peopled with a lot of different ideologies that seem to be mutually incompatible."

"And you intend to make migration possible?"

"Pfu!" snorted the girl. "No one could make a living on the moon. Mars is out of line for too many reasons to catalogue in one sitting, and Venus has a fine atmosphere of poisonous ammonia. The rest are still more remote. Migration!" She snorted again.

"Then what—?"

"The nation that controls the moon and space travel controls the destiny of humanity, Doctor Phelps."

"Yes, I see."

"And once I prove that my system works, I can sell the principle to the government for a princely sum. That, Doctor Phelps, is what I had in mind when I bought this lab."

Phelps nodded. He knew she had something planned at the time but could not fathom why Lucille Roman should turn to science and provide him with a laboratory.

"So," she said, "you set to work designing eight of these jets of much larger size. Enough to lift and manipulate a couple of hundred tons of spacecraft."

"But the spacecraft—"

"You'll have to design that, too. Hire a group, get them to work."

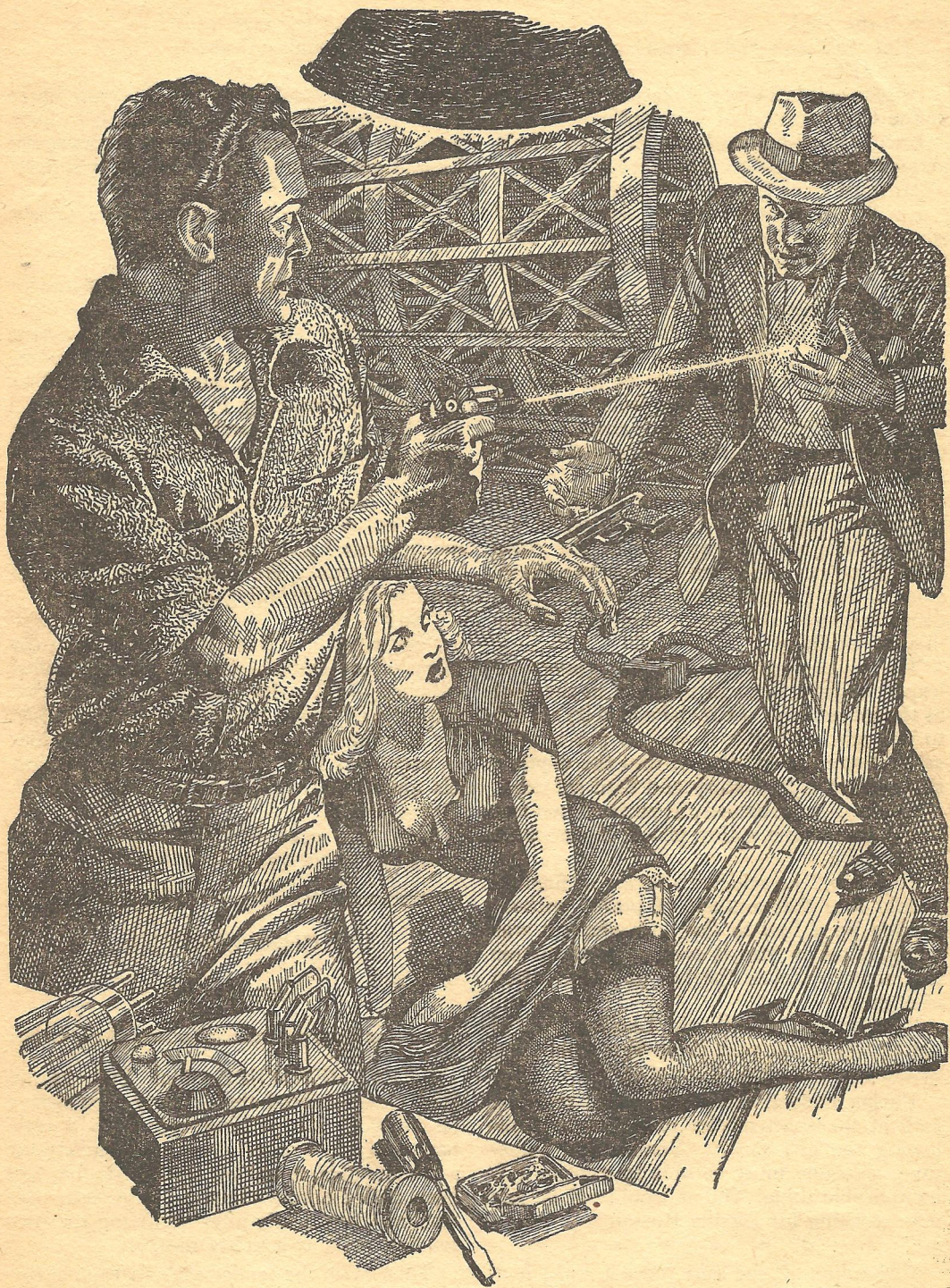
**P**HELPS took one more look through the spectrometer, then shook his head slowly. "I'm a bit dubious," he said.

"Why?"

"Mother always told me that you couldn't get something for nothing," he told her with a half-grin. "We seem to be getting it."

Lucille nodded vehemently. "Them as has





The miniature jet in Jeff Benson's hands drilled a hole in Horne's chest (CHAP. XV)

gets," she said.

"But this isn't right, somehow."

"Why?"

"Because it is a direct violation of the Law of the Conservation of Energy."

Lucille stood up and laughed. "And who'll arrest me for a violation of that law?"

"It must come from somewhere."

Lucille's features became set. "And if someone can't keep his power locked in—that's tough. We've tapped it and we'll use it."

Doctor Phelps turned a dial and the intolerable jet behind the dark glass leaped upward. Nine, ten, twenty feet it lanced, still no more than a quarter of an inch in diameter at its base. Fifty feet it speared and the muted roar of sheer energy penetrated the heavy concrete wall and the floor shook from the strain.

The one-inch circle on the underside of the roof glowed, then burst into white incandescence, running upward in the color until it too could be seen through the heavy glass. Then it melted out of the roof and droplets seared downward into the needle-like atomic flame.

The lance sputtered in great gouts and leaped upward through the hole in the roof as the substance of the metal added its energy to the all-consuming flame. It put a brief searing spire of brightness into the daytime sky above the laboratory and then subsided.

Doctor Phelps turned the power down and the lance became a tiny pencil of coruscant light again.

"No one," he said with an air of finality, "could lose that amount of power without kicking up a fuss to find out where it was going. And no man is ever going to tell me that we can violate the law of conservation of energy."

"To heck with it," said Lucille. "We've got things to do with it besides wondering where it came from. Forget it."

Phelps nodded sadly. He took one last look at the spectrometer and then left, following the girl slowly. Somewhere, sometime, someone must be able to explain this inexplicable thing. But it would not be any man working for Lucille Roman.

\* \* \* \* \*

"Aluminum," she said. "We'll make it of aluminum."

"That will cost us a fortune."

"Horne has an aluminum interest. Get it from him."

"You mean the man who tried to do you out of the Hotchkiss Lab?"

"The same."

Hannegan shook his head. He was business manager for Lucille Roman, but there were too many facets of the girl's personality and desires to please him—or for him to keep track of.

"You mean the bird that—and we should buy—?" he spluttered.

Lucille looked at him with scorn.

"Look, Miss Roman, I still do not understand."

"Horne has a lot of interests. He's also a sucker for a bare shoulder. Furthermore, after trying to do me out of the Hotchkiss Lab, he'll do anything to gloss it over. He'd also like to get a handful of sticky fingers onto the Roman enterprises one way or another."

"So? You have a plan." It was a statement, not a question. Hannegan knew that much about Lucille Roman.

"He's a punk. He's one of those men that must handle everything himself."

"So?"

"So while he's dizzy from basking in the glory of my smile"—Lucille Roman smiled enticingly—"Charley Horne will find that someone is slowly manipulating the market. By the time he finds out that my shoulder is very cold he'll discover that he has lost his aluminum interest as well as his head. Damn him!"

Her blue eyes blazing, Lucille Roman arose and swept out of the office.

## CHAPTER III

### *Specifications*

**J**EFF BENSON'S door had hardly closed behind the delivery men before he attacked the packing case with a claw hammer. He worked deftly and quickly for a few minutes, removing the boards that had been nailed across the top of the case. He stacked them neatly after removing the protruding nails as a safety measure.

Then, with the tender air of a woman lifting her first-born from its downy crib, Jeff Benson lifted the instrument from its nest in the wooden crate and set it on the bench, somewhat apart from the crude lumber of

the packing case.

It was a beauty. The cabinet was fine-grained walnut, carefully stained and varnished and rubbed to perfection. The panel was of aluminum, coated with a hard-baked black wrinkle enamel. The panel markings, switch positions, operating nomenclature and the name of the instrument and its manufacturer were engraved in the aluminum through the black paint. It was a very tidy job.

White-brass dials were engine-engraved and their calibrations filled with black or red for clarity and identification. The several meters were identical in case. Their different identifications and notations were lithographed and while their numbers and functions were all different the lettering and printing were all in the same style.

It was a far cry from Jeff Benson's own hand-manufactured instruments. And Jeff Benson was proud to add this bit of commercial equipment to his own laboratory.

He was about to step forward to turn a dial after gloating over the gadget from afar when the doorbell rang.

"Blast!" he said, turning towards the door instead of approaching the instrument.

He stepped back from the door with a slight puzzlement. "Yes?"

"You are Jeff Benson?"

"I am."

"May I introduce myself. I am Norman Hannegan."

"How do you do?" said Jeff politely, not knowing what other to say.

"You're the instrument maker who has done some work for the Bureau of Standards?"

"I've done a bit," admitted Jeff.

Hannegan smiled. "I know Tompkins—the fact is we went to Cambridge together. I've a job of work, young man—for you. Are you interested?"

Jeff nodded. "I am," he said.

"Tompkins recommended you," said Hannegan. "I called him and asked him for the name of the best instrument maker in the country. He said you weren't as high priced as several but that your stuff was better than the rest.

"We'd prefer a private enterprise in this deal, Mister Benson. It's a bit on the hush-hush side and a private business should be able to keep it that way longer than a large outfit."

"I think Mister Tompkins is overrating

me," said Jeff. "My stuff is a bit crude."

"But it works. That's the important thing. And may I be the judge of its efficiency? Let's see some of it."

"Sure," nodded Jeff. "This way."

Hannegan looked at first the new instrument. "You didn't make that?"

"The averaging thermocouple? No."

"The what?"

"It's an averaging thermocouple. I have the need of measuring the heat-rise in a large mass of metal and machinery. Several masses, in fact." Jeff grinned. "This thing—well, you install thermocouples in just about every place you can shove one and connect them to the various terminals on the back of this integrating machine.

"It takes the temperature of each thermocouple and averages them all out, giving the normal temperature rise as if the large masses of metal and machinery were all a single block of metal. Follow?"

"Vaguely. I'm a business manager, not a scientist. It's a nice looking device, though. Rather impressive."

Jeff nodded. "I can hardly wait to get at it."

"Need it bad, huh?"

"I could have used it last month. But I'll use it next week, you bet."

Hannegan scratched his head. "You're going to use it next week—but can't wait to get at it now. Want to try it out first?"

"Of course. First I'll have to check the calibration and standardize it. Then I'll have to check the integration and standardize that. Then I'll have to check the correlation so that I can be reasonably certain that it is giving me the right answers."

**H**ANNEGAN shook his head. "Seems to me that a gadget as pretty as that should be right on the button."

"Oh, they are for all practical purposes. But I'm hunting for something rather impractical."

"Even so, isn't that thing about as good as you could get?"

"It's as good as I could get," admitted Jeff. "But I've never yet seen a standard instrument that couldn't be touched up here and there to a greater accuracy."

Hannegan smiled and nodded. "You're the man we want," he said with a laugh. "When the best isn't accurate enough—well, Mister Benson, I represent an interest that intends to build a spacecraft. The designers

of this craft have already specified certain instruments. If you care to we'd like to negotiate with you for their construction."

"I'd like a crack at it. A private interest?"

"Yes but no questions at the present time. It is legal and profitable. On Tompkins' recommendation we are willing to take your word for the fact that you will disclose this to no one, regardless of whether you take the contract or not.

"Therefore I am going to leave a few separate specifications with you for your inspection. I'll call again the day after tomorrow, at which time you'll have been able to look them over and give me a rough idea as to whether you can handle it."

"You'll understand my interest—and also understand my reticence. I prefer to know who I'm working for."

Hannegan smiled. "You will, believe me—but only if you decide to work for us. As soon as you decide that you can handle these things a formal contract will be drawn. You can have your own lawyer present with our blessing. If you decide against it we'll go our own separate ways without telling you our identity."

"But—"

"One more thing. For your trouble in looking over these specifications, if you decide against it, we will offer you a consulting fee. The latter will help to ensure your silence as well as pay for your time, which is no doubt valuable.

"We want fairness, Mister Benson. But we don't want other people to know what we are doing—or that it is being done—until we are ready to announce it. If you decide to join us you'll be one of the family, so to speak, and we can then trust you fully. Understand?"

Jeff nodded. "I'll take it under those conditions."

"Good. You'll find everything in your favor. We pay well for value received."

Hannegan left after that and Jeff ignored his pet equipment in order to look over the specifications for the instruments needed for the spacecraft. This was a sheer matter of groceries, rent, cigarettes and fodder for his chosen work, the latter being no small consumer of what-it-takes.

Jeff did not heartily dislike the jobs that came his way from time to time. Mostly they were lucrative, for a master craftsman in an art not overpopulated drew high fees. It was also a tedious job, for metal and wire

and glass are insensate things that must be honed to a fine degree before they will combine to measure the weight of a fly's breath or the electric potential of two bits of metal suspended in a gas.

Jeff would have given it up had he been able to support his investigations independently. Instead, he worked more hours in a day than most people do in two and enjoyed it all.

He opened the first page of the first specification for a velocity meter based upon the Doppler effect and converted into electrical terms so that a simple D'Arsonval microammeter could be calibrated into feet per second with appropriate shunts to lower the sensitivity of the meter, miles per second. He got no further along than that first page because he had a second caller.

JEFF swore again, and went to the door. This time he stepped aside with wonderment. His caller was Charles Horne.

"Hello," said Horne, extending a hand. Benson looked at it meaningly.

"Take it," offered Horne. "It's offered in lieu of an olive branch. There isn't an olive tree within a couple of thousand miles of Chicago, you know."

"Just what do you want, Horne?" demanded Benson.

"I want to talk to you."

"You're talking."

"Don't be hasty, Benson. Any man can make a mistake. And any man worthy of the name of man can be sorry enough to apologize. So I was wrong, dead wrong and I'd like to mend me a fence or two."

"I see."

"You can't possibly see," said Horne. "Lucille Roman is one of the most graspingly efficient rulers of an economic empire that has come down the pike in a century, even counting her old man."

"So what?"

"Lucille Roman's mother died when she was born. She was brought up by her father. Pappy Roman, instead of hiring high-priced nurses, brought her up to fill his shoes—and she filled them when he died. Now, at thirty, Lucille Roman cares for nothing but being successful. Her father taught her nothing else and she views every man as a direct challenge.

"So, in the course of the last few years, Lucille Roman has come up from behind in deal after deal. She has come out of nowhere

time after time and has come out ahead. She cares nothing for the effects of her assaults upon those she beats out. Each one is just another scalp for her belt. Then she can go on to another triumph."

"What is all this to me?"

"I'm just trying to explain why a couple of us lost our heads and tried to get the best of her. Had you been there as one of us you'd feel as we did—that Lucille Roman had tied her last can to us and to blazes with her."

"Could be," admitted Jeff.

Horne laughed.

"And what did Lucille Roman repay your efforts with?"

"Not much."

Horne laughed bitterly. Then he looked at his watch. "Can I stand you to a bit of lunch, Benson? It's time and we can talk as we eat."

Benson shrugged briefly. Horne had something on his mind and would take his own sweet time to get to it. And Benson was not going to get anything of his own done until the deck had been cleared for action. He might as well eat with Horne and murder two birds with a single stone. Benson was the kind of chap who refused to let much of anything interfere with his eating, which meant that eating time must be spent away from his work anyway.

And another thing—Horne was the kind of man who would take a guest to one of the best places when he hoped to interest said guest in a deal. Benson was a man who was perfectly willing to enjoy briefly the kind of life to which he hoped someday to become accustomed.

"I'll get my coat," he said.

\* \* \* \* \*

Lucille Roman paused on her way out of the office to speak to Hannegan, who was just entering. "Are we coming on all right?" she asked him.

Hannegan nodded, pleased with himself. "I'm about to let the contract for the instruments and special measurement devices," he told her.

"That's rather a tough one," she nodded. "It is let?"

"No. But practically. I left some specifications with Jeff Benson—"

"Benson? Benson is the man who seems to have been instrumental in getting the Hotchkiss Lab for me, isn't he?"

"Yes."

LUCILLE fixed Hannegan with a cold blue eye. "This decision of yours is not based upon any idiotic feeling of gratitude?"

Hannegan shook his head. "I got Tompkins of the Bureau of Standards to give me the name of the best instrument man in the country. He gave me Jeff Benson."

"What kind of character is Benson?"

Hannegan laughed. "Nuts. In fact, a bit blind to his own ability. He sets great store by the very neatly-packaged instruments made in job lots by formal concerns and then admits that he must rework them before they are accurate enough.

"Furthermore, I've enquired of the commercial boys and they claim that his stuff is superior but that they couldn't duplicate it for mass production because of the cost. They have to cut a corner here and a penny there, you know, while a man making a single instrument can build it the way he wants to and can calibrate it and every part in it to the last lap of perfection.

"Also I'm told that a certain percentage of efficiency is lost in making any given instrument more adaptable to a multiplicity of duties, while a single instrument made by a good engineer for a certain single job does not have this loss in overall perfection.

"Anyway," said Hannegan, "I have a hunch that more than a few times our Jeff Benson has purchased commercial equipment from some company that has previously purchased the designs and prototypes from Jeff Benson and reduced them to mass production."

Lucille Roman nodded dubiously. "You're certain he is the best?"

"Absolutely certain."

"Good. It sorts of levels off. He did me a turn and now, because of his excellence, I can repay him. Emotion has no place in business and it is stupid to be drawn by gratitude into a contract that is not the best. But I'm still a bit dubious about Benson."

"Why?"

She looked at the ceiling. "I'm no mind reader," she mused. "And I do not believe in altruism. I wonder just what Jeff Benson's motives were."

"What do you mean? I believe that he was at the auction of the Hotchkiss Lab for only one thing—to get a contract for equipment from the new owner."

"And," said Lucille drily, "he used his little drama to impress the lovely woman of

his absolute perfection of character so that she would fall into his handsome arms? Or was it a well-planned melodrama to get an edge into the Roman Enterprises? In either case, Hannegan, I dislike wolves, whether gently ingratiating or howling long-fanged types. Benson must be watched carefully. And now I'm off for lunch."

"Same place if we need you?"

Lucille nodded. "Horne hasn't been there for some time. But it's his pet hangout and sooner or later he will return. Do you like the bait?" she concluded, turning like a mannequin.

A plaster saint would have whistled shrilly.

## CHAPTER IV

### *Luncheon for Three*

**I**N A semi-darkened semicircular room on the top of a mountain in California the glorious spectrum of the sun was spread out for ninety feet. Below the splash of color on the wall was a massive tabulation.

Each dark band and each bright band was labelled, keyed and cross-indexed so that every element to be found in the sun was represented. There were notations here too, showing certain elements that were missing from the solar spectrum for diverse reasons.

Visitors watched the vast band of color and looked at the tabulations and then left in sheer wonder that mere man could know so much about his surroundings. It was impressive as well as beautiful and not a few millions of dollars had been pried out of philanthropic funds because their directors had seen this spectacle.

They hoped that their efforts would result in some addition to the tremendous store of human knowledge, realizing that it took much money and brains to add to the wealth of scientific lore at this late date. In an earlier age so much was unknown that any man could make a discovery. But today so much was known that seeking some unknown factor must be extremely difficult.

While visitors marveled at the magnificence of Man's grasp of the unknown an elderly man squinted alternately at a sheet of paper filled with figures and a six-foot strip of color-film mounted before a viewing light on his desk.

Then he looked up at the younger man standing in the office and shook his head. "You're wrong, Harry."

"Wrong, Doc? But the lines do show that it is diminishing."

Professor Lasson smiled. "Harry, there is more than a single reason why any element might begin to display a diminishing quantity in the solar spectrum."

The young man blinked. "I don't see it," he said. "It strikes me that when the quantity starts diminishing, it is a sign that the quantity is diminishing."

Professor Lasson shook his head again. "To digress, Harry, which way do solar prominences go?"

"Up, naturally."

"Have you ever heard of the fall-in theory?"

"The what?"

"Harry, the sun is not a solid, you know. It is a ball of incandescent gas. The theory of the fall-in is that the elements in the upper levels of the sun are completely ionized by pressure and temperature to such a degree that the electrons cannot fall into orbits, which would cause the emission of the characteristic spectral lines.

"Now follow this—suppose that a layer near the sun became cooler by a few thousand degrees. This would permit the gasses to fall toward the sun since a cooling gas contracts and the gravity of the sun could better work on the contracting gas.

Then, in the levels above this phenomena, the pressure is also lowered because the lower levels have dropped into the sun. This permits them to cool also, to a degree where de-ionization may take place.

"Then the level above that cools and drops, recreating the pressure below but permitting the upper level again to cool and de-ionize. Get it? As the pressure gradient drops de-ionization takes place. Layer after layer the upper gasses drop in space, in pressure and in temperature—and as they fall the de-ionization seems to rise.

"This is what is meant by the fall-in theory of solar prominences. Actually nothing is hurled out of the sun but the rise of the band of ionization makes it seem as though something were exploding upward."

"I see. But what has this to do with—"

"Suppose that the temperature of the sun were to rise slightly. Wouldn't the element whose critical ionization level came at that spot be affected? A bit more nuclear energy

and the de-ionization would diminish, which in turn would cause a diminishing of the spectral lines of that element."

"Could be, Doc. But can we be certain?"

Professor Lasson smiled wearily. "No one can be certain," he said. "Most of our observations are based upon sheer deductive guesswork, I fear."

"But it's darned good guesswork."

"About all we can do is watch it, Harry. This is too little evidence to go on, you know. Let's start a sigma curve and be certain. After all, since the dawn of mankind the sun has been unchanging, constant, perfect. Its performance as an engine can be computed for billions of years before and after the present.

Because this is so, anything that would indicate a change in the constancy of the sun must be viewed with suspicion, watched with care to see that we are right before we proceed. Then—if we have located a strange inconstancy—it can be announced with the proper caution so that a panic can be averted."

"This could be the beginning of a nova, Doc."

**T**HE professor looked glum. "Statistically," he mused, "it is assumed that each and every star has an excellent probability of becoming a nova at least once in its career.

"In the case of Sol it may have happened before the dawn of history—may even have been the cause of the planets. Or again, it may happen a billion years after mankind has sung its triumphant song and become but a forgotten impalpable dust."

"But if it is?" the young physicist said with some concern.

"If it is, mankind will certainly die with

celestial fanfare instead of ignominiously by his own damned foolishness."

Harry Welten shrugged and donned a grim smile. "Too bad we have to find out what causes novae the hard way, isn't it?"

Professor Lasson laughed. "And a lot of good it would do us anyway, Harry. But let's not have the earth destroyed by celestial pyrotechnics until we have a bit more evidence under our belt. And for heaven's sake keep any such talk buttoned behind your front teeth. One wrong word and the tabloids will scream 'Doomsday' headlines."

"You bet. But what next?"

"We'll commence a few observations on our own. We can begin measuring the gravitational refraction of light as it passes the sun and we can watch Mercury for an increase in perturbations. If Sol is to become instable it will get instable all over."

Harry left, his head awhirl. And Professor Lasson returned to his page of figures. It was so little to go upon, yet what could one do about measuring the constants of a solar furnace that was ninety-three millions of miles distant and operating at temperatures that could not be sustained on earth?

Only by very clever guesswork!

Or, better, by comparing notes with a woman who knew not where her font of inexplicable energy was spawned and a man who thought he had good reason to suspect a flaw in a universal law—Separate people who, each for his own reason, would not divulge the secret to one another.

\* \* \* \* \*

A tall iced glass of rare scotch and soda, a very dry martini, a thick and succulent filet mignon (well hung) and the best in coffee were sitting happily on the digestive system

[Turn page]

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# STAR



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of Jeff Benson. The fifty-cent cigar and a thimbleful of benedictine and brandy to sip were finishing off a well-balanced meal to the acme of perfection.

Benson was beginning to understand that Charles Horne was not the ring-tailed devil of finance that he had seemed on their first meeting.

Just what Horne was after was still a mystery and Jeff was beginning to think that Horne really had no hidden purpose in his invitation.

Unless, of course, Horne's recent question as to the nature of Jeff's business might be such.

It sounded more as if the financier might be needing some instruments in the near future and was willing to throw some business Jeff's way.

So Jeff explained, "I have my own private project that takes up all my spare time. The rest of the time I make custom-built gadgets for laboratories and the like. Stuff that isn't commercially available mostly—and a bit of free-lance instrument designing for a few of the commercial companies that turn out scientific gear."

Horne nodded thoughtfully.

Behind them, unseen so far, Lucille Roman was biding her time. A frown furrowed her clear brow and she wished that she could know what they were discussing. As Jeff sipped the last dregs of benedictine and brandy Lucille arose from her sofa near the wall and came towards them in a lithe flowing walk. She passed apparently unaware of them, went to a nearby table and prepared to sit down. Then she permitted Horne to catch her eye.

He stood up and smiled.

**L**UCILLE left her table and came over to him, her smile deliberately fetching.

"Mister Horne," she said in greeting. "And Mister Benson?"

"Hello, Miss Roman," said Jeff.

"Please join us?" asked Horne.

"But you're finished."

"True. But we'll gladly forget it and eat again if you'll join us."

Lucille laughed.

"I just want a sandwich and a cocktail," she told them both.

"Then do sit down. Even our company is better than eating alone."

"Of course," she said brightly. "All's fair in war and finance." She cast a sidelong

glance at Jeff. "Still looking for a job?" she asked.

"I'm always on the lookout for a job," he told her with a smile.

"I'm afraid you have Jeff's meaning wrong, Miss Roman."

"Oh? Then you weren't looking for a job?"

Jeff smiled. "Not in that sense," he said. "You see, I'd done some work for the Hotchkiss outfit before it went under and I was hoping I could make a similar connection with the new owner."

"Jeff is a maker of technical instruments," put in Horne.

Lucille Roman laughed. "I owe you an apology then, Mister Benson. It is always my impression that any man who is any good is already employed and kept that way. Now I understand that, instead of being out of work, you were seeking to add a new account to a rather ambitious business."

Jeff nodded and smiled.

The waiter came and Lucille ordered. She accepted a cigarette from Jeff and a light from Horne. Then she leaned back in her chair and looked at Horne through lowered lashes.

"That was almost a neat job, Mister Horne."

"I trust you've forgiven me."

"Of course. For one thing you did not get away with it, thanks to Mister Benson here. For the second I always appreciate a good try. Bucking competition lets me know one more factor I may be up against in the future, and prepares me to cope with it at some later date."

"Then we can meet one another without unsheathing our swords, Miss Roman. I'm glad of that."

Lucille nodded. "There's the off-chance we may be able to do business together someday. Besides, I never carry my business dislikes to the social level. To prove that we'll be friends and use first names. So, until we meet across the business-table, it will be Lucille, Jeff and Charles."

"Good!" cried Horne cheerfully. He flagged a waiter and ordered a full round of cocktails. "We'll drink to friendship," he said.

Her eyes flirted briefly over the rim of her glass as she raised it to them.

Jeff became inwardly uneasy after that. He was attracted to Lucille, yet he could not quite understand her attitude of that day at



the auction. For his efforts in her behalf she had given him a chilly thanks—this in return for having saved her a goodly sum of hard money.

She had apparently looked down upon him at that time and he did not quite accept her bald statements about his job-seeking and its ramifications.

**A**ND now she was accepting him as an equal—at least for the duration of this luncheon. Bothered by her inexplicable attitude Jeff would not permit his interest to deepen, even though Lucille's dress and manner proclaimed her to be feminine, socially interested and possibly affectionate.

But Jeff knew that here was competition he could never hope to beat. He was, he admitted with a grim smile, possibly one of the best-fed starving geniuses in the world but he was by no means financially capable of handling this kind of life.

Fifteen dollars worth of dinner for luncheon was a bit on the steep side and Jeff inferred that not too many minutes would pass ere Charles Horne would nod his head to the long-stemmed beauty with the shoulder-tray and buy Lucille five dollars worth of orchid or gardenias.

Through quiet eyes he watched them. Horne was regaling Lucille with a story and the girl was responding with dancing eyes and a cheery smile.

She obviously thought very well of a man who could meet her on her own level and give her a run for her money in her own chosen line.

Jeff would have liked to join this byplay but he knew that a lengthy discussion of the problems of measuring physical factors would be meaningless to them. He could build a better meter, which they would be able to buy with their pocket money. He could never compete with either of them for a financial empire.

Lucille finished her sandwich and coffee before Jeff broke in. "I've got to run along," he said.

"Don't go," said Horne.

"No, don't."

He smiled.

"I've got some specifications to look at," he said. "One more of these and I'll not be able to see 'em straight."

Horne nodded.

"Business is business," he said. "If you must you must."

Lucille looked unhappy. But she nodded. "If you must," she said.

"I must," said Jeff. "Even though I hate to break up this party."

"It's not broken," said Horne. "If Lucille is through we can drop you off at your laboratory."

Lucille Roman looked up with a smile. "We can," she said, "as soon as I powder my nose."

Lucille Roman went to the ladies' room and found a telephone. "Hannegan," she said as soon as the connection was made. Her voice was hard. "Hannegan, Benson is out!"

"As you say. But why?"

"I've just had lunch with Mister Jeff Benson."

"Lunch? At the Saddle Club? He can't afford—"

"I just had lunch with Jeff Benson and Charles Horne. They had their heads together like the pair of conniving thieves they are and from now on Jeff Benson shall have not one microscopic idea of what I'm doing. I gather that their little game at the auction was just a game, Hannegan. Get another instrument maker."

"That's hard to believe," said Hannegan. "He certainly had his tracks covered well."

"Too well," she snapped. "They're a better pair of connivers than I'd have believed."

Hannegan snorted. "Maybe we'd better jolt the agency a bit, huh?"

"Jolt them hard. If they couldn't uncover that tie-in they're not what I want."

"Okay then. They'll be jolted hard. And I'll turn to Forester for the gadgets. Forester and Company are a trifle more expensive and somewhat less efficient, I'm told."

"But they may be safer. I've got to go. I'm about to match my honor against an aluminum plant."

"That may be risky."

Lucille laughed. "If Horne can get what he wants before I get what I want I lose," she said. Then her voice became soft again. "He won't win," she said.

Lucille hung up and faced the mirror. Very deliberately she took lipstick and shaded her lower lip delicately until it had a full and sensuous appearance.

A few minutes later she was sitting in Horne's car between Horne and Jeff Benson. Her shoulder pressed gently against Horne's arm as he drove towards Jeff Benson's laboratory.

## CHAPTER V

*Vanishing Energy*

JEFF had had one too many cocktails for absolutely clear thinking and so he ignored the pages of specifications when he returned. In an hour he knew he would be up to it and, to clear his head, he went to work on the averaging thermocouple. He had the front panel off and was probing inside when the doorbell rang once more. He went to the door with a pair of pliers in one hand and blinked at Hannegan.

"I thought you said tomorrow," he objected.

"I did," said Hannegan quietly. "But we've had to make new plans."

"Come in. What's cooking?"

"I hate to disappoint you, Mister Benson, but we've decided to let the contract to another company."

"May I ask why?"

"Of course. Haste has become necessary. We shall be forced to take an inferior product in favor of haste. We'd prefer not, of course but that's the way it stands."

"I might be able to forget my own personal project for a bit," suggested Jeff.

"I believed that to be rather important?"

"No, not really. I've been at work on it for years. Another few months would not—"

"Months would not be good enough, Mister Benson. Weeks, now?"

"I doubt it, though I've not had much chance to find out what is needed."

Hannegan shook his head. "We're sorry."

"So am I. But I'll not starve and even though I could bypass my pet for a few months I'd prefer not to."

"Just what kind of project is it that has been going on for years?"

Jeff smiled. "I'm certain that it is entirely impractical. I doubt that much could be done with it other than to advance the store of man's knowledge a half-step."

"That's a commendable attitude."

"Frankly," said Jeff, "I've reason to suspect a flaw in the law of conservation of energy."

"That's over my head. I was taught that matter and energy could neither be created nor destroyed. I was a schoolboy when they fissioned the atom and I've been uncertain

of the law ever since."

Jeff Benson laughed. "If you remember that matter is one form of energy the law comes out the same," he told Hannegan. "Or did. I have reason to think that every time energy—or matter—is converted from one state to the other there is an infinitesimal loss—a percentage of proportions so small that it hardly makes any difference."

"You mean that for every kilowatt of energy coming out of a hydroelectric plant you lose some?"

Jeff nodded. "Crudely, that's it. An infinitesimal percentage of the available energy in a ton of coal is lost when it is burned. Some of the energy put into the water doesn't get there. Then when the thermal energy of the steam turns the turbine its potential capability is diminished by a similar minute bit.

"The true calculated efficiency of the generator is untrue by a small portion finally, when the electricity is used to create light, for instance, an ultra-microscopic bit of the potential capability of the lamp to produce light is lost."

"But where does it go?"

"I haven't the foggiest notion."

"Small, isn't it?"

"So small as to be inconsiderable. That's what makes it tough."

"I follow that. What you need is something that puts out a terrific gob of energy."

"From what I know there isn't anything on earth that puts out enough energy to make the lost portion worth thinking about. I imagine that from the amount of energy expended in the atom bomb you might get enough of a loss to run a wristwatch for a few seconds."

"Phew! Too small to think of."

"Exactly. I often wish we could get close to the sun."

"That's a lot of power, isn't it?"

"Four million mass-tons of energy per second. We'd get enough to run the earth's needs easily."

"Why don't you try?"

BENSON shook his head sadly. "I don't know where it goes in the first place," he said. "Then I don't know why or how it disappears. And not knowing—to be very honest—whether or not my theory is true, I'm completely at a loss as to how to start. About the only thing I can do is to continue to work on and on until I know

what's what. Then I may be able to do something practical about it."

"It must go somewhere, though."

"True. But where? Or is it just lost—a bit of cosmic friction?"

Hannegan shook his head. "I know all too little of these things. It seems as though it should go somewhere. At least the fraction from the sun's loss should be detectable."

"Maybe not with our present techniques," said Jeff.

"Why?"

"Maybe we don't know what to look for. I'll explain it this way—in the early days of radio we used crystal detectors. Actually these were rectifiers, rectifying the radio frequencies. Suppose there were a veritable torrent of radio power permeating the universe—a constant, unvarying radio field.

"A man putting a bit of phosphor-bronze wire against a bit of galena crystal would note at once an electric potential. This would then be recognized not as the detection of an unknown wave but would be considered a physical property of matter.

"We'd have minute batteries made of galena and wire and possibly we might never know radio, since any small radio energy we could produce would be peanuts compared to the solar furnace or whatever source was making the high radiomagnetic field."

"What's needed then?"

Jeff Benson shook his head. "I'd really hate to see it," he said.

"But why?"

"The chances of a steady-state proposition being detected as being what it is are remote. We'd know a lot about gravity if we could—modulate it. The only way we could seek this unknown wealth of power would be to get some indication that hasn't been available as yet. We must be able to generate something that we can measure, you see. Or at least correlate any variations against our observations."

"I don't see what you're getting at."

Jeff Benson reached in his desk and took out a small H-shaped bit of glass tubing with mercury and wires and liquid in it. "This is a Standard Weston Cell," he told Hannegan. "Its voltage is a constant and it remains constant.

"Now if we were to assume momentarily that the contact potential in any battery was due to the solar loss that fills space and not due to the nature of the beast as we know it, it would be constant just so long as the

sun were constant.

"We'd probably never know the truth until the sun became unstable—at which point we could see that the variations in solar power and brightness correlated exactly with the variations in voltage coming from the standard cell."

"That's reasonable."

"Very," smiled Jeff drily. "But I'd not ask Sol to become a nova for the purpose of proving a theory. I'd rather be an ignorant human being than an intelligent puff of incandescent gas."

"That sounds rough," grunted Hannegan.

"It's what is needed," said Jeff. "And I'd prefer not to be around. Or," he added with a grin, "since I couldn't go anywhere to get out of it, let's reverse that prayer. Frankly, I'd rather the nova weren't around. Well—"

"Ah yes, Mister Benson. I've taken up a lot of your time. I must get back to the office, too. Good-bye, young man. And rest assured that if we have need of you you'll hear from us in jig-time."

Hannegan left Benson to his laboratory and raced back to his own office at break-neck speed. He swore impatiently when he realized that Lucille Roman was not there and, since she had finally made contact with Charles Horne, was more than apt to be missing for hours.

Hannegan fumed quietly and strode up and down his office, trying to remember the details of Jeff Benson's theories and cursing his own lack of scientific ken because, as the hours wore on, the details became more and more confused and obscure.

He smoked cigars one after the other, tried to dictate some of the details to his secretary and gave up because what he said made very little congruency. At seven o'clock in the evening Hannegan gave up hope that Lucille Roman would return to the office. He drove to her apartment and waited, in his car, which he parked in the no-parking area before the main door.

**A**T ELEVEN o'clock Lucille Roman came, driven by Horne.

Lucille was quick on the trigger. As she came from Horne's car she saw Hannegan's coupé in the no-parking area and realized that her business manager had something of importance to tell her. She bit her lip.

She would have preferred to strike while the iron was hot, or to use fisherman's lan-

guage more to the point, would have preferred to set the hook deep on the first strike. But when she saw Hannegan's car she leaned back against Horne and brushed his cheek with the side of her head. She looked up at him, flirting boldly.

"No," she chuckled, "you can't come upstairs, Charles. Not tonight."

"Tomorrow?"

"Luncheon," she said. "But not an all-afternoon luncheon."

"I'll make you a bet."

"I won't take it. But it's been fun, Charles. Thanks, really."

"You don't have to go up right away."

She patted his cheek. "I do," she said.

"Why?"

"Because it's after eleven o'clock. And I'm under a terrible spell. After midnight I turn into a pumpkin."

"Oh gourd!" he groaned.

Lucille pinched her nose delicately between finger and thumb. "After a pun like that," she said, "I'm afraid to be seen with you. Good night, Charles." She leaned forward quickly and brushed her lips against his. He reached for her but she swirled out and away like a ballet dancer, laughed brightly and waved back at him as she headed towards the door.

Hannegan waited until Horne's car was around the corner and then hot-footed into the large apartment building. The doors were all open and Lucille was waiting in the living room for him.

"What?" she asked without preamble.

"That young man is too smart," he snapped.

"He took the bait like a hungry trout."

"Not Horne. Benson."

"Benson? What makes you think so?"

"He tried to pump me."

"Naturally."

"You don't understand, Miss Roman. I expected a certain amount of pumping. I expect it every time we develop a new contract here or there. But this was not personal pumping. He seemed not to care about my business affiliations."

"Then what? What are you driving at?"

"It's far too complex for me to explain in a breath. But—and blast it all, my knowledge of science is topped by any schoolboy—was there, in those specs, anything that might hint at the thing in Phelps's laboratory?"

"Not that I know of. Why?"

Hannegan smiled in self-satisfaction. "I

don't know a lot about science, Miss Roman. But I know how to handle people. When Benson started to talk about his business he skirted a few things that might have been right out of Phelps's lab.

"So I clammed up and tried to find out just how much he knew. The trouble is that I must have done a good job of it, so good a job that I can't recall the scientific details of it all."

"Give me the high points."

"His main talk was about some cockeyed flaw in the law of the conservation of energy. Something about a way to tap the sun if he could figure out a way to do it."

"Phelps is certain that we're not tapping the sun."

"Well, Benson thinks it can be done. Now where did he get that idea?"

"I'll have to ask Phelps. Wait." Lucille went to the telephone and called the physicist. Then, while Phelps was on the way, she showered and dressed in a housecoat, mixed a drink for herself and Hannegan and smoked a cigarette. Hannegan tried three times to recap the conversation, but each time Lucille held up her hand.

"I'm no abstract physicist either," she said. "Marshall your wild-running mind, Hannegan, and save it all for Phelps. Maybe he can unravel the hidden facts."

**P**HELPS came about twelve-thirty.

"What do you know about Jeff Benson?" Lucille asked him.

"A rather bright young man. Thirty-four or so, single, good natured and, so far as I have ever been able to tell, honest as they come."

"Was there anything in these preliminary specifications that might key together and give Benson a hint of what we've got in your laboratory?"

"I doubt it. There were a couple of incidental gadgets, some isolated testing circuits and so on. But nothing that might be correlated into the final detail."

"Might there be enough to set a man to thinking?"

"Obviously."

"What do you mean?" demanded Lucille.

Phelps smiled. "Benson is a bright young man. A top-notch physicist and engineer. A meticulous workman with a wealth of patience that I have often envied."

"We don't particularly like Benson,"

snapped Lucille Roman. "Supposing you restrict your eulogy to telling us how a few details might lead a man to think?"

"Well," smiled Phelps, "disliking Benson isn't going to make him any less of a good workman."

"Granted. Now go on from there."

"When you hand a good technical man something mysterious in the way of physical gadgetry his first impulse is to inspect it impersonally and critically to see what it will do. Once that is done his next thought is to try to figure out why such a thing must be done."

"And from that he might—?"

"He *might* have a rough idea that we have something new and different."

Lucille turned to Hannegan. "Tell him what you've learned from Benson."

Hannegan, who had been trying to unravel his mixed-up thoughts, shook his head. They were even more muddled than before and would probably become more and more unreasonable the rest of his life.

He made a couple of false starts and then gave a rambling jumble of solar energy, the conservation of energy, four million tons of mass energy per second, a device to average several temperature readings, standard cells, sun spots and crystal detectors for early radio sets. It made little sense to Lucille but Phelps nodded.

"Obviously fishing for fact," he said. "Benson knows something."

Lucille groaned. "Ye Gods!" she said. "I can see myself with two males on my hands."

"Huh?" grunted Hannegan.

"Horne and Benson are in cahoots," she told Phelps. "I'm keeping Horne busy now. I'll have to see to it that Jeff Benson has a fine opportunity to tell me all he knows. While we're at it are you ready to start work on Horne's aluminum interest?"

"I've started. I've laid all the groundwork quietly while you were baiting the trap, Miss Roman. Now we can go ahead if you're certain that Horne is about to forget business for awhile."

"You may go ahead," she said with positiveness. "And you, Doctor Phelps, might give some thought to some fancy tale that will salve Mister Benson's curiosity. Have you any ideas?"

"I'm afraid that anything I said would only lead him closer to the truth. If you recall my jet was the outcome of an attempt to devise a detector for neutrinos."

Lucille Roman shook her head. "Forget it," she said. "We'll close this subject right now."

Hannegan nodded, then said to Phelps, "Can I drive you home?"

"No thanks. I have my own car here."

They left Lucille Roman's apartment together.

## CHAPTER VI

### *Suspicion*

JEFF BENSON set his pencil down with a groan. For the fiftieth time he had just gone through the calculations of Fermi and Pauli, which were supposed to show just cause for the difference between the observed energy from radiophosphorus and its calculated energy. For the fiftieth time Jeff Benson groaned because he could not make the figures fit properly.

Years ago Pauli and Fermi had observed this discrepancy. It was a well-known phenomenon.

Phosphorus thirty-two is beta-ray radioactive, emitting positive electrons and breaking down into stable sulfur thirty-two. The difference in mass between radiophosphorus thirty-two and stable sulfur thirty-two is known and the positive electrons should be emitted with energy equivalent to the mass-energy equivalent of this mass-difference. This is a simple thing to calculate and, because no other radio products are present, it was easy to measure the energy of the emitted positive electrons.

They all should have been of a single energy—that of the mass-difference.

But they were not. The energies were spread all the way from the lowest energy that could be measured to the calculated value. The question then was, where did the missing energy go. For here were positive electrons with half of the calculated energy, with one-third the right energy, with other fractions. How about the rest of the energy?

Fermi and Pauli gave the matter thought and decided to postulate a new nuclear particle called the 'Neutrino' which was to have the mass of an electron. Like the Neutron, it possessed no electric charge. Since the neutrino had no electric charge and inconsiderable mass it could not be detected.

Convenient but not too satisfying, at least to Jeff Benson. Agreeing that it was impossible to detect the neutrino Jeff had never begun that experiment. Instead Jeff Benson had gone into physical phenomena to see whether or not there was a discrepancy between calculated energy conversions and the observed energies.

A similar discrepancy would have given many men thought. But all Jeff had to go upon was a rather broad scatter-pattern on a graph that seemed to lean in one direction. It was far less difficult to measure the mass of atoms and the energies of emitted particles than it was to burn a ton of oil and measure the heat accurately.

And so Jeff was stuck at this point and had been collecting mere statistical hints for years.

"Energy can neither be created nor destroyed," he grunted.

Well, according to what Jeff Benson believed and what Fermi and Pauli offered, if matter and energy could neither be created nor destroyed, where did they go, those bits of energy that were lost?

And, he considered bitterly, if we accept Fermi and Pauli and these quantities of energy that escape from a nuclear reaction undetected are sent forth in the neutrino, what difference does it make?

Does a thing exist if it is undetectable, if it exerts absolutely no effect upon its surroundings, if it does nothing but exist because someone thinks it is needed? Is relegating lost energy to a never-never land where it is undetectable and un-recoverable better than losing it entirely?

Forgetting the neutrino, where did the energy go? Or, permitting the neutrino to take off the energy, where did the neutrino go?

"Where," said Jeff aloud to the empty laboratory, "does the vast store of neutrinos energized by Sol go? Or, forgetting the neutrino, where does this energy go—without benefit of neutrino?"

He leaned back in his chair. "I can postulate a sub-space," he said to no one in particular. "A particularly handy subspace where the lost energy is stored and where the suns of the galaxy pour their fatal fraction of loss until the subspace is strained to the bursting point. Then we have a nova.

"Or," he went on sourly, "I'm thinking aloud again. Maybe Fermi and Pauli are right and we do have neutrinos. Let 'em

exist. But if we have neutrinos I still say that the neutrinos do not account for all the energy not detectable!"

**T**HEN the doorbell rang. He went to the door cheerfully, and was completely floored to see Lucille Roman standing there.

"Why—hello," he stammered.

"Hello," she replied brightly.

"And what brings you here?" he asked.

Lucille came in before answering. "I'm just curious, I suppose."

"Good enough reason," replied Jeff. "Curious about what?"

"I suppose it is brash and bold of me but I was curious about you."

"Me?"

"Don't look so surprised, Jeff. I might even sound insulting when I wonder how the other half lives."

"But I—"

Lucille smiled. "Not that, Jeff. It's just that I am surrounded by people who all think alike and act alike. Stocks and bonds and corporations and finance. People who pull strings and make puppets dance—who sit in ornate offices and dictate corporation policy and read reams of reports and listen to the stock ticker. I'm completely at sea regarding people like yourself."

"Shake," grinned Jeff, offering a hand. "I'm as lost in the fog regarding people who think in stock-market quotations."

Lucille took his hand and found it lithe yet gentle—soft enough but rough in two or three very small patches where callouses protected the technician's flesh against screw-driver and pliers.

"Make you a deal," she laughed, looking up into his eyes. "I'll swap you a hot tip on the market for a hot tip on the latest thing in science."

Jeff laughed, joining her. "I must say that of all the people who might have hit that doorbell I least expected you."

"I'd have been here sooner," she told him. "But I've been busy."

"Oh?"

"Is that strange?"

"Perhaps not, but—"

Lucille smiled at him. "I do owe you a favor," she said.

"Forget it."

"Not entirely. I don't intend to do anything rash about it, so you needn't be worried. Now," she added sobering, "let me explain myself. I—"

"Forget the whole thing," he told her. "And start from there."

"Now we're near to quarreling," she said. "I don't want that."

"Nor do I but unless we forget the whole thing we'll go on apologizing for nothing time and time again. So we'll go on from there. I'll mix a drink on it."

"Here?"

"Now it's your time not to be surprised. What do you thing I live on, electrons and methyl-methacrylate?"

"Electrons and what?"

"Lucite, to you." He grinned. He led her into the portion of the large garage that had once been used for office space. It was a sort of mezzanine, overlooking the garage floor on one side and looking into a former automobile showroom in front.

Now, in place of automobiles were a few well-kept tables with instruments on them. Just a few, complete with labels and other assorted gear to demonstrate how they worked and what they did. In the back was Jeff's own workshop and private project.

The former office space had been completely reworked. It now provided a comfortable three-room apartment and bath. "This is where the body parks between electrons," he told her.

It was quite neat but lacked the frippery that a woman would have brought in.

From the refrigerator Jeff took ice cubes and soda. "Parties always end up in the kitchen," he said. "So that's where I always begin. It saves the period of migration."

He mixed the drink deftly and served it to her on the polished enamel of the table top.

**L**UCILLE was looking around with interest. It may have been living quarters but on the rear wall was a late model of the periodic chart of the atoms which included the transplutonium series up to one-hundred-three. A book on high-frequency transmission lines was stacked beside a well-used copy of the cook book atop the refrigerator and a pad of paper and a pencil were in a niche near the table. The calendar on the wall caught her eye and one eyebrow rose pointedly.

"I'm an idealist," he said with a chuckle.

"And what phase of science does that represent?"

"A series of fourth-order equations in solid geometry depicted on a two-dimen-

sional medium in color," he said dryly.

"And that's that—disposed of in a single definition. I'm interested, truly," she said. "I'd hardly know what to do with myself if business did not keep me busy, I can hardly understand what anybody else does."

"I manage to keep busy," he said. "I'll show you the works. Come on—bring your glass along."

"I didn't realize what you did until we met Charles Horne yesterday. He was good enough to tell me some of it."

"Oh? Does he know?"

"He seems to."

"Perceptive gent," said Jeff. "He was only here for an hour or so."

"I gathered that he knew his way around here."

"Not at all. I've only met him twice, you know. And the first time I met Horne we had a few things to say to one another."

"I saw that."

He laughed. "Horne came to apologize for his rather unethical attitude. Then we went for dinner and we met you."

Lucille tapped a yawn back into her mouth. "I remember that too," she said. The yawn inferred that she and Horne had not parted until late and Jeff assumed the inference.

Lucille was quite baffled by the workshop. She wandered around aimlessly, clapping her hands in pleased glee at something that caught her eye, was properly unimpressed by things that were true feats of scientific note. And while she was asking foolish questions and toying with this knob or that lever, she had a very sharp eye cocked for a trace of the type of equipment that brought forth the lancet of energy which burned in Phelps's laboratory.

She saw nothing, yet Jeff had not had much time to do anything if he suspected the truth. Lucille decided upon a bold stroke.

"What about that job you scurried off to yesterday?"

"Job—did I mention that?"

"You didn't mention anything about it. Just that you had your work cut out for you for some time. Can I see something that you're just working on? Which is it?" Lucille peered into the averaging thermocouple instrument, lying there with its case open. "This—?"

"No," said Jeff. "The job fizzled out."

"Oh? I imagine that was quite a disappointment. What happened?"

"Well, there's not too much to tell. They

delivered some specifications in the morning and before I had much chance to do more than riffle through them Horne came calling. We had a bit of chit-chat. Luncheon, meeting Lucille Roman, and so on took up the next couple of hours.

"Then I came back here and took that averaging thermocouple apart and while I was working on that the gentleman returned, saying that since he'd spoken to me his outfit had decided upon a program of haste. So that was that."

"Too bad. Who was it—or is it a secret?"

"It is a secret and furthermore I know no more than the gentleman's name who gave the specs to me."

"Do people do business that way?"

"Only initially and if they're working on something they want kept quiet. After they let the contract they tell all, of course."

Lucille thought it over. She had little reason to believe that Jeff hadn't run through the specs rather thoroughly. She admired his ability to dissemble and made up her mind that if she had not known Jeff Benson and Charles Horne were hand in glove, she would certainly have believed Jeff's story completely. It certainly sounded like the truth.

The fact was that there was one missing key which would have unlocked a lot of the hidden truths. That key was in Horne's own mind. He had followed Hannegan around for some weeks, hoping to learn just what Lucille Roman was up to in buying the Hotchkiss Laboratory.

That was why he had been missing from his usual haunts for weeks on end and, when Hannegan entered Jeff Benson's laboratory, Horne hoped to find the truth there. Which was why and how Lucille Roman met them together.

Suspicion was pyramiding high all because Horne had tried to connive with his cronies.

And it was growing higher, for Lucille believed nothing of what Jeff said. She swore inwardly to think of how close she had been to disclosing her plans to the enemy. And if Jeff had nothing to show of his studies it was no sign that he would not start soon.

Lucille determined to keep one eye on Jeff Benson.

"I'm having a bit of a soirée Saturday," she said. "Please come."

"If I'm not up to my eyebrows in electrons," he said.

"Escape from them for a bit. Charles will

be there, you know."

"I didn't know. But I'll try."

No doubt, she thought. "Now," she laughed brightly, "it's my turn to say that I've work to do. I must fly. And thank you for an interesting afternoon."

Jeff Benson saw her to the door.

## CHAPTER VII

### *Laughing-Stock*

**I**T WAS high noon in California. The sun blazed out of a cloudless sky and heated the ground and the backs of people who basked in it.

It seemed quite normal. People who had been there for years and years did not realize that the sun had begun to grow brighter at eleven o'clock, and had arrived at a figure almost three percent higher in brilliance by noon. At the level of energy that Sol puts out three percent more would excite the notice of no laymen. Any abrupt change in brightness might cause comment but three percent of something that is already nearly intolerable made it only slightly more nearly intolerable.

At noon it leveled off, then gradually began to resume its age-old level of output.

One laboratory caught the change and the superintending solar physicist swore at the recording film and wrote a tart letter to the film company for not producing consistent film. Another laboratory head raised hob with a student for not paying attention to his work. A third laid the incident to the unseen devils that creep into any experimentation and make it necessary to do anything fifty times before a result could be assumed.

Professor Lasson looked meaningly at Harry Welten and shook his head.

At three o'clock in the afternoon Sol was once more his bright consistent self. The matter was either forgotten or ignored by all save Lasson and his student assistant.

"That proves something," said Harry Welten.

"It does."

"But what are we going to do about it?"

"What can we do but measure the deuce out of it—and hope that it means nothing."

"But if it is a nova?"

Lasson smiled. "Then the universe will



watch our death throes," he said.

"But—"

"Bolts!" said Lasson, tartly. "What can mankind possibly do to clap a safety valve on a bursting sun?"

"I don't know."

"I do. Not a blessed thing. Hell's Eternal Fire, Harry, we don't even know what causes a nova."

"Maybe we will," said Harry gloomily.

"Well, we can die intelligently," said Lasson.

"Fine prospect."

"Now look, Harry. We don't know that it is. And I, for one, am not going to toss everything I've worked for out of the nearest window into the deep blue sea because the chances of a nova happening right now lie somewhere near a couple of billion to one against. I'd hate to throw everything away only to find out next week that I'd thrown it away. Then I'd have to live out the rest of my life realizing I'd been stupid."

"But what else could it be?" said Harry Welten.

"A couple of planetoids might have bumped into Sol. We'd detect nothing by observation if that happened, you know. We couldn't see 'em."

"That's possible."

"And more likely than nova. Shucks, sonny, you'd swell up a bit in anger if someone stuck a pin in you."

Harry laughed. "Maybe we should get after the guy who is shoving pins in Sol."

"That's the spirit."

"So what do we do next? Put an ad in the Chronicle—Notice: Will practical joker please cease stirring up Old Sol? He's restless."

"That kind never reads the personal ads," chuckled the professor. "Howthesoever, Harry, I'm going to get some new gear for the lab. I know about what we need and I'm going to hop over to Chicago for a bit and see Jeff Benson."

Fifteen years before Professor Lasson had had a student named Benson who had graduated with honors. For that reason and because Jeff's stuff was superior, much of the special equipment in the laboratory bore the small Benson nameplate. Had Professor Lasson been young and filled with needless enthusiasm he would have flown at once.

**B**UT Lasson knew that a few hours or a few days would make little differ-

ence. If the sun were going nova it would take off slowly at first and it might be months or even centuries before its inner activity reached the blow-up point. Nothing could stop it.

Furthermore, Sol was not a constant thing. It was variable in degrees. There was a slow flow towards being brighter and hotter and a few slight changes might only be isolated cases in the grand scheme of things.

So, instead of leaving for Chicago that very moment, Professor Lasson began to prepare for his trip. If all went well he could clean up a lot of niggling little details and catch a Chicago-bound train in about three weeks.

\* \* \* \* \*

Jeff Benson entered the super-apartment of Lucille Roman with a feeling that he shouldn't have come. He also had a feeling that he should have been wearing a tuxedo or something appropriate for the formal afternoon.

The best he could do at the moment, since he was not in the habit of going out in high or even medium society, was a gray pin-stripe suit, a conservative necktie, and a white starched shirt. His shoes were polished within an inch of their leathern lives and he himself was quite uncomfortable about it all. He felt foolish.

This was not his kind of life and he knew it far better than anybody else. He was, and he admitted this, the intellectual equal of any man he was likely to meet anywhere. But his intellect was on another plane entirely.

Lucille Roman's friends would probably quote the market to him in the terms of the trade and be completely misunderstood. He, on the other hand, could reply regarding the quantum state of the seven-times ionized iron atom and be equally misunderstood.

The trouble with that idea was that there would be more of their kind than his present, which would label him a freak among financiers.

It is possible that Jeff would have been uncomfortable had he been the kind who was always at ease in any company. Even the most self-assured fish in the world is miserable when so far from its own kind of water.

He was happily disappointed. Lucille met him at the door and handed him over to Horne. Horne greeted him cheerfully.

"Long time no see," he said. "How've you been?"

"About the same. A bit here and a job

there. It all adds up to keeping me comfortable." Jeff sipped his cocktail and nodded in appreciation. "And you?"

"I've been a bit busy, too," he said. "Frankly, I'm about to make an idiot out of myself."

"How come?"

"Well, I'm about to take back all the things I once said about Lucille."

"Oh?"

"I've seen her practically every night since we met her at the Saddle Club."

"That's about a week."

"Somewhat less. But it doesn't take a century to tell when you've made a mistake."

"That's true."

"Anyway," said Horne, toppling some cigar ash on a convenient ash tray, "Whatever Lucille Roman may be around the conference table she is warm and affectionate when she leaves the office."

"Well good for you." Jeff nodded slowly. "Doesn't carry a grudge, then?"

"Not at all. So that takes care of my time," said Horne with a chuckle. "Unless, of course, you want a blow-by-blow detail of my evenings."

"That's asking a lot." Jeff grinned.

"Okay. So that takes care of me. I'd have been around to see you but, Jeff, you're nowhere as interesting to be with as Lucille. But what about you?"

"As I said—"

"I know now. What about that job you scurried off on?"

Jeff shrugged. He didn't remember mentioning it specifically but he must have intimated something of the sort. On any count it was strictly old hat now and he did not go into detail.

"It didn't materialize."

"How come?"

"Couldn't come to terms." That was true enough though the terms stated were not Jeff's.

"Too bad. Well, that's life."

Jeff shrugged noncommittally. "I didn't mind too much," he told Horne. "It would have taken too much time from my own projects."

**H**ORNE considered this. If what Jeff said were the case there was little point in keeping the young instrument maker under his eye. He could afford to keep Jeff as a friend. The man was obviously a friend of Lucille Roman and Horne's former inten-

tion of getting into the inside of the Roman Enterprises was nullified by his interest in the woman herself.

He had the inside track now and he forgave Jeff his game of upsetting the Horne apple cart at the auction. In fact, had it not been for Jeff Benson, neither of them would be sipping excellent Martinis in Lucille Roman's apartment now.

At any rate he was not going to ask leading questions that might be turned against him at a later date. Horne no longer needed the technician as a wedge into the business or graces of Lucille Roman.

He nodded over Jeff's shoulder at Lucille, who was talking animatedly to an elderly man. "Let's rescue the lovely lady from Santa Claus," he laughed.

"Or," grinned Jeff, "make the guy grow some hair to go with those thick glasses."

Jeff and Horne were about to walk across the room with this in mind when the doorbell rang. A man came in and peered through the room until he found Charles Horne. Then he came straight across the living room floor.

"May I see you alone?" he said in a quiet voice.

"This is a party." Horne smiled. "Meet Mister Benson—Frank Hamilton, my broker."

"How do you do?" said Jeff politely.

"Charmed. But Mister Horne—"

Horne shrugged. Nothing bothered him. He expected nothing. Furthermore, he was self-confident enough to think that no matter what was said it would be good. If Jeff Benson were a friend of Lucille Roman he would doubtless carry any tale of Horne's ability as a manipulator to the woman, thus creating a more desirable legend about himself.

"Mr. Benson is a friend of mine. Unless this is vitally secret go right ahead. He'll take no advantage of me."

"Well, I thought you'd better know. Things have been a bit rough."

"How rough?"

"Quite rough. But I managed to get you out of it with only a hundred thousand loss."

"Good Lord! What happened?"

"They got you in a cleft stick while you were—unavailable. They seesawed the Horne Non-Ferrous Metal holdings around until I had to sell you out before they took your shirt."

"How does it stand right now?"

"If you can raise a hundred thousand by Monday morning at market opening I can get it back and another hundred on top of it. That's all it takes."

"I can't sit down and write you a check for that," said Horne thoughtfully. "It would take time. Dammit, I don't want to let that aluminum holding go. A hundred grand is a lot of dough and the holding is worth more than that by far."

"That's why I've been trying to find you for a week—especially the last day or so. A bit of bolstering would have set you up for fair."

Horne nodded. "Come on," he said. "I think I know where I can get squared off."

Leading the other two Horne went across the floor towards Lucille Roman. As they came up Lucille turned with a bright smile. "Meet Doctor Phelps," she said.

The doctor looked at them through thick glasses. "I've heard of Mister Benson but never have had the pleasure of meeting him before."

"Doctor Phelps is the head of my latest project," said Lucille. "He came here to-night to tell me that we're about ready for the final touches."

"I've been testing the essentials for a week now and it's successful."

"We'll be needing a few thousand square feet of one-inch aluminum plate," said Lucille. "And then—"

"Now that's interesting, Lucille. I have quite a stock of one-inch plates in the inventory at Horne Non-Ferrous Metals. Could we make a deal?"

"What kind of deal?" asked Lucille archly.

"Why, I need a quick hundred thousand to cinch a deal. Make it at four percent and I'll furnish you with all the plate you need at ten percent under the marker statement."

**L**UCILLE laughed. "We have plenty of plate," she said.

Her attitude was one of complete poise. She acted as though what she knew of Horne's little deal was only what he had mentioned in the past minute. But a tension came into the air, a quiet tension that was almost undefinable until Jeff Benson suddenly realized that, during the past minute, the guests in Lucille's apartment had been diminishing their small-talk gradually. Now all were silent so that every word said was being carried to every ear.

"Then how about the hundred? Can we do business on that?"

Lucille laughed again and it was a sharp laugh.

"You chiseler!" she snapped at him—though delivered in her pleasant contralto it was none the less a snap. "I should have cleaned you out. But the hundred grand you're losing is the amount you would have gypped me out of at the auction."

"I—you—gypped!" gasped Horne, comprehension coming very slowly. "You've been playing games?"

"I never play games!"

"But I—"

Lucille laughed again. "Get out, sucker. And next time remember—if you want to play games a man's way I can play a woman's game against you!"

"Why, blast you!" Horne started forward and Jeff stepped in to intercept him.

Lucille saw the move and turned upon Jeff. "Don't clip him again, Benson," she snapped. "Don't waste energy. That game won't work twice."

"What game?" said Jeff with a blink.

"That was a fine melodrama you two made at the auction. You think I've not been watching you both? What did you hope to do? Get my business from specifications?" She whirled on Phelps. "And the one who recommended Jeff Benson for instruments had better watch out, too. He may be in it!"

"Just what are you driving at?" demanded Benson.

Lucille Roman turned on Jeff again. "Do you think I'm stupid?" she snarled. "Think I don't know?"

"Know what?"

"Oh bah! For one thing, showing me around that firetrap you call a laboratory. Boilers and gas burners and fancy gauges! You think I don't know a laboratory when I see one?" Lucille turned to her guests. "Meet Jeff Benson and Charles Horne. They thought they could bamboozle a woman. Now that they've been clipped back they're crawling!"

There was a general laugh.

"Get out!" snapped Lucille.

Jeff looked at her. He did not know her very well. He had, of course, been attracted to the woman because it was impossible for a man to have blood in his veins without having it run a little faster at sight of Lucille Roman.

His own blood had quickened when he

realized that Lucille Roman was human enough to enjoy being wined, dined and kissed by Charles Horne. It gave the financially brilliant and physically desirable woman a less goddesslike quality. It meant that she was at least as much woman as financial wizard and made her less unattainable.

But the idea that she could and would use her physical charm thus to further her own interests made Jeff a bit sick.

What she had against him he could not know. Apparently she went on the theory that anybody found with her enemy was also her enemy by induction. It was both unreasonable and illogical and heaven protect him from a woman like that.

"Drop dead!" he snapped at Lucille. "I'll bet you never had an honest emotion in your life."

Seething with the injustice of it Jeff Benson turned his back upon her and went to the door. Horne followed him and the scornful laughter of Lucille's guests—who had come prepared to witness their downfall—pursued both of them down the hallway after the door was closed.

## CHAPTER VIII

### *Solar Instability*

AND that," said Charles Horne bitterly, "is Lucille Roman at her best."

"It didn't seem necessary," complained Jeff. One part of Jeff's mind kept telling him that to be scorned by a group of people who were gathered there for no other reason was not too important. No man lives who has no enemies. But the larger portion of Jeff's mind resented the scorn deeply.

It is difficult to ignore the scorn of the lowliest of mental and physical inferiors, let alone people who might be one's equal in one line or another. The fact that Lucille's vicious tongue-lashing had been entirely uncalled-for, her suspicions without ground save self-induced circumstantial evidence and her methods more vindictive than merely combative rankled the young instrument maker.

Meeting a rival face to face or besting him in open competition was one thing. But it offended Jeff's code of ethics that she had called in a group of friends to join in catcalls

and scorn in what was almost a public condemnation.

"That's Lucille," repeated Horne. "If I'd known what she was doing I'd have strangled her soft white throat instead of caressing it. And she played the same game on you?"

"Just about."

"Hah. I thought it was a genuine friendship."

"Me too."

"Now you begin to see what goes on with Roman?"

Jeff nodded. It was inexplicable to him. He had not been plotting against her, he had not been competing with her. He had offered her only good and for that he had received a tongue-lashing and accusations that had little basis in fact.

"Look, Benson, I'm going to clip that dame."

Jeff nodded.

"Want in?"

Jeff spread his hands. "I'd like to make her eat every word—backwards," he said. "But I'm afraid that the kind of weight I carry will do little towards slowing her down. We run in entirely different orbits."

"You must be able to do something," mused Horne.

"Darned if I know what. I'd as soon forget it. It seems that my initial venture into the upper bracket was unfortunate. Maybe I'd best continue to operate in my own sphere."

"But that's not too self-satisfying in the face of what happened up there," said Horne.

"Perhaps," said Jeff.

"How—for Pete's sake?"

Jeff smiled wanly. "I'm not much in favor of the still small voice crying out in the wilderness," he said slowly. "Any voice carries farther when it has some weight to back it up. Give me a few more months of success in my own work and I may reach the point where I can command my own following."

"That seems like the long way around," objected Horne.

"Getting to be a big frog in mine own puddle is the only way I'll ever get big enough to make reply."

"I'd like to help," offered Horne quietly. "Or would you prefer not? It just occurred to me that you might resent me."

"Why?"

"Well, Roman obviously hates my shoes.

So hard, in fact, that she has you tarred with the same hate. You'd not have received her measure of scorn if you and I had not been chummy."

Benson shrugged and laughed easily. "I'm not so small a man as to drop a friendship because someone puts me in the same bracket as my friends. Maybe I *am* in the same bracket. Birds of a feather, you know."

"Well, if you think of anything let me know—and if I think of anything I'll get in touch with you. If you want help, that too."

"I'm okay," said Jeff. "For me, the only thing handy would be forty hours in a day and nine days in a week."

"That I can do nothing about." Horne smiled. Jeff nodded, shook Horne's hand and left the financier to go home to his laboratory.

Jeff Benson knew that the one thing that he could stop his gnawing anger at Lucille's injustice would be hard work that showed promise. A bit of an introvert, Jeff could take solace in his own personal successes.

**A** FEW days after the deplorable incident in Lucille Roman's apartment, Jeff Benson opened his laboratory door to admit Professor Lasson.

Jeff blinked cheerfully and drew his old professor inside.

"Doc! Am I glad to see you!"

"You're looking well, Jeff. Keeping busy?"

"A bit here and a hunk there. Enough to keep me out of mischief, anyway."

Lasson snorted cheerfully. "You *must* be busy," he observed. "As long as I've known you you were never too busy to get into some sort of mischief."

Jeff shrugged and nodded.

"Good looker?"

"Perfect thirty-six—including the I. Q. Great luminous blue eyes and small dark mind."

"Keeps you busy?"

"She did. No more."

"Good. Then you'll have time to put your mind on another kind of problem."

"For you? Gladly. What's up? Is the sun getting out of hand?"

"You've noticed?" asked Professor Lasson, his eyes widening.

"Noticed? Noticed what?"

"That Sol seems unstable."

"Sol unstable?" Jeff gulped.

"If you've noticed that helps. We have a

piece of very minor evidence that may indicate instability. We want confirmation and if you've noticed it too—"

Jeff shook his head solemnly. "No," he said quietly. "My remark was just a pleasantry."

"It's far from pleasant."

"Well, what goes on for heaven's sake?"

Professor Lasson explained the observed irregularity in the solar energy output and then hastened to explain that their ideas were, of course, quite primitive at this point.

"Such a thing has never been observed before," nodded Jeff.

"Perhaps because nobody looked for it before. It may be quite all right. On the other hand the first sign of instability might lead to a stellar blowup."

"Nova!"

Lasson smiled tolerantly. "How quickly we all leap to the same conclusion. Not necessarily nova, Jeff. No one really knows what causes a nova. There are a lot of fine theories but all of them lack proof and all of them contain holes large enough to run a galaxy through."

"But this is—"

Lasson smiled again. "How insecure we are in our hearts. At the first sign of an irregularity in something we have come to believe unchanging we grow panicky. Our evidence is so slight that we shouldn't postulate anything. That's where you come in, Jeff. We want you to build us a few instruments to measure solar constants and record them."

"Okay. What will you need?"

"Can we devise an energy-collector to measure radiated energy to a square meter?"

"It will have to be coupled and correlated to the varying density factors that cause irregularities in the solar energy collected on any given square meter of area. That might be difficult."

"We're atop a tall mountain," said Lasson. "It would not be too much like city living, you know."

"But even so the atmospheric conditions change from day to day and hour to hour as temperature and humidity shift. The dust-count changes and—well, there's one way we might be able to eliminate those atmospheric factors."

"Since terra's atmosphere would be common to all kinds of received energy we could balance the intake from some nearby bright star against Sol. Then if the local condi-

tions cause a lowering on solar intake it would also lower the stellar intake by a like amount. The two should shift together if no irregularity exists in Sol."

"Unfortunately, I doubt that we could correlate Sol observed at noon and a bright star observed at midnight."

"Um—there's that. But we're still on the right track. Suppose we set up a standardized searchlight on some mountaintop a good distance from your observatory. Then we could observe the atmospheric light absorption in the passage of the beam and make allowances."

"That wouldn't be perfect but it would be better than nothing. Now we'll want some sort of device that will measure the index of gravitational refraction of light due to mass."

"Will Sol's mass be shifting?"

"I doubt that. But the warpage of space due to stellar mass is accepted as a factor, you know. And the energy level of Sol might cause a shift in this index if the energy level changed."

"I don't follow that at all."

"Well, one of the theories of the cause of a nova is the fact that space itself becomes warped, due to too much mass concentrated in one place, and buckles in upon itself," said Lasson.

"Remember, Chandrasekhar points out that a cold mass cannot be larger than the planet Jupiter. When it becomes more massive it causes internal crushing of the atoms at the core and becomes smaller."

JEFF nodded. "I recall Chandrasekhar's curves," he said. "A cold celestial body of half a million times the mass of the earth would have a theoretical diameter of zero. But Sol is not a cold celestial body. Sol is a mass of incandescent gas."

"But of such a mass that the internal atoms are still crushed. This internal crushing increases as the diameter of Sol decreases and may come to a point where the spacial buckling causes a blow-up."

Jeff nodded and then grew solemn.

"I have another theory about it," he said seriously.

"You have? What is it?"

Jeff went to his desk and handed the professor a few sheets of paper. "These curves," he explained, "show a general plan or pattern that indicates a flaw in the law of conservation of energy. I hope someday to show that every time energy is converted from one

medium to another a small percentage is lost."

"I recall some small talk about your theory, but you've never been very thorough in your letters to me. What has this to do with stellar nova?"

Jeff shrugged. "If my theory is true, then the question is—where does this energy go? Is it stored in some subspace awaiting its chance to break through and return?"

"Could be. But it sounds pretty much like a made-up theory to explain the moment. Can't you refine your measurements somewhat?"

Jeff shook his head sadly. "I've been trying. I've done the best I could so far."

"Maybe we can see the proof of your theory in Sol's misbehavior."

Jeff stood up. "We'll get to work," he said. "Maybe you're right. At any rate a minute percentage of four million mass-tons of energy per second ought to be big enough to see. The inconsistency found in converting a few thousand gallons of butane to heat is too small to be measured accurately."

Lasson took off his jacket and rolled up his sleeves. He would help Jeff finish the first of the measuring devices and take it back to California with him so that he could get back to his own work. Jeff could then finish the rest of the equipment and send it on as it was done.

\* \* \* \* \*

Lucille Roman lounged in a metal easy chair bolted to the deck and smiled vivaciously at General Walters. "We could easily take this to the moon," she suggested.

"Not this trip," objected General Walters. "I'm not prepared to do more than view its operation and make an estimate of its efficiency. I'm convinced. But we'll make no formal interplanetary voyages in this rocket. Not until we spend quite a bit of time in research." Walters turned to Doctor Phelps. "Just what is the propelling medium?"

"It is a jet of atomic particles."

"And how does it function?"

Phelps winced almost imperceptibly. This was the part that was so very weak in their arguments. Phelps, a physicist of ability, did not enjoy the idea of plunging forth and using something of which he had so little knowledge. Furthermore he felt that, as designer or discoverer of the atomic jet, he should know more about it.

He swallowed hard and said, "About a year ago I was doing some research on the problem of devising a neutrino detector. Such has never been accomplished, you know."

"So I've heard."

"Well, my first attempt was to take a radioisotope known to emit neutrinos, positrons and electrons. Neutrinos have no electrical charge and so, to eliminate the positrons and electrons from the radiation, I set up counter-reacting electro-static and electromagnetic fields. I'd hoped to make a trap for these particles while hoping equally to observe some sort of bombardment on a fluorescent screen."

Doctor Phelps talked on, evading the general's question and praying that, by holding the floor for some time, he could cause the general to forget that nothing had been said about the source of power.

"I believed that while the fluorescent screen favors electron or positron bombardment it would be sensitive enough to indicate a minute amount of scintillation from neutrino bombardment. Neutrinos have neither charge nor much mass but they do have energy, you know, and should cause something."

"Anyway," continued Phelps, "I found that the counter-reacting electrostatic and electromagnetic fields did not do away with the positrons and electrons by trapping them and turning them aside. Instead a needle of energy came from the delivery tube that nearly blinded me."

"It burned a hole through the fluorescent screen, melted the objective lens of a photomicrography setup and generally raised hob with the equipment. Further refinement gave us the atomic jet which we're now rocketing through space on just above the superstratosphere."

"Interesting," nodded General Walters.

**P**HELPS took a deep breath and Lucille Roman smiled enticingly at the general. The general forgot about the source of energy and accepted a cigarette from her. Her fingers were cool as they lingered against his.

Miles below them was earth and, as General Walters nodded agreement, it shifted position in the viewpoint as the ship changed course.

"I can see that making the moon would be easy," observed General Walters. "This rocket handles very well."

"That is because we have a reserve of power," said Doctor Phelps. Lucille jabbed at his ankle with the sharp corner of a very high heel.

"You seem to have," said the general, whose attention had been diverted from the woman's charms.

"We have a total of eight jets on the spacecraft," explained Phelps proudly. "I have checked them and found that four of them would take us off of Terra without much struggle. I believe that three of them would work but, unfortunately for any such test, we would have to rearrange the position of the jets. It would require a bit more tricky handling to drive straight with an asymmetrical pattern of force behind us."

"That I can well believe. Also," said General Walters, "we'd like to know some more about the source of your power."

Lucille Roman laughed vivaciously but cast a cold glance at Phelps for not having enough sense to keep his mouth shut. "Frankly, General Walters, we've been so busy developing the Roman Jet to its present degree of power and efficiency that we have had too little time for pure research."

Phelps nodded. "I hold that this power is a fundamental principle of the universe in which we live. Like electricity, we who first discovered it know little about it. Time will bring forth full knowledge. But in the meantime we can handle it, use it, direct it and control it perfectly."

"It sounds a little risky but you seem to have it under control."

Phelps nodded happily. Lucille took a softer breath as the sore spot was crossed without trouble.

Phelps then added, "I've had a pilot model running for more than a year without observing the slightest instability. The pilot model was recorded in every phase for that time and was periodically manipulated either by myself or by random-selecting synchro-motors. This has all been recorded. These records, of course, are yours for the asking, General. They will show the Roman Jet entirely reliable."

"This is still a top-top secret thing. As soon as I am able I shall get an appropriation for a research program to study this from a theoretical angle. Incidentally, it looks like a huge success, Miss Roman."

"Thank you."

"I suggest that you double your guards. I'd not like this to get out at all."

"Every man in my laboratory is cleared for top-secret work. And every man there is utterly loyal to me."

"Good. Keep them so."

Then the earth turned again below the spaceport and the spacecraft streaked for the ground, three hundred miles below.

## CHAPTER IX

### *The Story Breaks*

CHARLES HORNE came into Jeff Benson's laboratory with a newspaper and a glum smile. Jeff was surrounded by a maze of equipment of all sorts, including a number of packing cases filled with spare parts.

"Quite a mess, Jeff."

Jeff nodded. "Rush job."

"Golly! Do scientists have rush jobs?"

"Uh-huh," grinned Jeff. "Sol can sit up there and burn for two thousand million years without anybody getting more than mildly interested in him. Then someone notices a trace of a bit of evidence to the effect that there might possibly be a change in the ionizing potential of the photosphere.

"Instantly every man who has ever heard of the photosphere must drop whatever he'd been doing and measure it to seventeen decimals within the next three weeks. Let's see, three weeks is what percentage of two thousand million years?"

"Bad as that, huh?"

"Not quite."

"Too busy to take a look at something?"

"Not quite. What have you got?"

Horne slapped the newspaper on the desk in a clean spot and spread it open to the front page.

#### ROMAN SPACECRAFT SUCCESSFUL!

Today the Roman Enterprises announced achievement of man's highest goal. One week ago the Roman Spacecraft took off from a secret laboratory in the Middle West and proceeded along a precalculated course to the moon, where the spacecraft landed first on the earthward side, then moved to the far side of the moon long enough to take a series of pictures of this spectacle never before seen by man.

Today, at five o'clock EST, the Roman Spacecraft returned to earth and made a suc-

cessful landing.

Officials of the company and a member of the government claim that the first interplanetary trip was made without incident.

The success of the Roman Spacecraft is due to the development of a new type of rocket jet, the details of which are a government secret. It is probably atomic in nature, though many specialists claim that fissionable materials are not suited for rocket-type power. That is . . .

Jeff looked away from the article and flipped a page. There were pictures, a running account of the trip from the log of the ship and a few comments by Lucille Roman, who had gone along on the trip and was hailed as the first person ever to achieve such a feat.

The fact that there were five others, all men, in the spacecraft with her seemed to have been ignored by the newsmen. Of course, the Roman figure made better picture material than those of the crew.

Jeff looked at Horne.

Horne shrugged. "That ship is made of aluminum from the holdings I once owned," he said bitterly.

"So that's what she wanted the Hotchkiss Lab for."

"Sure."

"Well, now we know a lot more than we did."

"A bit," nodded Horne with a laugh. He took a picture from his pocket. "Look."

"Where did you get this?"

"I was there when the ship took off. This is a photograph of it in action.

"How did you get it?"

"By keeping an eye to the ground. I've been seething quietly ever since La Roman clipped the pair of us. Frankly I'd like to get even."

"Don't blame you." Jeff scowled, looking at the photograph.

"Not too illuminating, is it?"

Jeff shook his head. "Couldn't tell a thing about it. Not even the size. Nothing to compare it with."

"That's a shame. But I thought you'd like to see it. There's no picture of the thing in the paper."

"There's one thing about it," said Jeff after some thought. "You can calculate the size of jet necessary to drive a spacecraft of such and such a tonnage. Most of them come out with impossible figures, like one that came out with a jet throat almost four times the size of the base of the ship. I'll make a shrewd guess that it is not a



chemical rocket."

"That's something. If it isn't chemical, then what is it?"

"I wouldn't know."

"Atomic?"

"I doubt it. People who postulate a nuclear pile don't really know what they're asking a spacecraft to carry in the way of shielding. This idea of fissionable materials used directly in a rocket is completely impossible as far as I know—at least as we know fissionable materials right now. They either lie inert or they go bang with enough force to take half of the county with them."

"How about something we don't know in the way of fissionable materials?"

"That would come out of Oak Ridge instead of the Roman outfit."

"Well, I intend to find out," said Horne. "And since you're busy now I'll go about my business. See you later."

"Okay," replied Jeff. Within a few minutes he was back at work on Lasson's equipment.

AS THE days wore on Sol's change became more evident. Lasson took to Jeff's instruments eagerly and made reports—sketchy, of course—and suggested other ideas that Jeff accepted and went to work on.

The solar energy level was not changed much. It still took the finest of instruments to detect the degree of instability. Little squiggles on a curve and tiny blurs on a spectrograph plate are hard things to base a theory upon and Lasson wanted proof.

The summer wore on and September came with only one incident.

The Lake Bluff solar observatory sent Jeff a request for a device which would enable them to measure the polarity and intensity of the magnetic fields generated by sunspots. Jeff built them the instrument and sent it along with a suggestion that if they had noted anything rare about the solar behaviour they might contact Professor Lasson.

A week and a half later Jeff got a letter from Professor Lasson to the effect that they had got in touch with him at Jeff's suggestion and that now there were two laboratories aware that something was wrong with the sun.

In October one more laboratory had called upon Jeff for another kind of precision observing instrument and one labora-

tory had contacted Lasson directly.

In November Professor Lasson sent a carefully-worded letter to most of the solar laboratories in the world, requesting that they observe Sol for instability and suggesting that silence be their keynote lest a public panic be loosed.

By December most of them had answered and indicated they were puzzled but aware of the subtle change.

In December, early, Jeff left Chicago to take on a job in California, where a mining company wanted some equipment made to assay an ore sample for metals. They kept Jeff dancing from one mining site to another for almost three weeks and he had no permanent address during that time. When he had finished it he felt that he was far behind in regard to Professor Lasson. So, since he was in California, he went to see Lasson personally.

As he drove up the mountain he noted that he was being followed at a respectable distance by another car. He got out of the car at the observatory parking lot and waited for the other car to park beside him.

"Bit brisk up here, isn't it?" he asked.

"You bet. Connected here?"

"No, are you?"

"You're Jeff Benson, the precision instrument maker, aren't you?"

"Yes, and you?"

"I'm Jerry Woods of the *Chronicle*."

"Oh? Glad to see you. Something in the line of news up here?"

"I'm just beginning to smell it. Mind if I sniff harder?"

Jeff shrugged unhappily. Whatever Lasson had by now, no matter how certain, it was not the time for newspaper coverage.

"I'm going in to see Professor Lasson," said Woods.

"So am I."

Woods fell into step beside Jeff and together they went into Lasson's office. Once the greetings were over Jerry Woods came to the point.

"What's up?"

"Up? What makes you think there's anything up?"

WOODS smiled. "A newspaperman, I'm told by my admiring friends, has the mind of a detective. He operates on disconnected clues and ties them in together until he finds a connection. Unfortunately for eulogistic friends, both news-

papermen and detectives are just plain nosy and get their news and their criminals because they're being paid to go out and ask nosy questions of the right people."

"So?"

"I'll tabulate. One, a certain celebrated celestial observer in Cincinnati was observed taking his leisure with his wife in a Cincy bistro at two ack emma. It was a fine night out but Ye Celeb Obs had little interest in the stars. Fact of the matter is, he was seen to yawn at two ack emma—not accepted practise for a man used to staying up all night.

"Two, a group of alleged astronomers were seen having a fine meal at eight o'clock. This consisted of steak and potatoes instead of a nice breakfast of ham and eggs as might be expected of men who had just arisen to face the night's work.

"Three, there was a squib, a filler in the local newspaper, that the Eastman film company had recently filled an order for low-sensitivity film and plate for an observatory in Maine.

"Four, Jeff Benson, one of the country's best-known makers of precision instruments, has been deucedly busy for some time and in close touch with a well-known solar physicist.

"Five, I detect a note of dull black silence on the part of astrophysicists who usually have the politeness to tell me that they've discovered nothing of note since the expanding universe."

"So what does that add up to?"

"For a supposed sun-dodger the average astronomer is getting sunburned like mad."

"Nonsense. Periodically we take an interest in the sun."

"Uh-huh. So now we come to Number Six. Libraries and bookshops disclose a dearth of textbooks on solar matters. I assume that an observatory containing only a telescope for stellar looking might not be the best place in the world to find the latest textbooks on solar facts. And when Lake Geneva's Yerkes outfit starts to build a colostat on a tower as if they had to get it up in nothing flat, there's something up."

Lasson smiled. "Frankly, we've located a slight shift in the ionization potential of the solar photosphere. That's all. It's interesting. Everybody wants to get into the act."

Jerry Woods smiled serenely.

"The general public impression of a news-

paper reporter is that he must be bold, smoke cigarettes incessantly, type with two fingers, drink like an eel and have no schooling beyond the third grade. He also uses 'ain't' in his speech but not in his reporting because he was a rewrite man who once studied grammar.

"About the only thing that's right about me, apparently is that I'm given to wordiness. Because, gentlemen, I went through M. I. T. and decided to use what I had learned by being a roving science reporter for Associated News. So we have a change in the ionization potential of the photosphere. Very interesting. That's the symptom, isn't it? The cause is a change in the solar energy level, isn't it?"

"It could be."

"Maybe someone is shoveling coal into Sol," grunted Woods sarcastically.

"Why not wait until we're sure of ourselves?"

"You mean you're not?"

"Of course not. It's hardly begun to change."

Jerry Woods shook his head. "Fellows, I'd like one scoop before we all go up in a nova."

"Nova! Who said anything about a nova?"

"I did. Isn't that what stellar instability ultimately means?"

"Not necessarily. There are variable stars, you know."

"I know. But there isn't a variable star in the group known as the Main Sequence. There isn't an instable star there either. None but Sol and Sol is right in the middle of the Main Sequence!"

"We can't predict a nova. We don't know what causes a nova."

"Instability."

"We don't know what causes instability."

Jerry Woods laughed. "I got out of school before neutrinos were a popular subject for discussion. Ergo I am not as hep to the idea as I might be and a certain still small voice tells me that I shall be courting the ubiquitous neutrino with curiosity and savior faire as soon as I leave here.

"However, I gress—if digress is the negative for a lost positive—and I'll make my point. I'm told haltingly that all atoms contain neutrinos because the silent, undetectable littleimps are necessary to maintain stability in the nucleus.

"But neutrinos are spewed forth in all atomic reactions and, because they have

neither charge nor appreciable mass, they go whistling right through matter and on and on and on ad infinitum. Whither, I dinna ken.

"But Sol is a vast nuclear furnace and the necessary neutrinos have been hurled forth for a couple of thousand million years at the present sitting. This is a lot of time and neutrinos, friends.

"Now, dammit, I don't recall whether the neutrino lives in the nucleus to glue it together or to keep it from collapsing of its own dead weight. Mayhap it is that uncertain something that sees to it that the coulombic repulsion between protons is maintained at a value less than the nuclear-particle attraction—or it may be directly responsible for this attraction.

"But to close this after-dinner harangue, I've heard a theory that it was an unbalance in the neutrino-count that caused novas."

**P**ROFESSOR LASSON was about to correct Woods by telling him the real theory but Jeff Benson interrupted. "Frankly," he said, "For some time I've had a theory that neutrinos do not exist."

"Despite Fermi?" chuckled Woods. "Fermi and radiophosphorus?"

"I've got statistical evidence that some discrepancy exists in the conservation of energy. This is in chemical and mechanical and electrical conversions of energy. The neutrino explains the discrepancy only in certain nuclear reactions and is not applicable to physical conversions."

"You've what?"

"I've discovered and am seeking quantitative proof that every time energy is transferred from one medium to another some of the energy is lost. A small percentage."

Woods whistled. "Tell me what kind of a place is this mythical place where the energy goes to?"

Jeff shrugged. "I've postulated a subspace."

"And the mass-tons of energy converted by Sol must deposit its loss in this energy bank? Tell me, Benson, who makes the withdrawal—and when?"

"Suppose we postulate two side-by-side continuums. One is increasing in matter and energy as the other converts. This makes one build up while the other is running down. Then—vice versa. This may have happened at that unconceivable time, two thousand millions of years ago, when it is believed that our universe was started."

"Uh-huh." Jerry Woods nodded thoughtfully. "And more likely, if your subspace exists, it is a warped thing, brought into existence by this forcing of the lost-energy proportion into it. Then, when it can no longer stand the strain, it bursts. Then, gentlemen, we have a nova!"

"That's what I'd been considering," said Jeff.

"That's what I thought. And there is the basis for your instability."

"Could be."

"Well, gentlemen, I thank you for a good story."

It came to them with a sudden thrust. Jerry Woods was primarily a newspaper reporter. His glib talk in their own selected fields, his ability to follow them in every detail and at times to anticipate them, his lack of the appearance of the average conception of a newshawk—these had lulled the two scientists into talking too much.

"You can't print that," said Jeff.

[Turn page]

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"It's news, isn't it?"

"It's an opinion only. Frankly, we're none too pleased with our results. We're only fairly sure that instability exists and we are most definitely not sure that some instability of this nature does not exist all the time.

"We're even less partially convinced that this may ever get to the point where it may be measureable without precision instruments, let alone rising to the proportions of a cosmic calamity."

At that moment Jerry Woods might have been convinced. He had seen a few calculations and a couple of curves on Professor Lasson's desk and he was scientist—and knew scientists—enough to know that when they have something certain to point to they seldom spend their time poring over the sort of minutiae that he saw represented on Lasson's desk.

He also knew that if you poke a scientist with an idea, valid or invalid, he is often inclined to postulate and hypothesize and dream on and on toward the imaginative theme of what might obtain if—the entirely false premise were true.

Ask a scientist what would happen if silicon could take the place of carbon and you are more than likely to get in reply an entire plenum geared to the exigencies of silicon life-forms from amoeba to plant to animal including homo sapiens siliconis.

Jerry Woods was aware of the imaginative qualities of the scientific mind and might have accepted their explanation about solar instability and any possible nova as sheer imaginative fancy but Professor Lasson's ambitious and enthusiastic aide, Harry Welten, took that moment to come running in, almost breathless.

"Professor Lasson," he cried, "this is it! Harvard just confirmed us. They've had it on the electronic sigma curve extrapolator and predictor and the answer comes out *nova!*"

Jerry Woods nodded quietly. "It's been nice knowing you, gentlemen. If ESCEAP says nova I believe it."

"But—"

"I'm a newsman, remember? And now that Harvard has this on their mind it is only a matter of time before the world knows it anyway. Let me break it—and quick—before anybody else does!"

"But—" began Professor Lasson. Then he shook his head and smiled sourly. "Oh

well," he said. "If this is nova for Sol what difference does it make what we do?"

Jerry Woods nodded quietly and, instead of leaving the office, picked up Professor Lasson's telephone and dialed the number of the *Chronicle*.

## CHAPTER X

### *Reaction*

**T**HE next few weeks were utterly chaotic. Nothing made sense and no one cared much whether it made sense or not. It is impossible to describe the feelings of the people in any but a general sense but there were definite trends that can be recounted. Any individual caught up in the maelstrom of outraged humanity exhibited the same feelings whether he was more violent or more conservative than the normal.

First came disbelief and scoffing. Men watched the traveling electric sign around the Times Building, which indicated tersely that, *Scientists Say Sol Is Entering Unstable Period*, against the screaming headlines of one of the Times' competitors which was more noted for its lurid pictures and sensational captions:

WORLD'S END

SAYS SUN!

The scoffing came partly because Sol had been shining quietly for as long as man could remember and many times that long before, no doubt, and partly because that same newspaper had cried wolf far too many times before.

But it was true, and disbelief could not cry down the cold-blooded statements made by scientists whose word carried weight. They all agreed, save a few who felt that it might gain them fame, fortune and publicity if the rest of the scientists were wrong. If they were right it would make little difference.

Then came apathy. Men went in to their bosses completely tired of their jobs. They went in to tell their bosses where they could put their jobs and discovered that their bosses were telling their supervisors where *they* could put *their* jobs.

Not a few men told their wives where they could go and as many told their wives where they could be found if needed. The reverse added to as high a figure. Jobs were left unfinished, money came from the banks, food came from the stores, business and finance came to a grinding halt.

Some sought solace in God. Some, who had no god, sought solace in whatever they revered or worshipped. Men whose lives had been their work scorned those who left their jobs—men who left their jobs spat upon the diehards who tried to work when nothing meant anything anymore.

And nothing really meant anything anymore. Man's life is spent in preparing for tomorrow. There is the eternal hope that tomorrow may be better, that beyond the next hill, over the following crest, there will be something finer. But when tomorrow will not come, why bother?

Why plan?

The Scriptures were quoted, and from them it was told that God intended to destroy the earth by fire because of its wickedness. People jammed the temples, imploring and praying for salvation.

Other people stood in groups, hushed and almost breathless, watching Sol through smoke-covered bits of glass. Hour upon hour they stood, waiting for the calamity to come.

Crime and viciousness were rife and from this streak of violence came the turn of the apathetic tide.

Men realized that while Sol might blow up at any time, tomorrow or next year. Exactly when was not too well determined for no one knew just yet the two salient facts of how swiftly the instability was rising and just what level of instability marked the critical point. But they realized that until it did snuff them all out in a grand cosmic explosion they had either to live or commit suicide.

Suicides were many but those who did not die by their own hands preferred to live to the last ditch, some to eke out the last savor of life and some because they feared and hated the oblivion of death.

So those who lived armed themselves and took vengeance against the unruly and the vicious.

Then, as the days wore into weeks and nothing seemed changed with Sol, men drifted away from their revelry and their indolence. One by one they went back to

their jobs, some because they were hungry and some because they were just bored with nothing to do. Some went back because only by hard work could they forget the impending doom that shone down out of the sky upon them.

Then came contempt.

**A** NOVA, said the scientists. So be it. But astrophysicists have been in the way of thinking in terms of a few million years at a clip, of measuring distances in light years, of talking about the fact that twenty-five thousand years ago Polaris was not the pole star.

A nova, said the scientists. So be it. But could they tell whether it was to happen during this lifetime or ten thousand years from now?

Sol had been shining for countless generations and no change had been seen in all that time.

Comedians made jokes of it and Hollywood continued to call them Stars or Starlets, depending upon their popularity—but the top-notch actors quickly became Novas.

Hollywood ignored the learned, who pointed out that a Nova was supposed to come up from the unnoticeable stage, pass through a short period of brilliance far exceeding its neighbors and then die into obscurity to be seen no more. One studio ignored this to the point of heralding its gala production for the year a 'galaxy of Novas!'

Man had run the gamut from abject fear to superior scorn. The pendulum had swung. Then it turned back and people knew that the astrophysicists were right, that sooner or later they were doomed.

Dull-minded and fear-sodden, they went about their work with a gnawing fear. They did only that which they felt necessary and subtle humor was lost. Men either worked sullenly and doggedly or laughed played loudly and roughly in the hope of forgetting for a few minutes that certain doom hung over them.

The astronomers were busy men during those weeks. The curious and the fearful came to them and looked through their solar telescopes and went away unsatisfied because they could see nothing. The scientists answered millions of millions of questions and half of these were the simple answer that nothing could be done.

As people realized this the observatories

lost their charm and the scientists could once more pursue their observations and make their calculations without interruption. At the end of the first wave of panic there were but few questioners per day who bothered to come to them. Near the end of that phase, Professor Lasson saw through his window a large automobile being passed through the hastily-constructed gate and fence. The armed guard waved it through.

It was Lucille Roman.

"You are Professor Lasson?" she stated.

The elderly savant nodded, wondering.

"You are the man responsible for all this?"

Lasson smiled. "Not I," he stated.

"But you—"

"You'll have to go to a higher Authority than I," he told her. "I merely made the initial discovery."

"That's what I meant," she snapped.

Lasson eyed her. Forty years before he would have been favorably impressed, whatever her mode of speech or idea of politeness. At the present time she was a veritable youngster, possessed of a prodigious quantity and remarkable quality of pulchritude.

She was also one of the types of women who possessed so much in the way of material things, beauty and money, that she had never been forced to learn charm and politeness and humility.

He snorted. "That isn't what you said," he told her.

"You know what I meant."

"Lady, the last time I read a mind I was so shocked that I gave it up."

"I'm Lucille Roman."

"I'm—"

"Don't be impertinent. I know you."

"Impertinent?" he laughed. "My dear Miss Roman, you are the one who snapped at me. I've always considered it fitting and proper to introduce oneself before starting a discussion. Now let's forget that you have more millions of dollars than I have formal degrees and start off on an even basis. What can I do for you?"

"I want to know about this nova."

"You've read the papers?"

"Yes, but can you trust them?"

**L**ASSON nodded. "Since a stellar blow-up can be construed in no political light, blamed on no particular race, breed, color, creed, religion or previous condition of servitude—and because most newspapers

lack the type of trained personnel to accept an account of this nature—they have no one to rewrite it into either gobbledegook or highly-flavored accusations. Most of the news accounts were as given out."

"Then we are to have a nova, and there is nothing we can do to stop it?"

"This is correct."

"When?"

"We're none too certain."

"Why?" asked the woman. "It seems to me that if you know how far this thing is going you should be able to tell about when it will get there."

"That is a sage idea. However we do not know yet just how the instability will progress. One school of thought claims that the instability, once started, will increase according to time. Lineally, that is. The other school claims that the instability will increase as the square of the time, somewhat similar to the fall of an object from a height. It goes faster as time progresses."

"But which—?"

Lasson held up a hand. "There is still a third school of thought that says, Sol is a solid and therefore any instability in the three-dimensional object will progress as the cube of the period of time. This has brought forth three widely divergent ideas as to the time-element."

"I can see that. But soon you will know?"

"I imagine that in a few weeks we can have the time-progress curves fairly complete."

"Then it is just a matter of one idea against the other," said Lucille thoughtfully.

"A few weeks at the least."

"A few weeks at the least. But remember, there is one other problem."

"Another problem?"

Lasson nodded. "Another complicated problem. You see, Miss Roman, if you treat Sol as a yardstick, for instance, with the instability creeping up it like liquid climbing a thermometer, you may have an idea of what we're up against.

"The instability may crawl up the stick so many inches per day. It may crawl up the stick at the rate of the squared series—one, two, four, eight, sixteen et cetera. Or it may crawl up at the cubed series—one, eight, twenty-seven, sixty-four, et cetera.

"But the other problem is that we don't know whether the nova will come when half of Sol is instable, whether it may come at one-quarter or when Sol is three-quarters

instable. One factor is multiplied by the other and the trouble is that, when we do get the first factor nailed down, we will still never know until it happens just at what percentum of instability the star becomes a nova. By then it will do little good."

"I see. Then we may have some time yet?"

Lasson nodded. "Frankly, it might be years."

Lucille Roman thought for a moment. "I've heard it said and I've seen proof that time and money can accomplish anything. What can we do?"

Lasson looked at Lucille Roman and shook his head. "Do as I have done. Compose yourself and reconcile yourself to death."

"But I don't want to die."

"That's tough."

"But something can be done."

"Miss Roman, look at this projection on the solar wall. That is an image of Sol. It is one hundred times the diameter of the earth, one million times the volume of the earth. If the earth were dropped into the sun, I doubt that it would make more than a mild splash or a minor sun spot. Can you move the earth?"

"No, I—"

"Remember, moving the earth would do no good. You must do far more than move the earth."

"But something—"

"How can you get at it? You would fry in your spacecraft before you get within twenty million miles of it."

"But given time and money to discover something—"

"Woman, you can't buy the galaxy!"

"But I can buy brains and put them to work!"

**P**ROFESSOR LASSON turned around. He waved his hand broadly. "Miss Roman," he said, "this laboratory and all of its fittings cost less than ten million dollars. I believe that this is somewhat less than a quarter of what your holdings are worth.

"If at some time a decade ago a couple of dozen of your friends had handed over a slice of their money for pure research we might know what could be done—if anything. Maybe it would have been better fifty years ago. Your father, for instance, might have done something about it."

"What?"

"Heaven alone knows what," snorted Professor Lasson. "We know so very little!"

"But I've expended sums of money for science."

"Science thanks you," replied Lasson sardonically. "And has thanked you in your own way. For every dollar you expended in the favor of science you have received a comfortable return, haven't you?"

"Not always."

"Look, Miss Roman, I happen to know that every dollar you have spent for your so-called science you spent towards some definite end. Did you, at any time, offer to endow Jeff Benson? He is a worker in pure research and this—"

"Benson?" snapped Lucille angrily. "He is a conniving cheat!"

"*He is not!* I knew Jeff Benson when you were wheedling your father for fifty-dollar playthings. While you were blowing bubbles with a platinum bubble pipe, Jeff Benson was studying the Newton's Rings the soap film made.

"He is in cahoots with Charles Horne."

"Oh blast you and Charles Horne!"

"Benson is sly and—"

"Sly? Just because he wasn't particularly interested in your type of cocktail crowd you grant him the faculty of being sly—because you think that Jeff's disinterest is slyness."

"I—"

Lasson shook his head in contempt. "He's probably wondering why you kicked him. That's how sly he is. But if you want to aid science at this very late date—now that your precious hide has been threatened by something too big to buy off—I suggest that you go to Jeff Benson and make him an offer to do something."

"I'd rather not," she replied scornfully.

"Then don't bother me," grunted Professor Lasson. "For if you endowed me the first thing I'd do is to hire Jeff Benson!"

"I'll die first."

"Could be," said Lasson quietly. "For me, well, I've lived a full life and I've not missed much. Kismet!"

"You wouldn't help!" blazed Lucille.

"Nope. There are too many fools like you," snapped Lasson. "Now get out with your money and let an old man study his charts in peace."

Lucille Roman left in a vicious temper. She seethed inside and vowed all sorts of vengeance—and then folded her arms in the

luxurious automobile that had brought her and cried, because all of her anger and threats of revenge were so utterly futile.

\* \* \* \* \*

Just how many other savants Lucille Roman approached is not a matter of record but their answers must have been substantially the same, for three weeks after her rebuff by Professor Lasson, Lucille Roman quietly rang the doorbell of Jeff Benson's laboratory. She went in, brashly apologetic.

"I fear that I've treated you shabbily," she told him. "I've come to apologize."

"Anybody can make a mistake," he told her.

"I'm glad you feel that way. Now maybe we can work together."

"Work together?"

"I've been trying to get a group of scientists together to see what can be done about this. They all claim that you can't stop a nova once it's started."

"They're correct."

"But we have time and money. Research—"

Jeff looked at Lucille oddly. "It's a little late for that," he told her.

"I'll give anything."

"It isn't enough."

**H**ER voice softened a bit. "I've been told here and there that you know as much about this as anybody."

"That's highly flattering but untrue. I am merely a mechanic. I work with my hands. What I know about the nova is no more than any other man."

"I'm not particularly talking about the nova now," she said.

"What then?"

"Jeff, can you make precision instruments for the navigation of deep space?"

"Easily."

"Jeff, we know there are planets around Procyon, don't we?"

"Morganson made that discovery a couple of years ago. But great heavens, woman, you don't—"

"Jeff, build them. We'll both go—together." Lucille leaned forward and put a hand on his. Her face was expectant. Her body was tense, vibrant. What she was suggesting had been in her conscious mind for some time and her subconscious mind now urged her glandular system into action.

"What an idea!"

Lucille stood up, her body still warm and trembling.

"We'll go," she said in a throaty voice, "to a new earth and star—"

"Not a chance," said Benson flatly. "We'd die on the way!"

The momentum of her idea was too fast to be stopped in one cold moment. She went on for a second, unheeding, and only after that time did she deflate a bit. The flat denial of the possibility caught her, chilled her and removed all hope. With the death of her idea her body went lax and a shudder passed through it.

Then, catching a ray of hope, she said, "But if we plan this right—"

Jeff shook his head, smiling at her lack of knowledge.

"In the first place we would be years and years on the way to Procyon—or even Alpha Centauri, for that matter. Alpha is about half the distance. There isn't enough space in your ship to store food enough for that kind of a trip and your ship isn't large enough to support a closed cycle of life.

"Fuel is another thing, though I don't know where your fuel comes from. I doubt that you have enough for a voyage requiring years—maybe fifty years, maybe more. Navigate deep space, yes. We could see our objective all the way and we could aim for it easily. But to try a trip of a lifetime's duration is impossible for physical factors alone."

"But we cannot stay here."

"If a start were feasible," said Jeff in a hard voice, "it would require the patience of Job and the love of Rebeckah for two people to spend their lives penned up in an aluminum tin-can with no sight of solid ground in sight.

"With you and me it would add up to murder most foul. Frankly, I'd rather be party to a cosmic catastrophe than take a life sentence with a female who wanted me only because I'm the guy who could keep her flawless hide intact."

"Why you—" This was a woman scorned reacting.

"Forget it, Lucille. You don't know what you're talking about."

Lucille Roman's body tensed again. The emotions that had gripped her before were gone, washed away in chill. Now anger came to add tonus to her muscles and she snapped around and darted towards the door. Every



click of her high heels against the floor told of her rage.

## CHAPTER XI

### Riot

**J**ERRY WOODS called on Jeff late in September. The sun was blazing bright but according to the observatories the temperature actually was not above that of any of the milder Septembers that had marked the beginning of mild winters. It was psychology. Jerry Woods joined it by appearing in a jacket even though the thermometer claimed that it might be considered the beginning of topcoat weather.

"Still at work, Jeff?"

"Might as well. Might turn up something."

"What, for the love of Pete?"

"There's this subspace business. I'm still convinced of that."

"What'll that do?"

"If there are two universes side by side we might be able to find a nearby stellar system without an impending nova. On the other hand, maybe we might be able to cross deep space to another star in a short time."

"Just because we cannot exceed the speed of light in this universe does not mean it holds true for all universes. Maybe space-one matter is not subject to the laws of space-two matter. We might be able to go to the other end of the galaxy in nothing flat."

"Any results?"

"None. But it's a job to keep my mind off of the catastrophe. I keep telling myself that this fraction of energy must go somewhere. Where?"

"I'm the guy with the flair for words, Jeff. Let's call it the Fatal Fraction?"

"Call it anything. I'd rather it did not exist."

"You and a few billion other people. But look, Jeff, do you know anything about the Roman Jet?"

"Not a thing. Well, not exactly nothing, but practically nothing but guesswork."

"I've a press release here. About the Jet."

"Yours?"

"No. Unfortunately it's on the wires already and can't be killed."

"Bad?"

"It is claimed by a prominent man, speaking for a group of scientists, that the Roman Jet employs energy tapped from the sun in some manner known only to Doctor Phelps of the Roman Enterprises. It further hints that the Roman Spacecraft, which uses solar power, may have been the cause of the solar instability."

"Holy mackerel!"

"They go to great lengths to show that the Roman Jet was first discovered about the same time that it was believed the sun was unstable. They point out that the Roman Jet, in pilot model, was in operation for some time before Professor Lasson made his initial discovery but that the first influence of the Jet might have been so small as to make observation of Sol's initial upheaval impossible."

"Like the tiny hole in the dam they quote as analogue, one cannot be certain of it for some time by merely observing the level of the lake behind the dam. But once the hole in the dam has worn itself wide and the level of the lake begun to fall perceptibly, the damage has been done and the hole eroded to dangerous proportions."

"Unfortunately, they conclude, one cannot mend a hole in the sun's core as we might do with a crevasse in a dam."

Jeff shuddered and grabbed for the telephone. "Who?" asked Woods.

"Roman. There'll be a mob, and they'll kill her."

\* \* \* \* \*

There was a mob and murder was what they intended. They boiled up the hill that held the Roman Laboratory and stopped at the tall electric fence. The armed guards fell back, closing the gate and throwing the switch. They called for Captain of the Guard O'Boise.

O'Boise came on the run. The thundering rumble of the mob was far too loud for a single voice, even that of O'Boise. He took to the microphone though he knew that the unaided voice of a man capable of shouting above the mob would do far more toward quelling them than the sight of a man gesticulating into a microphone while his voice came out like thunder from loudspeakers mounted on towers behind him.

"Halt!" he shouted.

The roar of the mob increased.

"Halt or we fire!"

"Go to hell!" screamed several in the

crowd. It caught on, and the entire mob began to chant the three words.

ONE bold man in a ragged shirt broke from the mob and crashed against the gates with a club. The sentry looked at O'Boise. O'Boise nodded and there was the flat crack of a rifle. The man screamed and fell, blood pouring from his thigh. The mob roared and surged forward. The rifles cracked four times more and from the nearby guard's shelter three more sentries came, carrying a machine-gun, which they mounted on the sidewalk that led from the gate to the front portal. They fired a brief burst above the heads of the mob. It slowed but did not stop the forward surge.

Then came a flash of fire from the mob and one guard dropped. Stones and clubs flew through the air and another guard was felled. His buddy ran forward and dodged the barrage of thrown missiles until he was standing beside the fallen one. Then from his hip pocket he took a grenade and hurled it over the wire fence. He stooped to pick up his fallen friend.

The grenade arched up, over, and down into the waiting hands of a man with a quick arm. He hurled it back and it burst above the fence, halfway between the guards and the mob. It spattered them with pellets and a cloud of gas erupted in midair. The gas drifted down slowly and made both guards and mob cough.

Another tear-gas grenade went hurtling over the fence to burst among the mob. This grenadier had held the bomb until it was about to explode and it was effective.

"Down and dig in!" yelled O'Boise.

A brief volley of shots rang out and chips flew from the sidewalk by the machine-gun.

"Fire!"

The machine-gun chattered and a half dozen of the mob dropped, howling. One guard fell, clutching his stomach, another stumbled, clipped on the kneecap by a thrown brickbat. The guard first downed by thrown missiles aimed and fired, dropping one mobster. The machine-gun chattered again and dropped another seven.

Then, from the mob, came spinning over the fence a length of hydraulic pipe about eighteen inches long and two inches in diameter. It was capped on both ends and from one pipe-cap there protruded a few inches of sputtering fuse.

The home-made bomb burst over the heads

of the machine-gun crew, spattered them with jagged shards of hydraulic pipe and stunned them with its blast. The smoke and noise covered more gunfire, which dropped another guard.

Then the crowd surged forward against the fence, and started climbing. Madmen they were, a hundred of them climbing the loose-mesh wire of the fence like monkeys.

"Stop!" screamed O'Boise.

The first man that reached the top touched the charged wire and dropped back upon his fellows like a stone. Then there was an electric flash as one man at the top threw a length of chain over the charged wire and grounded it.

The mob surged up and over, the guns chattered and dropped them by ones and twos—but not enough of them. The machine-gun went into action as the foremost of the mob dropped to the ground inside of the fence.

Some of them headed for the gate.

"Stop them!" yelled O'Boise to the machine-gun operator. He grabbed his revolver and fired again and again at the rest of the insiders, who were charging the guards' position.

The machine-gunner dropped first one and then another, his misses going through the wire fence and into the mob.

Then the gate swung open and the mad mob surged in. They washed through the gate and across the lawn like the inexorable inward rush of a tidal flow. In they went, in and past the guards. In and past—and over—the guards and when they had passed they left them lying there.

O'Boise groaned once, lifted a feeble, fist, then fell back on his face.

The mob surged up to the building and broke in. They found Lucille Roman at the telephone with Doctor Phelps beside her.

Lucille saw them and dropped the phone. Phelps turned and held up his hands.

"We're not—" he started to say. They grabbed him, overpowered him, hurled him to the floor. More of them went for Lucille Roman. She fled through the door at the back of the office, slammed it and shoved a desk against it. She went through that office and up the fire-stairwell to the roof with the mob howling after her.

At the top Lucille toppled a metal cabinet full of fire-fighting equipment down the stairs. It carried the foremost of them back. Those behind the leaders hurled casualties

and cabinet alike over the center wall of the box-shaped staircase and continued on to the top.

**P**ANTING with fear and excitement, Lucille Roman raced across the roof and leaped into the spacelock of the ship parked there. She struggled with the heavy door, hoping to move the servo-motor faster. The door closed slowly, ponderously, but not fast enough.

Hands appeared, and Lucille hit at them with her heels. They dropped and more came in to take their place. The door finally closed with a sickening crunch leaving the ends of several fingers on the floor inside.

Lucille retched and was sick there in the spacelock. She trembled in her aluminum spacecraft, frantic with fear and completely unnerved. Then she went up to the viewport. She heard the spatter of bullets against the hull. Some of them came through and ricocheted inside like angry hornets. Revolvers could not penetrate the skin of the ship but the heavier bullets from the rifles could—and did.

From the viewport she saw them haul Doctor Phelps out of the laboratory. He was still protesting weakly that the Roman Jet was not solar power.

They hung him from a limb of the tree in the front yard of the Roman Laboratories. Thus Doctor Phelps died believing that his jet did not tap the sun. It was unjust and anger came to Lucille Roman. She fired up the driving gear and the spacecraft rose from the roof.

The men on the roof died like flies under the backslash of that solar jet. Then Lucille Roman dropped the spacecraft into the yard and eight long lancets of sheer energy rayed down to sear the ground beneath the ship. She swept the ship in a spiraling circle and danced it up and down.

The eight jets left a swathe of black and flaming death however briefly they touched.

Sickened at what she saw, Lucille lifted the ship again and went up and up until the cabin whistled with the air screaming through the bullet holes in the hull. She was without plan, without hope.

She knew she must think this out. So, to give herself breathing time, she headed the ship towards the Rockies and landed it in a canyon where no man lived. There she could exist for a time while she planned her next moves.

"The yelling's died," said Jeff Benson in a strained dry voice. "The last I heard was Phelps crying that his jet did not tap the sun."

"How about Roman?"

"She left when they grabbed him, I gather. Hurlled the phone at them and scrambled." Jeff hung his phone up with a grimace.

"Must have been quite a scrap."

Jeff nodded. "I hope she got away."

Jerry Woods agreed. "But there's more to this news report."

"Isn't the damage done already?"

"There were some diagrams with the article; they came over the wirephoto. Maybe you can do something with them."

"They're none too clear."

"But they're good?"

"I don't know, Jerry. Maybe."

Woods scratched his head. "Does that jet tap the sun?"

"I wouldn't know from here."

"But if it did, could it have caused a nova?"

Jeff thought for a moment and then shook his head. "I doubt it," he said. "It's so confoundedly small compared to the sun. But I wouldn't know."

**J**ERRY WOODS smiled confidently. "I've got to be going," he said. "I'll call you as soon as we learn whether Lucille got away from that mob. We'll know before anybody else. And as for the Jet, let me know as soon as you learn something?"

"What makes you think I'll learn anything from these drawings?"

Jerry Woods looked at Jeff and smiled. "You will," he said. "You will."

Jerry Woods was wrong on one count. It was Charles Horne and not he who brought the news of Lucille Roman's escape to Jeff Benson. Horne came late that night and handed Jeff Benson a newspaper which screamed in black headlines:

#### LUCILLE ROMAN WANTED FOR STARTING SOLAR MENACE

It went on to state that her act of using the Roman Jet had been responsible for the solar nova, according to prominent speakers, and that such an act had been declared one against the public weal, the national and international security and demanded that she surrender herself. A ten-thousand-dollar reward was offered.

"So she got away," said Jeff.

"Yes, dammit. Say, how did you know?"

"Jerry Woods told me about the first account and I knew that a mob would form and so—"

"Good thinking," interrupted Horne, not waiting for the details of the fight as Jeff had heard it through the telephone. "Too bad they didn't take her apart."

"I hardly agree with that."

"Huh?"

"I'd hate to think of Lucille Roman getting the treatment that wild mob was handing out."

"She deserved it. Every bit."

"No one deserves that."

"She did."

"Now look," said Jeff angrily, "no man deserves mob rule. No man, no matter how bad."

"Some people get away with so much murder for so long a time that the only way anyone can see justice done is to get a mob together and do it themselves."

"If competent authorities cannot see enough in the acts of anyone to call him criminal, certainly those without authority and possessed of less judgment in the matter can not so decree just because they think so."

"Lucille Roman started that nova—for which we will all fry. She ought to fry first."

"In the first place, a long time ago there was a rigid document written that positively declared against any kind of retroactive punishment," said Jeff pointedly. "If a man builds an obelisk on Tuesday when such is legal and laws are passed against obelisks on Friday, no one can condemn him and toss him into the Bastille."

"Even so, she started this and she should be punished."

Jeff shook his head. "I'm not too certain yet," he said. "But I have some plans and some notes and a few high-flung ideas about the Roman Jet. Horne, I'm almost convinced that the Roman Jet was an effect of the nova rather than the cause."

"You're working on it?"

"Remember, Horne—some time ago I stated that we could learn a lot about gravity if we could modulate it. Well, Doctor Phelps

was trying to develop a neutrino detector, I'm told, which led to the discovery of the Jet.

"I'm not entirely satisfied as to the necessity for the neutrino but what Phelps was looking for was the source of whatever-it-is that causes the flaw in the conservation of energy."

"So?"

"So, because Sol was already unstable, Phelps located a hitherto undiscovered effect. This he refined and improved until he developed the Roman Jet. He might never have discovered it had it not been for Sol's instability."

"A lot of premises there, Jeff."

Jeff nodded. "I stand on solid ground than Phelps. I have some plans and perhaps a better idea of what goes into this thing than he did. I'll be working with this Jet within the week."

"What do you hope to do but make it quicker?"

"Shucks, Horne, I'm convinced that the Roman Jet is the effect and the nova the cause. You can't tell me that a little jet like that could cause stellar trouble."

Horne shrugged. He pointed to the large star-map on the wall of the laboratory and said dramatically, "Perhaps the novas we see out in the sky from year to year are caused by strong-minded scientists who plunge ahead and develop their own ideas of the Roman Jet."

"Maybe, Horne. But I'll know in not too long a time. I'm not too certain right now that the Roman Jet does have anything to do with Sol. If I'm postulating like mad, certainly you are doing the same."

"Well, anyway, Roman needed to be clipped."

"Frankly, I'm sorry for Lucille Roman. At least I have my work, though it never be finished. I can keep busy and do less thinking."

"I can't. There isn't enough high finance nowadays to buy matches to burn the useless stocks I own. But this argument is getting us nowhere."

"I guess not," smiled Jeff. He turned to his bench and picked up a length of dural tubing. "Hold this for me, will you?"

"Sure thing," said Horne.

It was almost dawn by the time Horne left and Jeff Benson was well on the way towards building his first copy of the Roman Jet.

NEXT ISSUE'S NOVEL

**THE PORTAL IN THE  
PICTURE**

By HENRY KUTTNER

## CHAPTER XII

*Window Into Sub-Space*

AS CHARLES HORNE left, he was thinking furiously. With billions of other earthbound people Horne did not want to die in even the finest of cosmic combustions. To die with pomp and ceremony and a monument that would attract the attention of every sentient being in the galaxy and other galaxies for thousands of millions of years was small compensation for the fact that he could not die very quietly of very old age.

Life was the survival of the fittest and man was certainly fit. Weakling that he was, man was master of his earthly environment because he had a brain. From the forests and the swamps he rose, gaining mastery over the material things in his environment where other animals—most of them stronger or more prolific than he—could not.

Man faced fire and stood his ground where other animals fled in terror or died because they did not recognize the grim destroyer. And eventually Man took fire into his cave and made it work for him.

Something could be done—something must be done. This much Horne knew, for with human egocentricity he believed himself to be the highest form of life, to be destined someday to rule not only Terra but the planets of Sol and eventually the Universe.

Man, physical weakling, was master of all. Strip a man of clothing, shelter, tools and means of communication. Drop him in a strange jungle, teeming with feral beast and poisonous snake, with plants and berries that cause cramp or death, and does he, like a lower animal, perish?

Perhaps. For there is that chance. But let him live an hour and he is armed with a club. Let him live a day and his club has a sharpened stone laced to its end, he has snares set to trap food; and a shelter.

Give him a week and he has the hide of one of the predators to clothe his naked hairless body and the flesh of the deadly animal to eat. And at the end of that week the animals of the jungle give him a wide berth, for man is a dangerous character.

Man, master of his earthly environment, became so because his earthly environment

threatened his life at every turn of the trail that leads upward from the slime and primordial ooze to the tall shining cities.

Now that man could change the face of the earth at his bidding the threat came from outside. Man must meet that threat, somehow, and overcome it.

Horne looked at the dawning day and shook his head.

One of the tenets of man's ability to control was his sensible readiness to flee when real danger threatened. It is not always necessary to stand and fight—it is even less necessary to stand and fight a losing battle. Sol was a threat that meant definitely a losing battle.

Therefore the thing to do was—by some means—to flee. To leave Sol before the nova and let the sun cast its awesome flare of bursting energy against a family of unpeopled planets. Second to that was the escape of enough people to make a new start.

Enough? That meant two at least.

Perhaps, if the nova had happened at an earlier day, the hope of escape would not have flared in every breast. But people knew of the Roman Spacecraft, and there was a faint flame of optimism in every mind, whether its owner had any chance of seeing the remarkable spaceship or not. Horne's conclusion was not unique. It echoed and re-echoed in the hearts of billions of people.

Only those initiated in the terrific extent of the interstellar reaches were without hope.

Yet Horne was not ignorant of the facts. He knew that the rocket seemed to have unlimited power. He had seen it take off on its maiden flight and, instead of hesitating and staggering, poised in that fearful moment when success or failure hung in the delicate balance of a fuel supply or a tank of oxygen—like the earlier White Sands experiment—the Roman Jet had taken the craft aloft with the effortless power of a diesel-electric locomotive drawing a single private car.

It had gone up swiftly and, as far as the eye could reach through deep-colored glasses, the jets had cut their glow in sharp relief even against a cloudless afternoon sky.

Sol, through the same glasses, was a dull red-purple disc. The jets had been blinding. Then, as they became less searing to the eye, Horne had taken the glasses off—swiftly, lest he lose the soaring trails.

He had cursed when they stuck to his ears because that took time and the rocket was rising swiftly. He had put his head down to

disentangle the bows from behind his ears and he felt that the rocket would be gone when he again looked up.

**B**UT in the sky, so high that the eight searing jets seemed to be but one tiny blinding spot, flew the rocket, its velocity still increasing in prodigious ratio.

Horne believed that the Roman Jet tapped Sol's internal nuclear power. If he were right, then that same power could be used in simple acceleration, hour after hour after hour, until the velocity of the spacecraft reached an appreciable portion of the velocity of light. And Alpha was only about four light years away. Eight years of soaring through interstellar space would not kill any man if he were determined to live!

All Horne needed now was to get his hands on Lucille Roman's spacecraft and then engage Jeff Benson to show him how it could be done.

Supplies? Horne had that problem figured out. The big problem was getting the spacecraft from a woman who hated his insides.

But Lucille Roman was keeping very well hidden. Wanted for tampering with the sun, clamored for by outraged people as a murderess for causing the deaths of the men in the mob which had ruined her laboratory and executed her chief scientist, Lucille Roman was not likely to appear in any place where she could be contacted.

Nor was she likely to be at any of her other plants, nor at her country homes, for when the mob killed Doctor Phelps and ruined the Roman Laboratory, other mobs had broken into her other plants and laid waste to them. Her apartment was a chaotic mess and her country homes had all been burned to the ground while the mob stood by to keep the flames from setting fire to the forests around them.

But if Jeff Benson said he had good reason to think the Roman Jet was not responsible for the nova, Jeff Benson was probably right. Jeff was one of those rare people who are often maddening because, 'It might possibly be,' meant it had at least a fifty-fifty chance, and, 'fifty-fifty' meant almost a dead certainty.

So the thing to do was to watch Jeff and wait until the scientist proved his point. Then to nudge the authorities into visiting Jeff, who would make them listen before they took him away for tinkering with the sun.

Jeff could prove his point, once he himself was convinced. That would free Lucille Roman of the initial charge and she could return to civilization.

Horne shrugged. He could get the spacecraft if it were impounded in Fort Knox. If it were left or kept in any place of less importance it would be that much easier.

So Horne was a frequent visitor to Jeff's laboratory during the next few weeks. He saw the development of the first jet grow from a tiny thing made of odd parts and baling wire to a mighty instrument which occupied Jeff Benson's attention so deeply that the man often forgot Horne was present.

Daily letters went back and forth between Jeff and Professor Lasson and between them they accomplished much. Lasson kept his eye on Sol and on the galaxy while Jeff worked out an angle here and unraveled a knot there and forthwith either wrote to Lasson or called him on the telephone to tell him what to seek for next. Then one day Jeff Benson went around nodding to himself. This happened to be one of the days upon which Horne had come to call and watch.

That night Horne wrote a careful letter to Washington and Jeff Benson had more visitors a few days later.

They came in, five of them, with sour looks on grim faces. There were a uniformed policeman, two younger men with the cold, clear, intelligent look of the government operative and two elderly gentlemen who, for all their obvious age, had bright eyes and very firm tread.

"Mister Benson?"

"Yes."

"Captain Hansen of the Chicago Police. I am Fred Cole and this is Louis Freeland of the F. B. I. This is Doctor Logan of the Federal Technical Department and the Undersecretary of State, Mister Scarland."

"I'm honored."

"You're close to arrest, Mister Benson."

"I am?"

"We're told you are experimenting with solar power."

"But I—"

Doctor Logan peered over Jeff's shoulder and nodded. "You are."

"I am," admitted Jeff. "Please come in."

**T**HEY came in. They would have come in anyway. Fred Cole said, "You are aware that this is against the law?"

"I am. But it may be the means to our salvation."

"It was the means of our downfall."

"That is not true."

"Have you proof?"

Jeff smiled sourly. "Have you any proof that it is or was?"

"The statement of a few physicists."

"A statement is no proof. May I show you something?"

Jeff showed them the small jet, covered by a tall cylinder of black glass. Inside the jet was searing upward in a minute lancet of energy.

"I have proof," said Jeff. "Now, gentlemen—"

"I warn you," said Captain Hansen, "that anything you say will be used against you."

Jeff fixed Hansen with a cold stare. "I'm a bit appalled," he said sarcastically. "I'm completely baffled by an attitude that insists that no research be done."

"We have reason to believe that this thing may hasten the blow-up."

"Well, in answer to Hansen's statement, it is of little importance to me. Since I've been caught with the Solar Jet in my possession and have admitted it, nothing that I say can have any further bearing on the charge. Furthermore, if I'm taken to jail or even executed, what have I lost but a few days of life?"

"It strikes me that a people threatened with extinction should foster any sort of research rather than nurture their short remaining period of life. This is the time to take chances, gentlemen. That is why I took this one. Now, may I continue?"

Doctor Logan cleared his throat. "Mister Benson, the only reason you are not being taken to jail right now is because many men hold you in high regard. Yet you have broken a law—"

"Law!" jeered Benson. "What good are laws when the sun is blowing up?"

Scarland nodded quietly. "Let him continue."

Jeff nodded his thanks to the Undersecretary of State.

"Now," he said, "this jet you see comes from the most minute of orifices. Yet it is three feet long and a full eighth of an inch in diameter at its widest point. The spacial orifice from which it comes is less than three one-thousandths of an inch in diameter. This is the prototype of Doctor Phelps' model.

"With a job similar to this Phelps developed the jet that drives the Roman Spacecraft. However, Miss Roman is the type of person who sees in science only the chance to advance herself. She could not be bothered to investigate anything but that which showed commercial promise. Therefore Doctor Phelps died screaming that his jet did not tap the sun."

"Does it?"

Jeff nodded. "The jet consists of high-energy protons, radiocarbon, radionitrogen and radiooxygen, alpha, beta, and gamma. The proportions are exactly that predicted in a conglomerate mass undergoing the thermonuclear reaction called the 'Solar Phoenix' by Hans Bethe, its discoverer.

"I believe that Phelps scanned it for the standard solar composition—Russell's Mixture—and found the main components missing. But the standard composition is merely a by-product and not the main energetic reaction. If this thing taps the sun's energy you would not expect a lot of ashes.

"Now, gentlemen, turn this way."

They turned at his request and looked down the throat of a long latticework tube. It was eight feet in diameter and fully thirty feet long, somewhat resembling the raw framework of a dirigible.

"Phelps never made one this size," smiled Jeff serenely.

There was a mad scramble to get out of the line of fire from that mighty solar jet. "Have no fear," said Jeff. "This is not dangerous. Not unless I make it so."

"Get away from that switch!" stormed Doctor Logan.

Jeff laughed. "This jet, put into full operation, would produce a searing pillar of flame three feet in diameter and about a half mile long. A flame at nearly ten million degrees centigrade."

"Lord! What a weapon."

"Weapon, my foot!" grunted Jeff. "Were I to turn this on, not only everything in the path of the flame would go up almost instantly in sheer nothing, but none of us could live within a thousand yards of it.

"The end-result would be a radioactive path for miles along the axis of the flame and the byproducts would be devastating to the earth for miles around. The very air would burn and explode into its component nuclear particles."

"Then what is it?"

"It is a window into subspace!"

"A what?" exploded Doctor Logan.

"A window into subspace. Look!"

JEFF thrust the switch home. Down the tube by half its length a shimmering curtain appeared for a bare instant—to fade into a veritable well of blackness. Pinpoints of light dotted the background. They looked like stars.

Jeff nodded. "They do look like stars," he said in echo of their thoughts. "This is proof that my theory does hold true. The flaw in the conservation of energy is true! Every pinpoint of light out there is the focal point of a star, the mass-energy resulting from the losses in the star being hurled through the veil that separates us from that universe to pile up there until subspace is strained by forces it was never created to take."

"But what does it mean?"

"Natural laws mean nothing in another universe—which this is. We now know what makes a nova."

"Go on."

"Like the lifting of a stone, you store potential energy in it which is returned when it is dropped back to earth. When, in this universe, energy is converted from one medium to another, part of that energy is thrust into this other universe which I call subspace.

"The energy required to lift the stone is not all used to lift the stone. Some of it enters this space, forced there by the effort. When the stone drops and hits the earth the energy returned to the coordinate system is not fully used. Some of it is forced into subspace.

"There is pressure against this forcing of energy and this pressure builds up until subspace is too weak to contain it. Then this storehouse of energy bursts through and the star explodes."

"And a supernova?" prompted Doctor Logan.

"We are all familiar with the fact that a supernova is supposed to occur when the dying sun gets cold enough to collapse according to Chandrasekhar's theory. But when the mass starts to collapse towards zero volume, which it will do if the mass is only a half million times the mass of Terra, the collapse forces raw matter into this subspace.

"Ton after ton of raw matter, millions of tons of raw matter composed of mere nucleic

cramped together in a dissolute state, are forced into this universe and instantly become that mass-equivalent of raw energy."

"Logical. Logical. But have you proof?"

"As I said, most of the laws of celestial mechanics in this other universe do not hold according to our theories. Look—I take this miniature jet and walk to the far end of the tube."

The black tunnel glowed with intolerable light that blinded them all. The light, ponderable and deadly, lashed against an invisible plane that barred the tube where the shimmering curtain had been when Jeff turned the equipment on. It was a sight to dizzy the mind. Fifteen feet down the lattice-work of steel and glass was a circle of blinding energy. Nothing could be seen through it. Outside of the tube was Jeff's laboratory. There was no intolerable light flashing back towards the end where Jeff held the jet. His face was not even illuminated.

"But what is this thing?"

"This thing is a modification of the Jet," explained Jeff. "Phelps never reached this point. The jet is controllable in intensity by simple means. What you look at, gentlemen, is the controlling surface that separates or bars the energy from coming in a single devastating burst."

"But what is that awful light?"

"You are looking through a window into sub-space." Jeff smiled. He returned to face them and as he turned the corner at the far end of the tube the light died. It was just as though Jeff had been carrying the light in his hands. Now that he was no longer at the far end of the hollow tunnel the light was no longer visible. But it did not die quickly, like a lantern carried out of the line of sight around a corner or behind an eclipsing mass. It died slowly—fading until gone.

"That is raw energy," explained Jeff. "Energy in the essential state. Either gamma heterodyned by my machine here or energy particles bombarding the material that separates the universe we know from this universe you now look into. In either case," said Jeff to the Undersecretary of State, who might not be able to follow the higher scientific discussion, "the energy is rendered visible by the device here."

"But it followed you."

Jeff nodded. "That energy is alien to that universe. If you can liken the situation to the inflation of a balloon you might say that the energy is driven into that alien space.



It will always try to return, to get out again, as the gas in a balloon does."

Doctor Logan shook his head dubiously. "You speak of energy being driven in. That too takes energy."

"Of course. And like the energy required to establish a magnetic field, which is returned when the field is permitted to collapse, this energy is returned when the lost energy comes back to our universe.

"In fact," said Jeff seriously, "it is this portion of the energy that causes the inter-spacial strain that eventually ruptures and results in a nova. It is sort of like a back E.M.F."

"Then the fact that you were carrying an orifice for the energy to return brought that collection of energy particles and raw energy to the vicinity of the opening?"

"Yes."

"But what do you hope to do with it?"

Jeff shrugged. "Out there are no planets that I know of," he said in a low voice. "Yet, from what I've seen, there is no limiting velocity such as we have here in this universe. If we can discover a means of entering and traversing that sub-space we can migrate."

The Undersecretary of State looked out through the tube once more. He peered at one of the distant smudges of light and shook his head.

"Go ahead and experiment," he said. "I'll incarcerate no man who can bring his own sunshine into jail with him."

## CHAPTER XIII

### *The Howling Mob*

**I**N a remote section of the Rocky Mountains Lucille Roman was tasting the first bitter elements of defeat in her hitherto victorious life. Her ship was unspaceworthy, for Lucille Roman lacked the skill and equipment necessary to weld the bullet holes in its hull.

Even had the ship been spaceworthy, she knew of no place to go.

Through all of her life she had been a winner. This had been often sheer luck, though more frequently it was the result of her native shrewd ability to manipulate and coerce people through her beauty and the power of

her wealth. She had often been close to defeat, but its proximity had merely served to steel her will and force her to fight vigorously enough to win.

Now she was hunted and hated by every man.

She did not know of more recent developments because she had long since forsaken the radio, thanks to its constant dirge of impending disaster.

For all of her ability to handle and control people, none would listen to her and she had lost the power to coerce. Instead of fawning upon her riches or acknowledging her managerial ability, people would now attack her viciously for the disaster they believed her to be responsible for.

In fact, Lucille was not much of a scientist. She knew little of it and admitted it. She had always been able to buy the best in brains. She preferred this to cramming her head with unnecessary facts and theories. Better that brains be used for what they were best fitted.

Let the thinker think and the doer do. He who could buy brains could buy the brains of those who could not or preferred not to use them to amass wealth. In that way, science was paid for and the financier gained his end as well.

But here she was, ignorant of the facts and about ready to accept the responsibility for having started Sol on its way towards nova. If prominent men said so, who was Lucille Roman to argue the matter with them?

So while radio, video and newspaper were explaining Jeff Benson's theory of nova, Lucille Roman sat in a remote and lonely spot and mentally chewed her fingernails—and ran inexorably out of food and water.

She opened her last can of paté de fois gras and laughed a little at the irony of Lucille Roman eating out of a can instead of dining luxuriously from Royal Crown Derby china with candlelight and sterling silver and a butler to serve.

She drained the last water from the tank and drank it though she would have preferred a bath. Then, facing starvation which, Lucille Roman took the lesser evil and decided to go to where food and water might be procured.

She lifted the spacecraft and headed south towards the small industrial town which owed its being to the large dam that furnished irrigation for the district and power for three states. . . .

Big Ed was first in line when the newspapers arrived from the big city. The spot broadcasts were sketchy and for full coverage of the facts he preferred the papers. So when the papers arrived Big Ed and most of the people of the town were waiting.

As is usually the case, the out-of-town edition was tabloid in size and tabloid in editorial policy. The rewrite men had fastened upon the meaty part of the news and they gave it full treatment. The portion clearing Lucille Roman of charges regarding the instability of Sol was secondary to the latest facts regarding solar blow-up.

A picture newspaper, the tabloid might have emblazoned Lucille Roman being escorted from jail because Lucille Roman made excellent picture material. But Lucille Roman was not to be found, let alone escorted from durance vile—so no timely picture was available.

Instead there were pictures of Jeff Benson and his equipment, a full page of shots showing the progress of sun spots and some prints of solar prominences exhumed from the newspaper's morgue and used because they were exciting when properly recaptioned.

To give them due credit the rewrite men did a good job of presenting Jeff Benson's theories to the public. That they did not do the job properly is no fault of theirs. Had they been capable of understanding the theory in toto they would have been scientists rather than news men.

**S**O the salient point in the news article said, "Energy converted or loosed or changed from potential to kinetic energy or from kinetic to potential energy is not completely transferred. Some small percentage of that energy is forced into subspace, where it is stored like the air blown into a balloon. "When the amount of this energy reaches the breaking point subspace is ruptured like the bursting of a toy balloon that is blown up too high. When subspace is ruptured the stored energy is released to come back to this universe. This is the cause of a nova."

Such was the meat of the theory. But what the newsmen failed to convey properly was the ridiculous disproportion between the energy converted in the core of the sun and the energy converted in the most massive of man-made power plants.

So Big Ed turned to his neighbor and mumbled, "Energy, huh?"

His neighbor nodded glumly. "Let's stop it!" he cried.

Thirty seconds later they were armed and heading for the big dam and its hydro-electric plant. They forgot that they would convert as much energy destroying it as it was converting now. And they were ignorant of the fact that the hydro-electric plant could have run from then until eternity without matching the solar output for a single second.

\* \* \* \* \*

Lucille Roman hung poised over the dam, watching. The men who tended it stood in the vast concrete runway atop the structure and waved at her. None of them drew a gun nor did they seem in the least bit angry. Their gestures were friendly signals of greeting without expression of anger.

It might be a trap but Lucille had to have aid or die and dying was inevitable anyway. So Lucille Roman, with little to lose, dropped her spacecraft onto a concrete slab at one end of the big dam and waited. The men scurried across the runway and came near the base of the ship.

Gingerly, Lucille opened the door and peered out.

"Come on out!" called the foremost.

Lucille stod in the doorway, quivering with fear, driven by necessity.

"I'm Tom Lichty. I'm foreman here. Anything we can do for you?"

"I need food and water. But—?"

"We just heard the news. Lucky, Miss Roman."

Lucille blinked. *Lucky?* She dropped to the concrete. "What is it?" she asked eagerly.

"What's the matter? No radio in that thing?"

Lucille nodded. "There is but it said nothing but how much they offered for my head. I turned it off."

"Oh. Then you don't know the news. A guy by the name of Jeff Benson just convinced the State Department that your jet did not cause the nova. You're no longer a criminal."

Lucille leaned back against her ship and took a deep breath. Relief from strain was instantaneous and reaction terrific. Her flight had been her first experience of being the quarry for the professional hunters of the known world. It had been nerve-wracking.

Lucille Roman had never run afoul of the law before and the experience of terrible fear and absolute helplessness, of knowing neither where to go nor to whom to turn to was the more bitter by contrast.

And it was Benson again! Lucille shook her head slowly. She was forced to admit that the young scientist cared little for the inuendoes of life and the plying of pawn and financial rook against an adversary.

She knew he was honest and truthful—that if Jeff Benson believed the Roman Jet was not responsible for the nova, the fact that he had every reason to dislike the owner of it would not stop him from releasing her from the responsibility. Another type of man would have been slyly happy to gloss over the truth for the inward satisfaction of knowing that she was in trouble.

But that did not help her to understand Jeff. The fact that she realized his desire to be honest did not help her to understand why. He might have been able to gain, otherwise, though she could not see why at this point. What made him tick?

Lucille could not know, having been brought up in a life where honesty was best when tempered with a bit of good sense, where being legally right was more important to success than being ethically right.

**N**OT that Lucille Roman would stoop to foreclosing on the homestead and throwing the poor unlucky indigent out onto the street when the loan came due. But she considered clipping another financier in a clear game of big money and stock-manipulation as the fairest sort of game. That way it was more of a sport, even though economic empires were at stake and no holds were barred.

"So I'm free?" she breathed.

Lichty nodded.

"Can I buy water and food?"

Lichty laughed. "Here's a nice lake behind the dam. I doubt that you'll lower the level of it by filling your water tanks. We've got a company store here. We'll sell you some canned grub—enough to get you to the nearest storehouse for a real fill-up. You can lower a hose?"

"There's a watercock but I've no hose."

Lichty gave an order to his men and they went into the blockhouse near the ship. Lichty climbed into the spacelock, inspected the watercock and nodded. He went with his men into the blockhouse and, as they came

out with a case of canned food, Lichty followed with a length of hydraulic hose.

It fitted, and in a minute or so, water was being pumped into the storage tanks from the lake behind the dam.

They all were busy and so they did not hear the first rumblings of the oncoming horde. When Big Ed led his crew of angry townspeople over the crest of the nearby hill Lucille was standing in the spacelock and Lichty and his crew were resting while Lichty wrote a brief bill of sale on a sheet of notebook paper.

Big Ed's crowd roared.

Lucille screamed.

Lichty looked around and shouted, "Hey! Stop!"

One of the uniformed guards went down, overwhelmed by the crowd because he chose to fend them off instead of counter-attacking instantly. Lichty ran towards them, shouting. The crew behind him spread out cautiously.

But Lucille had seen a mob before. She snapped the switch that closed the lock and by the time Big Ed came to the concrete slab the spacelock was closed.

"There's Roman!" came a cry and once again the spacecraft was pelted by stones and bullets.

She lifted the ship above them and poised indecisively. Lichty and his crew went down and were carried to the back of the howling mob and tied so that they could not interfere.

Big Ed and his helpers broke into the blackhouse and emerged rolling a large red steel barrel before them.

Lucille shook her head. Dynamite or nitro, she supposed. She understood that a barrel of explosive would make no more than a tiny dent in the massive concrete dam. If it did do real damage there would be great loss of life in the artificial valley as well as disaster in the many cities that depended upon the hydro-electric plant for light and power.

She dropped her spacecraft lower and put a glistening, eye-searing curtain of pure power between Big Ed and the dam.

One man ran forward and fell sprawling before he came within twenty feet of the eight massed jets.

Then, for the first time in days confident of herself, Lucille Roman lifted the ship and jockeyed it towards the foremost of the mob. They broke and scattered before those searing jets.

They broke and ran for cover and fell as they ran, seared with the torrent of heat that spilled from the jets that roasted the air near them, and so heated the concrete that it was powdery when it had cooled again.

Big Ed fell back and tilted the barrel. It rolled forward under the ship's wavering course and exploded with a terrible roar. Lucille's ship was hurled upward jerkily, to catch itself and remain poised ten feet higher than before.

But steel and concrete flew from the top of the slab and shards of debris rained down in the crowd.

Lucille aimed the tail of her ship at them once more and they broke and raced for shelter. They left Lichty and his crew tied to the steel railings at the far edge of the vast concrete enclosure at one side of the dam.

Knowing that the mob would not return as long as the ship remained in the vicinity, Lucille dropped to the enclosure and opened the spacelock as quickly as she could. She untied them and then, with them, raced back to the spacelock.

"Wait," said Lichty.

"For what?" she asked breathlessly.

Lichty smiled sourly. "We're not going anywhere."

"But they'll come back."

**L**ICHTY shook his head. "Nope," he said. "Mobs aren't like that. They have little determination. Remember, you're not too far from the state where they used to send just one Ranger to quell one riot. They're broken now and pretty soon good sense and shame will come and they'll be sorry for having made idiots of themselves."

"But what are you going to do?"

"We've got jobs to do even though it may not be long. We'll stay."

"But—"

"We'll find Big Ed. We can explain to him and let him take care of the rest. Now—"

Lichty was interrupted by a faint cry at the edge of the clearing. He turned quizzically, then went toward the far gate. Slowly, overcautiously perhaps, Lucille Roman followed Lichty and his crew, wondering what kind of man could walk into such danger without a qualm.

The cry was augmented by two fainter cries. She came up to Lichty, who was bending down over someone on the ground. Two men stood by, a child in each man's arms.

The woman on the ground looked up weakly. "*You!*" she breathed in a voice that held as much hatred as her pain-filled body would permit her. "You did this."

Lucille shook her head. "No," she said. "You did this."

"*No!*" cried Lucille.

The woman obviously did not hear. "You did this," she said again, more faintly this time.

Lichty stood up and shook his head. "Hit with a shard of the nitro barrel," he said.

"You did this," breathed the hurt woman. Her voice was a dry cackle and she tried to raise herself, to raise a hand, to point an accusing finger.

Lucille shook her head again. How could she tell this woman that she was not the cause? How could she explain to a woman grievously hurt that she too was but an innocent bystander to a cosmic catastrophe so large that the antics of man and his highest achievements were but a mote of dust by comparison.

"Who is she?" asked Lucille, at a loss for words but feeling the necessity of saying something.

Lichty shrugged. "I don't know," he said.

"But we must do something."

Lichty shook his head. "Someone's wife," he said in a soft voice. "Curious—perhaps seeking a thrill. She came to watch and remained to die."

"*Die!*" screamed the woman. A burst of energy roused her and she sat up by sheer effort. She leaned back against one of Lichty's men and looked into Lucille's eyes.

"You did this!" she cried. "You did—" She never finished.

The last ebbing force of her life was spent in anger and hatred. She died hating Lucille Roman and her face was twisted in helpless rage when Lichty's man put her torn body back on the concrete and covered it with his jacket. A rip in the jacket, torn by one of the mob, came over her hand and the hand thrust itself through and writhed faintly, opening and closing.

Lucille covered her eyes and turned away.

A childish wail caught her ear and she dropped her hands to look. Children, two of them, one in each of two men's arms, were trying to get free and run to their mother.

Dourly, for tenderness did not come easily to the hydro-electric crew, Lichty led the way from the gate back to the spacecraft.

He ignored the childish shrieks as his men tried to soothe the two children.

"What'll we do with them?" asked Lichty.

"I'll take them," said Lucille.

"Why? What can you do?"

Lucille shrugged. Her mouth was dry.

"I did it," she said.

"Don't be—"

"I'll help them," she said. "Who are they?"

"They were Jimmy Norberg's kids."

"Were?"

"Norberg was unhappy. When the nova was announced he decided that he had worked hard and long enough. He drew his dough from the bank and caroused until it was gone. A day after that he shot himself."

"Leaving her alone," said Lucille in a hard voice. She looked at Lichty and then at the twins. A boy and a girl, about four years old. A boy and a girl with a normal life expectancy of another sixty years.

A boy and a girl who might be the new Adam and Eve on some distant planet. A pair who would be in the prime of their lives by the time the awesome crossing was completed and who could be trained not to suffer the terrors of year-long spaceflight in a tiny metal ship. A pair trained to carry on the civilization started here near Sol.

"I'll take them," she said firmly. "Maybe, instead of having in my hands the cause of Sol's death, I control the future of mankind!"

## CHAPTER XIV

### *The Feminine Touch*

JEFF BENSON'S eyes widened a bit when Lucille Roman carried two children into his apartment and placed them gently on his broad bed.

"They're dead tired," she explained. She dropped into the easy chair beside the bed and put her head back and looked at the ceiling.

"You're tired, too," he said quietly.

"Not so terribly," she started. She sat up but Jeff put his hand on her forehead and shoved her back gently.

"What's the tale?" he asked.

"I seem to owe you a lot," she said.

"Nothing," he told her.

"I'm free. Isn't that something?"

"Only a matter of fact. You did nothing."

"I used the jet."

"So? That did nothing."

"Maybe it started the whole thing."

Jeff shook his head. He explained what he knew and took her then to his laboratory where he showed her the tube connecting the universe with subspace.

"This is a well-controlled orifice," he said with a smile. "This is no mere rupture nor even a clean puncture. It's more of a well or valve that can be used at will.

"No, Lucille, the nova was the means of discovery of the jet and the jet is not the cause of the nova. Which brings us to you. Just what have you in mind for the kids? And what are you going to do with them?"

Lucille looked up at him hopefully. Her face was wan, pale, devoid of the usual makeup, but her eyes were bright. "This is not for me," she said softly. "It's for them. You told me that we could not live out the journey to another star."

"We couldn't."

"But *they* could!" said Lucille proudly.

Jeff shook his head and smiled tolerantly. He put a gentle hand on hers and said softly, "They have the life expectancy," he said. "But—"

"So we can take them and take care of them until they are able to handle themselves. Then, when we die, they can go on."

Jeff shook his head again. "No go," he said. "There is the matter of supplies. Even granting some unknown means of sending them out alone, there wouldn't be enough." He thought for a moment.

"And even if we had clockwork to feed them regularly and machines to take care of their every physical need they would eventually end up by just going on and on and on through space until they died.

"For you see, Lucille, the ship would be their life to them and they might find a planet terrifying and hostile compared to the closed-in comfort of the spacecraft. They could never survive alone."

"There must still be some way," she said.

Jeff looked into the mouth of his tube. "Maybe there is," he said softly. "But I've yet to find it."

Lucille looked up at him again. "For them, Jeff?" she pleaded. "Can I help?"

"You?"

Jeff was interrupted by a muted roar from the back of the building. It was a strange roar to him but Lucille stiffened at the sound and put her hands to her throat.

"The ship!" she cried in a choked voice.

"The what?"

"My ship. That roar was the jets!"

Jeff led the way out through the back door. The air was warm, acrid, still skirling crazily. High in the sky was a tiny circle of too-brilliant dots. The diameter of the circle dwindled as they watched.

"My ship," moaned Lucille, pointing up. She turned to Jeff, her face filled with pain and misery. "Can I do nothing right? Must everything be wrong?"

**S**HE swayed and Jeff caught her. She sobbed against his shoulder for a moment and then straightened a bit. "Now," she said brokenly, "I have nothing left."

Jeff smiled tolerantly, sympathetically. "You can help me," he told her. He never realized that he was piling the proverbial coals of fire upon the head of one who had treated him so shabbily in the past.

But Lucille Roman did. She choked, swallowed and remembered that she had never offered anything in her life without anticipating some reward. The days of weariness and strain and fear mingled with her emotion, and once more she swayed towards Jeff. She caught her gently.

"Jeff!" she said in a thick, dry voice.

"Tell me tomorrow," he said softly. He scooped her up and carried her inside.

Jeff went down to his laboratory to work and he carried with him the picture of her wan face, her eyes closed in sleep. Lucille slept with one arm around each of the twins in Jeff's large bed.

\* \* \* \* \*

Charles Horne exulted in the performance of the spaceship for hours after lifting it from behind Jeff's laboratory. He put it through its paces high in the stratosphere, paying no immediate attention to the air that screamed out of the punctures in his hull.

Then, realizing that they must be fixed, Horne took his stolen ship north into Minnesota, where he had a summer cottage beside a lake. From a nearby railroad siding and freight yard Horne stole an acetylene welding outfit and spent a day or so experi-

menting with the outfit until he had mastered the rudiments of aluminum welding.

He sealed up most of the holes he could see, took the ship high in the air until it had driven quite a bit of air from the inside. Then he dropped it into the lake and went around on the inside, marking trickles of water driven into the ship by the lowered air pressure. By the afternoon of the fourth day he was quite adept with the welding outfit and he spent most of the evening rewelding some of his earlier efforts.

On the morning of the fifth day Horne was ready to try the first phase of his plan. He took the spacecraft out over the North Atlantic and, armed with a table of commodity sailings, dates and hours and ships and tonnages, Horne located a ship of about five thousand tons that was loaded with grain.

Caring nothing for the superstructure, Horne balanced the ship on its tail until the searing jets scorched the deck paint, curled the steel masts and sent the radio antenna and guy wires flying off in molten droplets. He seared the bridge to a smoldering ruin and the woodwork on the ship's upper structure blackened and flared away almost instantly.

The men on the deck died instantly and more men, running up to see what was going on, were met with a jet of atomic flame that killed them in their tracks. For an hour he played around the ship, bathing it with the fierce atomic radiation from his jets until he was certain that any man below deck must be dead.

Then Horne dropped the spacecraft on top of the ruined ship, nestling it in the hollow of the blackened superstructure. He spent hours fastening the spacecraft to the vessel with cables and chain from the ship's stores.

With a prayer of hope Horne set the power high and watched.

Spacecraft and surface ship moved forward, the sea-going ship nosing down because the thrust was high above the water. Horne increased the power and the ships moved more swiftly. Horne put power on the lower set of jets and the noses of the ships went up slightly.

He increased his power more and the surface vessel moved through the water faster than it had ever been intended to. It lifted, then skimmed, then touched only crests. Finally Horne turned the nose of his spacecraft up into the sky.

Still dripping water, the seagoing ship left the surface of the earth and rose high in the sky.

Gaining speed, Horne headed for space.

Free of Terra a few hours later, Horne consulted his sky maps. He located Procyon easily and headed towards the star with as high an acceleration as the Roman Spacecraft could develop.

Terra was lost in the sky behind by the time Horne cut the sea-going vessel loose. Its velocity was far above the escape velocity for both Sol and Terra. It would, hour after hour, day after day, perhaps year after year, plow through the silent black sky towards Procyon, its cargo preserved by the airlessness of space. When they picked it up again, be it days or years away, the grain would be in good condition.

No hull could hold the food and supplies needed for a trip across the void to another star.

But many hulls, laden with food and water and air—meat and vegetables and starches—tobacco and liquor—clothing and games and books and tools and medicines—hull after hull wrested from the ocean of earth and hurled into the sky—would do the trick. Some would be lost but most could be located by radar and ultimately taken along.

Not that Horne hoped to get any ships off early enough to have them picked up near the end of the long trek. But once they were removed, one by one, from the grasp of Ter-ran gravity he planned to chain them together in deep space. Hauling them along would be duck pie.

True, the total mass might be staggering in quantity and the resulting acceleration reduced to a mere crawl but a few moments with pencil and paper showed him that an acceleration one one-hundredth that of Ter-ran gravity could result in amazing velocities when continued over a period of time.

Let men laugh at the impossibility of crossing space to the stars!

Horne glowed inwardly as he saw the first of his supply train vanish into the sky. He swapped ends with the spacecraft and started to decelerate in order to return to earth. It took a rare combination of brains and ruthlessness to survive, and man—in the person of Charles Horne—was fit.

\* \* \* \* \*

It was a mild winter. The initial chill of

autumn faded into what should have been cold weather but the increasing activity of Sol kept the temperature well above freezing even though the calendar read December. The southern hemisphere reported a vicious summer and, as winter faded and the early months of spring came, the thermometer took an uprise never before reported.

Sol had an angry look. Intolerable to the eye unless viewed through special glasses or glass covered with soot, Sol bore down hotly in an angry sky. Sol could be viewed directly through thick glass or by projecting his image on a wall or sheet of white paper through a pinhole or a long-focus lens.

Then the myriad sunspots could be seen, and their opposite spots of searing brightness could be viewed in boiling motion somewhat like bright metal breaking through the slag in the melting pot of a foundry.

The Aurora played nightly and ruined most radio transmission, completely disrupted any attempts at video and often tied up the land wires for hour upon hour. Magnetic devices acted strangely and ships at sea wandered with aimless compasses on cloudy days and stormy nights. Only under clear skies could they hold course.

People worked doggedly and only enough to keep themselves alive. Gone was ambition—planning for the future.

Late in March Lucille Roman awoke from a fitful slumber. It was unbearably hot, and lightning flickered along the horizon constantly to the muttering of distant thunder.

Lucille was drenched in perspiration and she wanted a cigarette. She rose quietly, without wakening the twins, went into the bathroom and showered. She emerged from the shower and looked around the living room for a smoke.

Jeff was not asleep on the studio couch—therefore he must be working and would have cigarettes.

She went downstairs.

**J**EFF stood before the great tunnel into subspace, watching the performance of a small betatron that hurled its cone of hard gamma into the mouth of the tunnel. He was engrossed and did not hear Lucille enter. She understood his concentration and found a cigarette from the package on the desk behind him. She lit it and sat down on the desk quietly.

She watched him for fully a half hour. Jeff stood immobile most of the time, mov-

ing only when something required adjustment or needed checking. He copied few notes but consulted the back pages of his notebook regularly.

Lucille guessed correctly that Jeff was re-checking some important point of his endless experimentation.

Somewhere out through that tunnel Jeff hoped to find a future for the human race.

Jeff finished and snapped off the equipment.

"Luck, Jeff?" she asked.

He turned. She saw from the cut of his shoulders and the haggard look on his face that all the luck he had had was bad.

"Well?" she prompted.

"It's no use," he said.

"What happened?"

Jeff looked once more into the tunnel, inoperative now. He shook his head. "That is an utterly alien universe out there," he told her. "It is impenetrative."

"But—I don't understand."

He smiled grimly. "When matter is hurled through that veil it becomes radiant energy. Radiant energy hurled into the subspace, as I was just hurling it, emerges on the other side as the mass-equivalent of matter minus whatever percentage is lost in the conversion.

"It represents the back pressure that eventually ruptures the separation and causes stars to go nova. We might easily penetrate subspace with the right kind of equipment. But when we emerged on the other side we would be reduced to radiant energy."

Jeff dropped into the easy chair beside the desk. "It's no good," he said. "We're licked!"

Jeff's face fell and he stared at the floor stolidly. His eyes were hollow and his face was gaunt. Sheer hopelessness lowered his vitality even more. For minutes he sat, enveloped in a mental fog, and the only sounds in the big building were the sounds of his breathing and the periodic puffing of Lucille as she smoked her cigarette.

Jeff became more deeply immersed in thought but it was all circle-thinking—for the sum and substance of it was to lead him back along the same lines he had started out on. He sat half-hypnotized and half-asleep but unable to relax because of the strain.

Lucille snuffed out the cigarette and watched him with a puzzled frown.

Before her economic empire began to crumble Lucille had been too busy to try

to understand Jeff. What little thought she gave him was unfavorable because she believed him to be in league with her financial enemy Charles Horne. She knew differently now but her new knowledge merely made Jeff less understandable. When her holdings were reduced to nothing Lucille had thought she might be able to understand him. He was still an enigma.

She had been trained to handle and to control, to add wealth and material belongings. She mourned their loss and at one time she believed that Jeff's lack of sympathy for her loss of material belongings was due to the fact that, never having had much wealth, he had lost little and therefore did not feel the loss.

She now knew that whether or not material wealth was available to the mentally brisk and the financially ruthless Jeff cared not.

But he worked with great machines that she knew as little about as Jeff knew about the corporation machinery. Lucille had thought the calculations of finance were complex but Jeff juggled mathematical symbols that dealt in sheer abstracts and were as far ahead of Lucille's grasp of math as her manipulations were above the simpler forms of grade-school arithmetic.

Jeff just did not give a hang about finance—and Lucille was now depending upon him for her life. The financial wizard had to do the depending.

**L**UCILLE shook her head slowly. She compared him with herself and those she knew and found little basis for comparison. With complete and final obliteration facing her she had been unable to think clearly. Niggling fear chipped away at her constantly. Never was she unaware of it, even in the most compelling concentrations, when other more imminent things demanded her attention.

But Jeff worked on, often lost in thought to the exclusion of everything else.

She half-understood how a man might think and work toward escape from an almost-certain death. She had heard that definition of a rational man—the man with five minutes to live who took four of them to think of a plan and one minute to execute it. But she and most of the people she knew were so paralyzed with fear that clear thinking was impossible.

Yet Jeff worked on and on and now that



he realized failure he was still sitting there, thinking.

"Jeff," she cried, "what kind of man are you?"

Jeff jumped. "What?" he asked dully.

Lucille flustered. "I was wondering about you."

"Me?" he asked with a crooked smile. "I'm a rank failure as of this moment."

"But—"

"This is finis," he told her. "The end. We can't go through subspace and that is the final answer." He leaned back and looked up at the ceiling. "Poor kids," he said in a whisper.

Jeff's eyes filled and he turned his head aside and rubbed his eyes with the back of his hand. He stood up. "Pfu!" he said in a voice of complete dejection.

"Oh Jeff!" cried Lucille. She reached for him, caught him by the shoulders and drew him to her. He half-sat on the desk beside her. Lucille cradled his head in her arms and pressed his face to her breast. She swayed back and forth, rocking him gently and murmuring wordless sounds in a soft low voice.

Jeff gave a shuddering sob, they relaxed, and Lucille felt for the first time in many months the upsurge of emotion that came with the knowledge of having accomplished something. Unable to truly appreciate Jeff's work and its failure, she exulted in the ability to give him some measure of comfort.

Then Jeff stirred and straightened. "Why do we go on trying?" he asked.

Lucille put her hand against his cheek. "There's always hope," she said quietly.

He shook his head.

"What else?" she asked him.

He jerked his head back over his shoulder at the huge latticework that generated the window into subspace. "Might as well open that all the way," he said. "It would be so quick that the nervous system would have no time to register pain or fear or anything. Instantaneous release from this inevitable looking forward to terror and—"

"Jeff! No!"

"Oh, I won't," he said in a dejected tone. "But there's darned little to live for." Then he took a deep breath, shook his head as if to shake dejection from his mind and stood up straight.

"Back to work," he said in a voice of forced brightness "That's the answer, even if the nova catches us still fingering dials and watching meters."

"What next?" asked Lucille. Unable to suggest she asked questions because she hoped to prod his mind into some channel safer than the sordid contemplation of failure.

"Take another tack, I guess," he said. He turned towards the equipment but Lucille caught his hand.

"No you don't," she said softly. "No more work this night."

His protests were mild as she led him from the room.

## CHAPTER XV

### *Away From Earth*

CHARLES HORNE sat in the control room of his stolen spacecraft and added up his take. So many hundred tons of this, so many millions of gallons of that, so many billion cubic feet of the other. He had a large volume in front of him; a strange volume to be found in such a place.

It was a great mail-order house catalogue—a curious volume for Horne but eminently practical. For within the covers of the large mail-order catalog were listed the physical needs of mankind.

Horne knew and appreciated the fact that he was soon to be leaving Terra forever. Any item he forgot up to the time of his departure would be forever lost, never to be added to his collection unless it were some item he could fashion himself, either aboard the spacecraft or on that distant planet at a distant date.

Knowing that he had no perfect memory, Horne had spent hours poring through the catalogue and listing things he found necessary or desirable—things that he realized he might have overlooked.

Horne had had many the hour to sit and think. Piloting a spacecraft is not like driving a car nor even like piloting a superliner of the airways. A car requires constant supervision at the wheel. A superliner can run on the autopilot for hours with only an occasional readjustment by the pilot. A spacecraft, on the other hand, requires little or no supervision for days on end because of the medium through which it travels.

The Roman Spacecraft had been fitted with the finest in automatic machinery. It was therefore necessary to drive the ship manual-

ly only at takeoff, during such maneuvers as were necessary once the ship arrived at its destination, and in landing.

To take a trip of fifty million miles, for instance, one takes off manually and sets the ship on course at a constant acceleration. One then retires until half the distance is covered, at which time the pilot turns the ship end for end and applies the same power.

This results in deceleration, and at the end of the same period of time, the fifty million miles have been crossed and the ship is then at zero velocity relative to its starting point. This is theoretical of course but the difference is so small that a couple of hours of effort at the control board brings one to the desired point.

So, in the intervals between his seagoing piracies and the hurling of the stolen ships along their orbit, Horne had plenty of time to think and plan. Then, when he left each stolen ship to return to earth, he had more time for pondering.

He had planned well, had Charles Horne—very well. He only lacked the mapping of certain intricate details which could be supplied by Jeff Benson, who was quite adept at such calculations. Those few calculations, a few snivets of equipment supplied by Benson, and one other detail.

One more factor.

It was a poor master who had no servants—a poor emperor who had no subjects—a poor man who had no mate.

There would be small point in heading for Procyon alone. There was no future in it, either for Horne or the human race. Not that the welfare of the human race concerned Horne but the end-result would be one and the same.

There were many women Horne could take along. A single announcement of his plan would have given him the chance to make a selection from virtually all the women of the planet. He could pick and choose. He could take a harem if he wanted to.

As usual Horne wanted the unattainable. Like any other man who could select his mate with a casual wave of his hand Horne wanted the one woman that he had never been able to tame in less trying times.

Lucille Roman had spirit—she had beauty and she had ability. All admirable qualities for a wife and mother—but Horne was not viewing Lucille Roman as anything but a factor to be conquered, a will to be bent to his own. He wanted to hear this woman,

who had always acted his superior, acknowledge the fact that he was the superior creature.

Horne could have for the asking women willing to offer him honor, love and affection, freely and without conquest.

Horne preferred the conquest.

He wanted also the mighty jet that Benson had been using as a window into subspace. With millions of tons of stolen shipping passing through space on the way outward at varying velocities, Horne wanted the huge jet to drive them once they were collected and tied together.

**T**HE eight jets on the spacecraft were able to achieve escape velocity with an eleven-thousand-ton load.

His millions of tons of stolen goods were all beyond the velocity of escape from the solar system so that, if he tied them all together and used the spacecraft jets, he could still accelerate.

But the amount of acceleration in free space is a function of the force applied versus the mass to which it is applied. A heavy stone falls at the same rate of speed as a light stone on the surface of the earth because the attraction is proportional to the mass. As the mass increases, requiring more force to move it, so increases the force of attraction accordingly.

But in free space, with an increasing mass but with a constant force from his jets, every increase in mass would result in a proportional decrease in acceleration.

The mighty jet in Jeff Benson's laboratory rendered puny the total force of Roman's eight lesser jets. With Benson's jet driving the countless tons of stolen shipping, the resulting acceleration would rise to a practical level.

Benson would supply that, plus the calculations necessary for the trip to Procyon.

And, thought Horne with a sly grin, he would collect Benson, the jet and Lucille Roman in one fell swoop. Once he was on the way with all the necessary calculations made and the equipment working, Jeff Benson could be disposed of. Then, with no possible interference from man or beast, Charles Horne could take over the job of breaking Lucille Roman's will.

She would use a woman's weapons on him, to bilk him of his aluminum interest! Horne would retaliate by using a man's weapons and strength to conquer her!

Horne had plotted well. He had made a few errors, but his batting average was high.

The fact of the matter was that he had made only one major mistake and that had not resulted in disaster. It had only delayed his plans a bit and another bit of plotting had rectified the error.

So Charles Horne landed in the vacant lot behind Jeff Benson's laboratory. He was filled with confidence that he could cope with Benson, could talk the man into anything.

He opened the door boldly and walked in with a confident smile.

"Howdedo, folks," he greeted them.

"Horne!"

"I'll be—!"

"None other," chuckled Horne.

"Where've you been?" demanded Jeff.

"Making plans," said Horne. "Now I've come for you."

"You've what?" said Jeff.

"Come for you."

Lucille looked around the laboratory and picked up a large half-round file. A few short weeks before she would have reacted like any other person not too familiar with tools. She would have reached for a hammer or some other blunt weapon. But she had watched Jeff at work. A hammer might be an obvious bludgeon but a fourteen inch half-round bastard file is a very nasty weapon.

"Why?" she asked with a definite snap.

Horne faced her. "I've come to apologize to you too," he said smoothly. "You wouldn't have lent me your rocket—"

"How right you are," snapped Lucille.

"But it was necessary that I have it. You'd not have trusted me even though I'd come to you in good faith."

"Impossible."

"Huh?"

"It's entirely impossible that you could offer even a poor substitute for good faith."

"This may convince you," smiled Horne.

"Yes?"

Horne faced Jeff. "Give a dog a bad name," he said with a smile, "and it's a bad dog forever after. I've a bad name. Therefore the only way I could prove myself was to do what had to be done by force and then come back to show you that I mean well after all."

Lucille hefted the file. "What's on your nasty little mind?" she asked him pointedly.

"We're on our way to Procyon."

Lucille laughed scathingly.

"Impossible," said Jeff.

"You see?" said Horne with a lift of his eyebrows. "Even had I come to you with my plan you'd not have taken it seriously."

"Come to the point," said Lucille.

"We're going to cross interstellar space," said Horne.

"But that is impractical."

"Not at all," said Horne. "What I have in mind will work. I've supplies on the way. What I need now to drive them is your big superjet, Benson."

"But it is not a jet," objected Jeff. "I've been using it to investigate subspace."

**H**ORNE smiled. "Isn't it the same kind of general layout as a jet?"

"It started off as one but—the trouble is that it's too big . . ." Jeff's voice trailed off as he became engrossed in thought.

"Look," said Horne, "for months I've been lifting ships laden with the necessities of life out of the ocean and towing them out into space. I've sent them along a course at varied velocities so that they will all converge—more or less—a few billion miles beyond Pluto in a couple of weeks!"

". . . might work . . ." muttered Jeff, still deep in thought.

Lucille stamped her foot. "Jeff! Don't trust him!"

"I dislike violence," said Horne apologetically. "But I've been forced to it. Had there been another way I'd have taken it. At any rate, with the millions of tons of supplies I have out in space waiting for use we can make it even though it takes longer than anticipated."

". . . the big jet might do the trick," mumbled Jeff. He went to the big latticework tube and turned it on. While it was warming up Jeff went to the instrument cabinet and took out a couple of pieces of observing equipment. He peered into the eyepiece of the first and made some scrawling calculations on a pad of paper.

"It's there, all right. . ." Again his voice trailed off as he began to juggle an equation.

Lucille looked at him and frowned.

Horne continued, "We can tow the big jet out into space, collect the assortment of seagoing ships when they converge, chase the few that have wandered off because of my inability to handle space navigation—astrogation, isn't it?—and then we can tie 'em all together and drive 'em with your big jet."

". . . an idea that hadn't occurred to

me . . ." mumbled Jeff, using his slide rule for a moment.

"Jeff. Don't believe Horne!"

"This is no time for petty dislikes," said Horne to Lucille.

"Isn't it?"

"No."

"Seems to me that if all of us are to be canned up in a single shell of aluminum for half of our lives we should be able to pick congenial company."

"We are all partners in this," said Horne quietly. "I'm in it because I have the plans and have executed my part. Jeff is in it because his technical ability was and is needed to get us on the way. Similarly, you have a large part in this enterprise because you manufactured the first rocket capable of performing such a feat."

". . . needs no reworking at all," said Jeff finally.

Lucille looked at Jeff once more. Again she shook her head. Horne was completely selfish and absolutely ruthless. He had the ability to talk a victim into bankruptcy and leave him firmly convinced that Horne was still a good friend. He was a first-class confidence man with about the same level of ethics and morals.

She was in a spot. Knowing Horne as she did, Lucille felt no compunction about clipping him over the head with the file she held in her small right hand and leaving him abandoned on a doomed earth while she and Jeff took for a new future. Obviously Horne had no intention of following through with such a Noel Cowardish plan as having the three of them crossing the void to set up a new civilization on a distant planet.

It was, and she faced it squaredly, a matter of whether she could murder Horne before Horne could murder Jeff.

But she could not call upon Jeff. He stood there lost in thought, twiddling his slide rule and making hentracks on a sheet of paper. It was time to forget the math he knew and apply the knowledge of human nature that was hers by heritage and experience.

**Y**ET, if she tried to convince Jeff of Horne's duplicity, he would probably take off on a long discussion of how the trip could be made. It would be her show to keep Horne from killing Jeff and to see that Jeff, not Horne, was the final male survivor of that interstellar trip.

For if she were to face a new future with either of them it would be Jeff Benson rather than Charles Horne.

Horne said, "At one gravity constant acceleration it will take two hundred and sixty-odd days to reach a velocity of three-quarters the speed of light. We have power enough, perhaps, to go higher but that will have to be computed by Benson.

"There are planets around Procyon. We must trust Moranther's Hypothesis that most stars have planets and that most planetary families will run the same gamut of characteristics as the planets of Sol."

Jeff looked up, still deep in thought. "It will do the job," he said, absently. "The big jet will do it as it is now."

Horne blinked. "No changes necessary?" he asked pointedly.

"None," said Jeff. "I am certain that the velocity of the wide-open jet will be high enough to hurl the solar-combustion products far and fast enough to be relatively safe."

He turned to the work-table and picked up a tiny model of the Roman Jet which he had been using in his investigations. He snapped the switch on the driving equipment and looked down into the open cylinder briefly.

"It's certain," he said. "And to think that I hadn't thought of it before!"

"Too late," grunted Horne.

"Huh?"

"All I wanted to hear from you was that the big Jet would do the trick," said Horne. "That's all!"

Horne slipped his hand into his side jacket pocket and it came out holding a flat, blue automatic. His left hand hit the slide, cocking it.

Lucille screamed and leaped forward, raising the file. Horne turned and snarled. The gun came halfway up but Horne had no desire to harm Lucille. A dead or crippled mate was not Horne's idea of good company for a number of years in space.

Lucille's file came around in a short vicious arc. Horne threw a punch with his left. He caught her across the face with a wicked backhand slap that turned her head and threw her off balance. Horne slid aside and let the wild swing of the file go past. Then he moved in again, catching Lucille with his shoulder and hurling her aside.

She bounced from his shoulder like a sack of meal and fell sprawling on the floor.

Horne laughed shortly as his automatic

came up to dead point in his right hand.

There was a flat bursting bark followed by a shrill screech. The room flared with an intolerable brightness as the miniature jet in Jeff Benson's hands flashed a nine-foot lance of sheer energy that drilled a one-inch hole in Horne's chest.

Horne stopped moving. He was dead from the cone of ultra-hard gamma radiation that came from the jet before the material energy could cross the gap that separated him from Benson.

He fell, unseen.

"Jeff! My eyes!"

"They'll be all right."

"But Horne—"

Jeff snorted. "You don't need eyes," he said. "Can't you smell?"

## CHAPTER XVI

### *No Such Comet*

"**B**UT I thought you trusted him."

"Why should I?"

"You sounded as though you did."

"I might have, excepting for a couple of things that did not add up."

"For instance?"

Jeff smiled. "His first mistake was in acting the part of the spokesman for a group of scientists who claimed that the Roman Jet was responsible for the nova. He forgot that I know a few scientists—enough of them so that I smelled a rat. When Jerry Woods came to me with that yarn I began to make inquires because I had evidence they were wrong. The answer pointed to Horne."

"Why did he do that?"

Jeff shrugged. "I think that he hoped to get his hands on the rocket after the riot at your place. Then, after you escaped, Horne tipped the authorities off that I was working with the stuff."

"Again—why?"

Jeff groped for cigarettes and, as the match burned, breathed a sigh of deep relief.

"I can see the flame," he said. "Another half hour or so and we can get to work. Horne wanted to get his hands on the rocket. He knew that until you felt free to return to civilization you'd hide out somewhere. He knew that I could tell the truth and convince the authorities of the facts. Doctor Logan

had the F.B.I. track down the source of that tip. They found the trail that led to Horne."

"But why didn't they do something?"

Jeff grinned, "you can't slap a man in the calaboose for telling the truth. I *was* monkeying with solar power."

"But you sounded convinced that Horne—"

"Did I? I'm sorry. I was busy thinking. Horne gave me a grand idea and I'm afraid I paid very little attention to his talk."

"But you were prepared with the little jet," said Lucille. She blinked and peered at him with unfocused eyes. "Move," she said. "All I can see is a couple of yards of bright streak and a haze of background color."

Jeff moved.

"Thanks. I'm clearing up too."

Jeff nodded. "Horne was too glib. He forgot that nature is inclined to be a nasty thing at times. You see, Lucille, nature might well permit a couple of women to share a man but the reverse is not true.

"All too often I've seen the firmest of boyhood chums become the nastiest of adult enemies because they both happened to want the same woman. If Horne had been honest in his proposition he would have provided a gal for me—or maybe himself."

Lucille looked down at the floor and screamed. "Oh!" she said. "To think that the first thing I have to see when I can see is Horne!"

"We can blame him for a lot of trouble and a very timely bit of help. Can you see?"

"A bit—well enough to navigate."

"Come on then. We've got work to do."

"What'll I do?"

Jeff smiled. "Pack. We'll waste no time."

While she was gone Jeff went to work on the equipment that furnished the force-fields for the big jet. He made cables to replace the impromptu connections that ran from one thing to another. He fastened some loose breadboardstacked circuits onto a metal panel and tested the circuit.

He packed the various cabinets and cases, stacked some of them for easy handling and bound them together with steel bands. When Lucille returned with a handbag, leading the twins, Jeff was waiting.

"You're very necessary," he grinned at her. "I don't know how to handle the rocket."

"Thanks. But Horne did it."

"Horne took time to find out. He had to.

I've a chauffeur and I'll be a very busy man." He looked down at Janey and Jimmy. "Bundle them into the ship," he said.

"Naturally. We can't leave them here."

Jeff patted Jimmy on the top of the head. "Come on, snooks," he told the child. "We're going on a little jaunt."

"To see mommy?"

"We're going to see a new star," said Lucille.

Jeff shook his head. "A new sun," he said.

Lucille stuck her tongue out at him. "Go on," she said. "Be technical."

**J**EFF stood in the open spacelock and called directions through the telephone as Lucille lifted the big rocket gently and cautiously on its jets. She went up and over and made a soft landing on the roof of Jeff's laboratory. The backslash burned the tar and gravel of the roof and sent up a smoking stench that blinded and choked.

Jeff tied a wet handkerchief over his face and dropped to the smouldering roof. He took a pickaxe and drove a number of holes through the surface, peering from time to time through one of the holes to be sure that the ring of holes encircled the position of the big jet and its associated equipment.

Then he dropped a number of cables from the spacecraft, the same cables used by Horne to pirate his supply of ships.

Jeff then went below and climbed into the trusses that held up the roof and cinched the cables to the roof.

Then Lucille lifted the spacecraft and the roof came off with a rending crash. Dust and debris fell into the laboratory. A beam fell to short the electrical wiring and there was an electrical flash and a sputtering arc until the fuse blew.

They dropped into the vacant lot while Jeff unleashed the cables and then once more they rose above the laboratory and dropped down through the hole in the roof until the sloping sides of the ship filled it.

There the ship hung, its bulk suspended a few feet above the monster jet. Again Jeff went into the laboratory and slung the big jet from the cables, fastening it tight against the side of the ship, pointed down.

The driving equipment was hauled into the spacelock with the small crane once used to trundle automobile engines back and forth when Jeff Benson's laboratory had been a mammoth garage. Then Jeff took a last look at the place, picked up an item or two and

entered the lock, closing it behind him.

"Up!" he said, dramatically.

The jets flared and their backslash hit the concrete floor and spread. The ends of the lances of raw energy licked at table and chair briefly before the big ship went up with its load.

By the time they were a half mile high Jeff Benson's laboratory was a roaring holocaust.

\* \* \* \* \*

Jeff chucked Janey under the chin. "We're off," he told the child. "Let's go open a can of beans and make ourselves at home."

"Eat?" That was Jimmy, anticipating his most favorite pastime.

"Uh-huh," chuckled Jeff. "Eat. This is going to be a bit cramped but we had no one to leave you with."

Lucille started. "Jeff?"

"Huh?"

"But Jeff, we couldn't leave them here while we go to Procyon."

Jeff looked at her wide-eyed. "We're not going to Procyon," he said.

"Not—going—?"

"Shucks," he said, snapping his fingers in exasperation, "I must have forgotten to explain what I was thinking about when you were all stewed up over Horne. That was a bright idea."

"Do go on," replied Lucille in a pettish tone. "If we aren't going to Procyon where are we going?"

"Just out there," chuckled Jeff.

"But you said something about another sun."

"So I did."

"But—"

"So we're going to make it," said Jeff grandly.

**L**UCILLE sat back and scowled at Jeff. Jeff nodded thoughtfully. "It's been right in front of my nose ever since Lasson and I and Jerry Woods talked over the nova theory months ago. Right here," he said, passing a hand in front of his face. "And I'm so blind that I can't see it."

"Remember the theory? Subspace is warped because of the excesses of energy hurled into it by the solar nuclear reaction. A nova takes place when subspace is ruptured, just as a balloon will rupture when you blow it too full.

The returning energy, coming in all at once, mingles with the solar energy and the

resulting increase in temperature and pressure raises the nuclear activity to explosion levels. It's something like oxidation in chemistry.

A log of wood will oxidize slowly at room temperature. It takes years. In a fireplace, at or near the kindling temperature, the log burns swiftly. Toss the log into a vat of molten steel and it goes *puff!*"

"Get to the point."

"It's a long tale and we have a long way to go."

"But my patience isn't that long and you know it."

"Okay. What do they do to keep boilers from blowing up?"

"Put a safety valve on them."

"Correct."

"And the big jet is our safety valve?"

Jeff nodded. "We can drain the excess energy out at some spot in space where the returning energy will not interfere with Sol. Nor," he added with a half-smile, "Sol's planets."

\* \* \* \* \*

"We're here," said Jeff, peering at the radar screen.

"Here?" asked Lucille.

"Horne's pirate hoard is right handy."

"Jeff, you bother me," said Lucille in an exasperated voice. "Two weeks ago you tell me we're not going to Procyon. Obviously we don't need a few millions of tons of groceries if we don't try to cross interstellar space.

"Now, after manipulating the ship around to come to a stop out here in space, you look for the stuff. Just what are we going to do—and how am I ever going to begin to understand how you think?"

"Study practical physics," he grinned.

"Have you any idea of where that jet will go if we turn it on with all the energy of a sun behind it?"

"Off in a heck of a rush," said Lucille. "But is that bad?"

"It would be. In subspace there are islands of energy clustered around the back-pressure of every sun. Once this jet gets closer to another sun than our own the energy from that other sun will be coming through. I want this little safety valve to remain as Sol's own. We need the grand mass of that junk to hold the jet down."

"Okay. But it'll still move."

"Right, Miss Galileo. It will still move. But with enough mass I can make it circle by setting the angle of the jet. Then it'll stay in the near neighborhood."

It took several days to collect the ships. Horne had done a good job of sending the later ships faster than the earlier ones and along the same course towards Procyon. Their own mass, inconsiderable as celestial masses go, had been of only minute benefit in mutual attraction to keep them together.

But it had helped and once the grinding, bumping group of ships had been trussed together by cable and chain, with the spacecraft acting as tender, space-tug and donkey-engine, Jeff was ready.

By remote control he opened the jet.

It flashed once and then a cylindrical tongue of blazing energy started to extend from the maw of the great jet. It moved with apparent slowness out from the mass of chained ships, from where Jeff and Lucille watched—but they knew that the jet was punching out at speed very close to the velocity of light. For minutes it jetted out, ever extending, always in a straight line.

[Turn page]

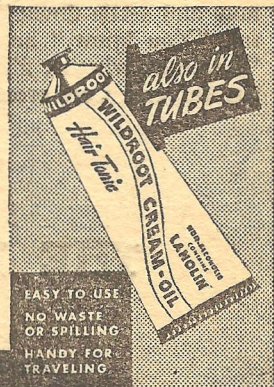
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Then it curved as the moving mass turned and the searing tongue of flame became sickle-shaped as it cut a swathe through space. The distant end of the tongue dispersed and spread in a cooling cloud of gas that ran down through the spectrum and vanished.

The spearhead came around in a vast arc, resembling a comet.

**B**UT no such comet was ever seen before. It seared the eyeballs as it curved its way across the sky. It seemed to move ponderously but it was only vast distance that made the illusion of slowness.

The head of the arc made its first complete circle and cut back through its own trail.

Light burst from the hot center of the trail and the trail bulged. Then, from within it confines, emerged vast licking, darting lances of sheer energy. Like a fast-growing cauliflower of blinding brightness, space ruptured where the jet had crossed its own trail and the pent-up energy of Sol came roaring through the breach.

.. "Get!" yelled Jeff.

"What is it?" cried Lucille.

"Just get—and hope we can outrun that explosion."

The rocket turned and the jets flared into the back sky.

"But what is it?"

"I think the thing turned into its own trail, burned the barriers down and opened the whole aperture—sort of like having the stopcock blow out of a high pressure tank."

"But what will happen?"

"I was kidding about making another sun. But time will tell. Maybe in a few years that thing will have expanded to a size large enough to make a Sol a double star."

"But the nova?"

"It's finished. Kaput. We can go home now and settle down." Jeff looked thoughtful. "You know," he said after a moment. "I wonder whether all of the double stars in the universe were created by sentient beings

who have discovered the secret of subspace."

"That's not too important," said Lucille. "This thing is bigger than that."

"What is?"

"Why, don't you realize? You've averted a solar nova and saved the Earth."

"Oh, yes. Glad to do it," chuckled Jeff.

"Now we can go back home and return to our daily lives without worrying about having the sun blow up in our faces."

"That is a fine idea. It's been a long time. And the poor people who threw everything overboard because there was no future?"

"You, for instance. Going to carve yourself another financial empire?"

Lucille shook her head.

"I've proved I can do that," she said quietly. "I've a more interesting problem at the moment."

"What?"

"Why, I've got to see whether running a family is more or less difficult than running a corporation."

"Family," chuckled Jeff, looking at the twins. "We've got a couple of kids to take care of, haven't we?"

Lucille leaned against him softly. "Make an honest woman of me, Jeff," she said dreamily. "I think we'll be starting our family with three."

Jeff looked out of the windowport at the exploding sphere of glinting light and the racing rod of energy, then out of the other port at Sol. Somehow Sol seemed less angry already although it was impossible to tell from this distance or at this short interval. At any rate, there would be no nova.

Then he looked down at Lucille. She snuggled down cozily, happy and content with the gnawing fear gone.

The sun's trouble was over but Jeff wondered just how long Lucille could remain content. He shrugged. If he could manipulate the solar system he ought to be able to manage a woman.

It would be interesting to find out just how wrong he was.

●  
LOOK FORWARD TO—

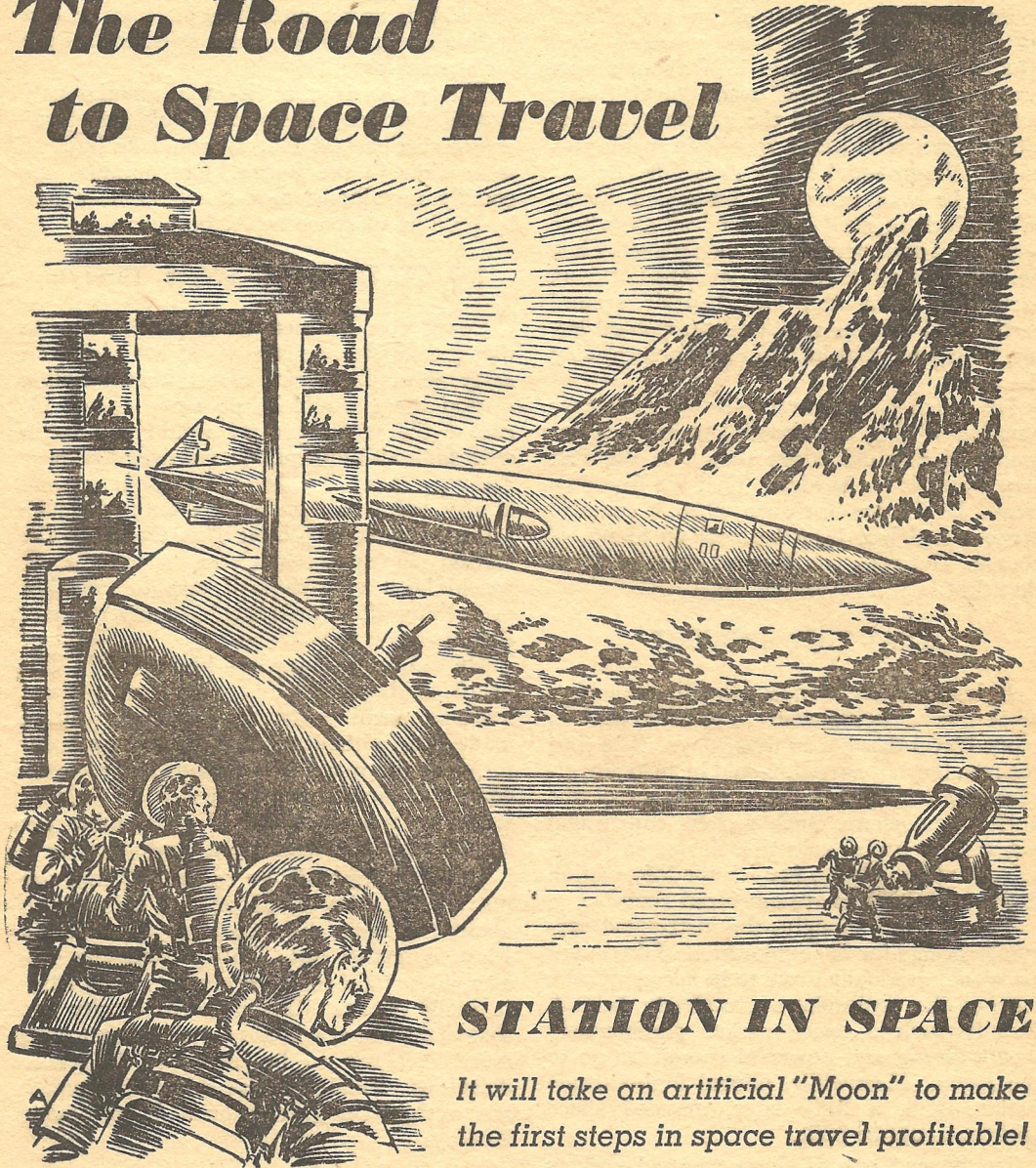
## THE PORTAL IN THE PICTURE

By HENRY KUTTNER

*An Amazing Complete Novel Featured Next Issue!*



# The Road to Space Travel



## STATION IN SPACE

*It will take an artificial "Moon" to make  
the first steps in space travel profitable!*

**A**BOUT twenty years ago a Viennese engineer and mathematician, Count Guido von Pirquet, spent a number of weeks immersed in calculations. His tools were simple—a slide rule, an astronomical handbook and some tables. The calculations

on which he spent day after day in single-minded devotion were not exceedingly difficult from the mathematical point of view but they were tedious almost beyond endurance.

The nature of the work was such that most

**Third in a Series by WILLY LEY**

people, had they known about it, would have made remarks like "waste of time and effort"—"foolishness disguised as science"—and whatever else was said in 1928 about a man who thought in terms of space travel. Count von Pirquet calculated the astronomical orbits which would lead a spaceship to Mars—and to Venus—and to the asteroids.

But he was especially interested in an orbit which in itself does not lead anywhere—a closed orbit around our own planet. Then he looked at orbits leading outward not from earth but from that closed orbit around earth. And then he wrote me an excited letter, telling me that he had made a surprising discovery.

He called his discovery the "cosmonautical paradoxon" but it amounted to another example of that old adage that it is the first step which is the hardest. That the first step would be the hardest even when it came to space travel had been realized all along, of course. But now von Pirquet revealed what that first hard step should be.

### WHAT THEY THOUGHT

It is necessary at this point to remember what the scientists who were interested in space travel thought in those days. The first rockets, they all agreed, would be instrument-carrying rockets for the exploration of the upper atmosphere. Such rockets constituted not only a useful scientific device in themselves but would also furnish the information needed for later, more advanced rockets.

Then, it was thought, the instrument-carrying rockets for the exploration of the upper air would gradually grow to be space rockets, leaving the atmosphere completely behind. Finally such a space rocket (unmanned) would be big and powerful enough to go to the moon. Meanwhile, piloted high-altitude rockets and, a little later, manned space rockets would be built.

In the end one of those manned rockets would be able to reach the moon. At first it would probably not be a trip *to* the moon but a trip *around* the moon without landing there. And after that was accomplished it would be possible to set up a rocket to circle around the earth permanently, a small artificial moon which, by gradual accumulation of materials, would grow into a "station in space."

That such a station in space would be extremely useful as a research laboratory was

also generally conceded and one or two people added, as an afterthought, that such a station might also serve as a refueling station for spaceships.

The point is that it was unanimously agreed that such a station would be of enormous value and that it would be built at some time in the future. But opinion was equally unanimous that it would be a late by-product of space travel in general.

### NO STATION—NO SPACE TRAVEL

Count von Pirquet found to his surprise that the station in space would have to be an *early* accomplishment, that without such a station there would be no space travel. Of course the whole project would still begin with high-altitude rockets followed by space rockets (today we have just about arrived at this point of the development). But, he said, the next step after that would be the station in space, not the spaceship. It would be a very difficult step to take but everything afterwards would be much easier than that first step.

He did not just say so—he proved it. The detail of his proof could not be set up on a linotype machine—but his reasoning can be made clear without much difficulty. In order to go to the moon a spaceship has to overcome the earth's gravity, which means that it has to reach a speed of seven miles per second after penetrating the atmosphere.

But if it wants to go to Mars 7 mps are not enough. Earth, Moon and ship are at about the same distance from the sun but Mars is farther out. To get there the ship also has to fight solar gravitation. And when it finally gets to Mars its own velocity and that of the planet will not match, so that some more fuel has to be expended to match velocities. Finally, if the ship is to land, it has to fight the gravitation of Mars during landing.

### FUEL TROUBLE

The main trouble with all this is that the fuel which is burned not only must propel the ship but also the fuel which is still unburned in the ship. If you need a fuel reserve of, say, ten tons later on, you have to spend from sixty to four hundred tons for the purpose of taking your reserve along.

These things have a terrible habit of piling up on one another and the ship grows fast,

even on paper. It was relatively easy to calculate the mass-ratio for a Mars ship and to hope that one day we would be able to build something like that. But von Pirquet found that there was a hitherto overlooked difficulty.

It was not that very large amounts of fuel would have to be burned. It was that a ship taking off for Mars from the earth directly would have to burn *one hundred and five tons of fuel during the first second* in order to take off at all!

That did seem impossible. It still does. But in order to establish the station—and later to reach it after it has been established—the ship has to attain a speed of “only” five miles per second. It is easier to go to the station than it is to go to the moon.

Now if we imagine that each ship which goes to the station carries a small fuel reserve to be deposited there and finally used to fuel a ship that takes off for further points, we find that such a ship would start out with many advantages. To begin with it would be already outside the atmosphere and air resistance could be laughed off. Furthermore it would already have a velocity of five miles per second, the velocity with which the station moves around the earth.

To go to the moon under these conditions would mean only an additional two miles per second to be contributed by the ship itself. To go to Mars from the station would be less difficult than to go to the station from the ground!

### COSTLY TRANSPORT

Of course it would be expensive to get the necessary fuel to the station. In his first set of calculations Count von Pirquet arrived at an expenditure ratio of 68 to 1, meaning that 68 pounds of fuel would have to be burned for every pound added to the reserve of the station. That figure has since been revised downward to about 42-to-1.

It is not too important which figure we accept. The important thing is that theoretically it can be done, while the direct trip is impossible even in theory. And it is nice to know that the take-off fuel consumption for a ship bound for a planet from the station amounts to about a quarter ton per second, instead of scores of tons per second.

As for the station itself it would stay in its orbit without any fuel expenditure at all, just as the moon stays in its orbit without

such expenditure. Like the real moon the orbit of this artificial moon would be an ellipse with the center of the earth in one of its focal points. Naturally it would be sometimes closer to earth than at others but one could keep these variations small.

In the preceding articles I have stated repeatedly that the theory of rocket motion and especially of space travel was far advanced at a time when experimentation was just preparing to take its first stumbling steps. The discussion of the “cosmonautical paradoxon” is proof of my statement.

All this was worked out in 1928 when the only liquid-fuel rockets in existence were Dr. Goddard's first models. And all subsequent thinking about these problems has done no more than revise original figures. It has not changed the theory itself.

### ATOMIC NOT IN MIND

Of course it should now be emphasized that the theory was developed without any thought of atomic energy. In 1928 atomic energy was recognized as something that existed but that was all. Physicists knew that large amounts of energy were stored in the nuclei of atoms but only because their knowledge said that it had to be there. They had no proof that it could be released.

Some thought that there must be a way of releasing this energy because the stars seemed to draw on such a source but, even if that were true (as it actually is), there was no way of telling whether Man would be able to imitate the stars. At any event atomic energy seemed to be centuries in the future.

Now we know that atomic energy can be released at will and in at least in two ways. It can be released fast as an ultra-violent explosion or slowly in a “pile.” Since we have succeeded in releasing atomic energy we can hope that somebody will find a way of using it for rocket propulsion. Should this happen soon, before a station in space has been begun, we may wonder whether it would be begun at all.

Phrased differently—does the “cosmonautical paradoxon” hold true even with atomic energy?

This is an interesting and very important question—but it cannot be answered right now. The answer depends on how atomic energy is used for rocket propulsion. And that is something the General Staffs of at

least twenty countries and the Boards of Directors of at least forty industrial enterprises would like to know. They would pay large amounts of cash for the answer.

### FUMBLING GUESSES

So far we have only a few fumbling guesses. It is obvious that the fissionable matter which produces atomic energy would not be used in the same way in which we use alcohol and liquid oxygen or nitric acid and aniline. The exhaust of the rocket would not consist of just fission products. Such an exhaust, if it could be created without taking its motor along by way of volatilization, would probably be fantastically fast but it would also be very light in mass and therefore fantastically inefficient until the rocket moved with a good percentage of its own exhaust velocity.

In order to make the exhaust of the rocket motor massive as well as fast it will be necessary to provide some relatively inert substance that can be thrown out of the exhaust nozzle. Of course the fission products would go into the exhaust too but they would constitute only a small percentage of the bulk.

In order to imagine such an atomic rocket motor at all we'll assume that the "fuel" is water in which a water-soluble salt of plutonium has been dissolved. "Firing" the motor would consist of setting off these scattered plutonium atoms in the solution in some manner. Such a motor would produce an exhaust massive enough to be efficient and fast enough to be far superior to any chemical fuel.

If it is to work in this or any parallel manner the station in space will be still useful. The expenditure ratio of getting a fuel reserve to the station may drop from 42-to-1 to perhaps 5-to-1 but the station will still have the edge. Even if we could build a ship to go to Mars from New Mexico Space Terminal directly, it would still be economical to go to the station in one kind of ship and from the station to Mars in another.

### WHY BOTHER?

But, somebody is sure to ask at this point, why go to the trouble and expense of putting an artificial satellite into space? We've got a real satellite—why not just build a base on the moon?

I believe that a base on the moon will be

built just as soon as it can be done. It will be a wonderful astronomical observatory. It will be a very fine laboratory for physical, chemical, biological and other kinds of research. It will be a fine military base, which will provide lots of food for thought to rulers who believe in the righteousness of aggression (*their* aggression, naturally). But the lunar base will be a very poor spaceship base.

That conclusion can be extracted without trouble from a few sets of figures. Leaving the earth for the moon (we have had the figure repeatedly) requires a velocity of seven miles per second. Braking the fall toward the moon will require another two miles per second, with rocket motors working in the opposite direction. But from the point of view of fuel expenditure it does not matter whether we add or subtract velocity. The total velocity required to go to the moon and land there amounts to nine miles per second.

Reaching the station needs but five miles per second and the braking maneuvers will be something like a hundred feet per second. They will hardly count if the pilot knows his job.

But now we want to go from our "base" (whichever it may be) to Mars. That can be done only at certain times. Take-off must occur when the orbit of the "base" (the tangent to the orbit, to be precise) points in a certain direction. If we are on the moon that will happen once a month. If the proper time should be missed for some reason the pilot will simply have to wait for the next time. The station will circle earth once in a little more than two hours. Hence, if one opportunity is missed the next one will come a mere seventy minutes later.

### TAKE-OFF

Taking off from the station the ship is supplied with a velocity of five miles per second free of charge. The moon also supplies orbital velocity to the spaceship gratis—all of 0-point-six miles per hour! And of course the moon has a gravitational grip of its own amounting to about one-and-a-half miles per second. The ship would have to fight free of the moon first.

To fight free of the gravitational attraction of even a large and elaborate station might require as much as fifty feet per second.

The moon is too far away, too slow in its orbit and too massive in itself to be useful as a refueling base for spaceships. It is just a case of bad luck for earthmen. The Martians are far better off in that respect. They have not just one but two moons which fulfill all the requirements.

They are quite close to the planet and for that reason rather fast in their orbits. And they are both small. The larger one (Phobos) measures about fifteen miles in diameter. The other (Deimos) measures a little less than eight. Phobos is closer to the planet than Deimos. And Phobos would make a fine refueling station for spaceships.

Of course one could still criticize the setup. For space travel purposes it would be better if the nearer moon were the smaller. And it would be better still if it were nearer to the planet than it actually is. The actual distance amounts to 1.4 planet diameters. 0-point-four planet diameters would be better. But even though the moons of Mars are not precisely what we would like to design they are ideal when compared to our own satellite.

### A TINY "IF"

A tiny "if" might be tacked onto the last sentence, reading—"if Luna is our only satellite". Just about a century ago a French astronomer by the name of Pettit published a paper in which he claimed that earth had a second moon, very small (two miles or less in diameter, probably less), circling the earth at a distance of about 4700 miles from the surface.

It cannot be said that this paper caused a storm of interest in astronomical circles. But the idea proved intriguing enough for a few astronomers to devote some time to hunting it, although it was obvious from the outset that any object so small and so near (which therefore would pass through the field of vision very fast) could be found only by accident.

German astronomers even coined a colloquial term for it. They referred to the recurrent attempts to find it as "hunting for *Kleinchen*." But "Little Bit" (that's about the meaning of their term) was never found

and today astronomers remember the whole episode vaguely—if they remember it at all.

That "Little Bit" actually exists is highly unlikely although not impossible. If the unlikely should be true we would not have to build a station in space and could stop envying the Martians.

But what if our existing far-away, slow and big moon should yield fuel from its own natural resources? What would be the picture in that case?

### SURPRISES POSSIBLE

The picture would change all right but in a somewhat unexpected manner. To begin with it has to be said that it would be very surprising if the moon should yield fuels, especially atomic fuels. The average density of the moon is about 3.3 as compared to the massive 5.5 of the earth. It is, therefore, built of lighter material and if the heavy fissionable elements occur at all they are apt to be at very considerable depths.

Only freak conditions during the evolution of the moon could have created surface deposits of any size. Finding one that does exist would be another freak occurrence. But we'll assume that fuel can be found and that mining and extracting it are no more difficult than on earth.

If all these rather farfetched assumptions should come true the most efficient way of handling the situation would be *to mine the fuel on the moon and then bring it to the station*. The fact that the moon yields fuel—if it does—may make up for its own gravity although all the navigational advantages would still be with the station. But a ship taking off from the moon for the station could carry a higher payload than a ship taking off from earth for the station.

The few people who discussed questions of this kind two decades ago usually thought of this particular problem as a question of whether there should be a space station or a base on the moon. After von Pirquet published the results of his calculations that question was decided in favor of the station.

In all likelihood we'll have a station *and* a lunar base.

Next in this Series—

**MEDICINE AND SPACE TRAVEL, by WILLY LEY**

By MARGARET  
ST. CLAIR



# The Sacred Martian

## CHAPTER I

### *A Small Blue Animal*

**D**O YOU have to talk so much, gesell?" Bill begged hollowly from his bunk. His face, which had turned pale at the *Cyniscus'* take-off two days before, was by now the pale curded green of a piece of bosula cheese and his eyes were sunk.

"It sounds as if you were trying to keep

yourself from thinking about Darleen. I don't want to be ungrateful but all that talk makes me feel worse."

George shook his head. "Before you can get over your attack of kenoalgia," he said remorselessly, "you'll have to realize what's causing it. There's nothing wrong with you physically but being in open space for the

*Delivery of an animate object of worship from the Planet Mars seemed to be a simple task — but it involved George Baker in a series of escapades that altered his entire life!*



The "doughnut" hit him amidships, just as he jumped

# Pig

A NOVELET

first time in your life is giving your ego the worst beating it's ever had.

"The first spacemen, who weren't trained psychologists, couldn't believe that so much nausea and prostration could have mental causes. They attributed it to a marasmic action of cosmic rays on nervous tissue and the first two expeditions to land on Luna mu-

tinied rather than go through 'space scurvy' getting home again." He cleared his throat.

"Kenoalgia is a new disease," he went on, "because it's a response to a new situation for the human organism, being out of earth's gravitational field. Psychologically, it's a combination of repressed fear of falling, anxiety about bodily integrity and the rejection response. The cure—say, do you smell something funny in here?"

Bill opened one eye and looked at him. "Un-unh," he said.

"Something sort of fishy and rank? No? Well, as I was saying, the cure—"

"Get out," Bill said wanly. "Please get out. Go away and brood about Darleen. I don't care if you are my cousin and the *Cyniscus*' psychological officer—when you talk it makes me feel worse."

Looking hurt George began to unwind his long legs from the rungs of his chair. "You're sure you don't notice that smell?" he asked solicitously. "It might be adding to your nausea."

"Don't smell a thing," Bill replied firmly. "You're imagining it. Oh, by the way could you turn the projector on before you go? Number nine, Blue Disks, is my favorite. It seems to help my giddiness."

"Sure." George made the adjustments. A galaxy of blue and purple disks appeared on the wall opposite Bill's bunk. Motionless themselves, they blinked on and off in a succession of patterns that might, George conceded, be soothing to kenoalgia dizziness. "Anything else I can do for you?" he asked, lingering.

"Call the medical officer."

"No sense in that. Kenoalgia is purely—" "Psychological. I know. Get out."

When the door had closed on George Bill, looking very sick and very, very resolute, got out of his bunk. He tottered over to the little brown box which stood on top of his Travel-pak and gave an anxious sniff. An expression of consternation came over his face. He sniffed again.

Then he got a deodorant spray out of his bureaulette and went over the box with meticulous care, stopping only when his sense of smell told him all was sweet once more. Gaunt and shaking in his long chicory-colored sleeping tunic, he crawled back at last into bed.

**I**N THE ship's lounge Mr. Farnsworth was talking to George. George had long

ago divided all passengers into three groups—those who snootered you because you were one of the hired help—those who stood you drinks because you were, after all, one of the officers—and those who kept leading the conversation around to psychoanalysis, hoping you'd do a little free work on them. Mr. Farnsworth belonged to the second group.

"Too bad I'm transshipping at Marsport," the older man said expansively as the barman brought their drinks. "This is a big time of year for the Martians. I hate to miss the festivals."

"Oh, is it?" George replied vaguely. He had accepted Farnsworth's offer of a drink merely because he hadn't known how to refuse it. What he really wanted was to get down to his cabin and (not think about Darleen—certainly not) and look up an article in the *JOURNAL OF PSYCHO-SOMATOLOGY* on new treatments for space scurvy. He was a little worried about Bill.

"Yes. You know how the Martians are—a time for everything and lots of festivals. Well, this is the time when they make business arrangements for all next year. Treaties, too, affairs of state, that sort of thing. And it winds up with a big celebration with pretty girls, perfume carts, soma fountains in the iters, all the fancy stuff you can think of. As I say, I hate to miss it but I'm going star-side. Transshipping in a sealed tube so I won't have to go through the octroi." He drank from the glass. "Have another drink."

"No, thank you, I—"

"Oh, a little more phlomis won't hurt you. Here, barman, two more of the same."

Several drinks later Farnsworth said, "Say, Baker, could you do me a favor?"

"Well, I—" George replied. Phlomis had a little dulled his innate caution but he was still wary.

"Oh, it's nothing." Farnsworth drew a lucite disk from his pocket. "This is for a man that works at the Topaz Rhyoorg, just on the edge of the spaceport. You may know him—his name's Louey Varth. His sister Myrtle asked me to give this to him when I was on Mars and like a gowk I promised, forgetting I wouldn't be off ship. It's a picture of her little girl."

George inspected the three-dimensional image of the spindly blond child which was imbedded in the clear material. "Well, I suppose—"

The ship's announcing system began to blare excitedly. "George Baker report at



once in cabin B-11. George Baker report at once in cabin B-11. On the double!"

B-11 was Bill's cabin. George sprang to his feet, shoving the lucite disk absently into his pocket. "Got to go," he said. Mr. Farnsworth looked after him.

It did not need the medical officer's pursed lips to tell George that Bill was worse. Bill's pupils were dilated, his breathing shallow and rough. Crusts had formed on his lips. George felt a stab of guilt, mixed with surprise.

"The steward called me," the medical officer explained rather severely. "The patient's condition frightened him. In my opinion he should be hospitalized—with your consent, of course. I've given him a sedative."

The medical officer, Daniel, was a stiff little man with a great respect for professional etiquette. He changed his tunic three times daily when the *Cyniscus* was in space and flirted warily with the lady passengers. He and George had always disliked each other.

"He had the classical syndrome for kenoalgia," George murmured defensively.

"Kenoalgia, certainly," Daniel snapped. "But he's also suffering from food poisoning of the gamma type."

"Want to talk to George," Bill panted, looking up anxiously. "Got to talk to George. Get out, doc. Got to talk to George." His forehead was wet.

Daniel took Bill's circulatory reading and frowned. "Five minutes," he warned. "No more." His stiff blue back expressing disapproval in every line of George's mistaken diagnosis, he went out.

"Listen, George," Bill creaked weakly when the door had closed. "You've got to deliver the pig."

"Pig?" George answered incredulously. "Now, now, don't worry. You'll be all right."

"I'm not delirious," Bill answered with a flare of spirit. "Just damned sick. The pig's over there in that little brown box."

"I'm working on a private courier service—speed and secrecy guaranteed—between Terra and the planets and that pig is what I have to deliver on this trip. If I don't deliver it I'll be blacklisted. You've got to deliver it for me."

**S**TILL incredulous but obedient to Bill's pointing finger, George got the box and opened it. He was greeted by a fishy smell

and a feeble oink. Inside a small blue animal, some twenty centimeters long, regarded him comatosely.

"It's some kind of cult object," Bill explained. "One of those Martian cults." He stopped to retch. "You spray it with deodorant to keep it from smelling. You don't have to feed it or anything."

"But—"

"Listen, if you deliver it you can have half my bonus and then you can marry Darleen. You said she'd marry you if only you had more in the bank. You won't get into any trouble with the pig. It's not as if it were valuable."

Daniel knocked on the door. "Two minutes more," he said warningly.

"You're to give it to a man with a black camellia in his buttonhole you'll meet at the north edge of the spaceport at twenty-three on Thursday, Martian time." Bill's words were coming more and more slowly. The sedative Daniel had given him seemed to be taking effect.

"He's the cult's representative. You . . . go . . . up to him . . . and . . . and say, 'Perfumed Mars, Planet of perfumes,' and he'll . . . he'll . . ."

Bill's eyelids fluttered and sank. George shook him gently without result. He was out.

Daniel opened the door. "Ah. I see he's quieter now," he said, coming in. "I trust you agree he should be put in hospital."

"Oh, certainly," George replied. He had picked up the pig's carrying case and was holding it under one arm as he tried to think. "I quite agree with you."

Daniel relaxed a little. He called two stewards. Bill was loaded onto a stretcher and carried out into the hall. As the stretcher rounded the door post one of the stewards stumbled and Bill got a jar that made the teeth click audibly in his head. His eyes opened. He was looking straight at George. "Pig," he said insistently. "Pig." He groaned and then lapsed into unconsciousness again.

He'd have to deliver the pig now, George thought. Bill's last words had been like the injunction of a dying man, impossible to disobey. Besides, they were cousins, Bill's job depended on it and there was the not inconsiderable matter of the bonus and Darleen. Professionally speaking, George had noticed a lack of euphoria in himself lately. It must be caused by his frustrated feeling for the girl.

All the same it was a mess. Mars was less than 42 hours away, and Bill might be unconscious until after they landed. In that case George would have to deliver the pig (at 23, to a man wearing a black camellia) without knowing the countersign. He hated messy things. It was a good thing the pig wasn't valuable.

He rooted around in Bill's baggage until he found the deodorant spray and then carried it and the pig to his own cabin. As he opened the door the polka-dotted purple zygodactyl he had bought the last time they touched at Venus opened one eye and stared evilly at him.

"You'll be sorry!" it croaked, "you'll be sorry." It was the only thing George had ever been able to teach the bird to say. It had been funny at first but George was beginning to be tired of it.

"You'll be sorry," the zygodactyl went on, working itself up into a verbal frenzy, "you'll be sorry, you'll be sorry, you'll be sorry!"

George threw a book at it to make it shut up. Then he pulled out his bunk to its fullest extent, sat down on it and looked at the pig.

His first impression, that it was alive, seemed to be correct. When he punched it with his finger it made a weak noise and even moved its mouth at him. But it was a sluggish low-grade kind of life. The pig appeared to be basically a collection of fatty tissues surrounded with a pale blue skin. Considering its size it might have been an attractive, appealing little animal but it wasn't.

It had no personality.

It was beginning to smell. George gave it a good spraying and bent to put it in his foot locker. He hesitated. Bill had said it wasn't valuable but there was something funny about Bill's food poisoning when you considered it. Nobody else on the ship had been affected. You never could tell with religious things.

The cabin was poor in hiding places. In the end George loosened one of the plastitiles of the ceiling with a multitool and shoved the pig up in the space behind. It would get plenty of air there at any rate. He anchored the tile in place again with a sliver of preemex.

He had other patients to see to. He couldn't spend all day on Bill's pig. He took one last look at the ceiling and then went out. As he closed the door the zygodactyl croaked, "you'll be sorry!"

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## CHAPTER II

### *Hijacked!*

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**I**N THE forty-one and a third hours before the *Cyniscus* put in at Marsport. George's cabin was searched twice, apparently without the pig being discovered. George made attempt after attempt to see Bill but his cousin was always receiving sedation. It was not until the ship was almost in Mars's atmosphere that he was admitted to the hospital ward.

Bill, looking extremely wan, was lying on one pillow with a refrigerator pack on the back of his head. "Hi," he said.

"Hi. You look terrible. Say, what's the countersign?"

Bill frowned. "I don't know," he confessed. "I've tried and tried to think but somehow I can't remember."

"Mental block caused by anxiety," George barked professionally. "Don't worry about it. I'll get it out of you in no time under deep hypnosis."

The red-headed nurse who had been hovering in the background came up. "You'll have to go if you excite him," she said warningly.

Bill waved her aside with one thin hand. "It doesn't matter, though," he said. "Give the pig to the man with the black camellia. It's not valuable."

"My cabin's been searched twice."

"You're imagining it. Martian cults aren't important the way religion is on earth. You know how Martians are—extremely sane, realistic, unimaginative. Only a little lunatic fringe is interested in their cults. Nobody's trying to get the pig away from you." Bill had majored in Martian subjects at the University.

"Well, if it's so unimportant, why did they send it from Terra with a private courier?"

"Save time, I guess. You know how many complaints there've been about the slowness of the regular mail. I don't think the cult has more than six members all told. But don't you worry about that. You deliver the pig."

The nurse came up and took Bill's circulatory reading. She pursed her lips. "You'll have to go," she said to George.

The north side of the spaceport is near the drainage pits. As George approached it through the flickering shadows of the Martian night there seemed to be echoes everywhere. He felt tense and keyed up.

Of course Bill was right and nobody was trying to get the pig. On the other hand, he had always found his cousin's judgment brash and overconfident. He shifted the pig's carrying case under his arm, a movement which added a taint of fish to the perfumed Martian breeze. He swallowed. His throat was dry.

The man with the black camellia was waiting about fifty meters further on in the shadow of one of the triple cranes. George went up to him, his footfalls echoing hollowly on the rhodium-colored pave. He cleared his throat.

"Perfumed Mars. Planet of perfumes," he said.

"Hunh?" the man said after a minute. He was a big man of a typically somatotonic build and he put a world of interrogation into the sound.

"Perfumed Mars, Planet of perfumes," George repeated, beginning to grow warm around the ears.

"Run along, sonny," the man said indulgently. He turned his head to one side for a leisurely expectation. George saw, in the skipping light of Phoebus, that what he had thought was a black camellia was, in fact, one of the half-animal Dryland epiphytes which Martian geeksters liked to wear.

"Run along," the somatotonic type repeated. "You got the wrong tzintz. Do I look like I'd be interested in sightseeing tours?"

His face hot, George beat a retreat. Of all the fool things to have to go up and say to a stranger! "Perfumed Mars, Planet—" Bab! As far as he was concerned, Mars and the pig both stank.

A good deal farther on he encountered the second man. He was a small, dark tzintz (Martian for "bozo") with a thin goatee. George circled around him warily, making sure that he was really wearing a camellia and that it really was black, before he spoke.

"Perfumed Mars, Planet of perfumes," he said.

"Rubbledyrubbledyrubbledyrube," the stranger said, his head bent.

George paused. A suspicion was stirring in his mind. What the man had answered might have been Old Martian, of course but

surely the countersign would have been in Terrese like the sign itself. And anyhow, it hadn't sounded like a language at all, just mumbling.

"Perfumed Mars, Planet of perfumes," he said for the fourth time that night.

"Rubbledyrube," the thin dark tzintz answered, more briefly. He stuck out his hand.

George drew back. There was a fishy odor about this. It smelled as bad as the pig. "No you don't," he snapped. "I—"

**T**HE next thing he knew he was lying at the bottom of one of the drainage pits, a lump as big as a rhea egg on his head. From above someone was speaking to him.

"Be reasonable!" the voice said scoldingly. "How do you expect me to pull you up if you won't cooperate? Do be reasonable!"

Something brushed George lightly on the face. He sat up, rubbing the lump on his head and trying not to groan.

"That's better," the voice said encouragingly. "Now you're being reasonable. The next time I cast for you with the shari, take hold of the mesh and pull yourself up."

Once more there came a light touch on George's face. He looked up. A girl was leaning over the edge of the drainage pit, trailing her shari at him.

The shari is an invariable part of the costume of Martian women of every class. A long strong slender net, as richly ornamented as the means of its owner will allow, it is used to carry parcels, tie up the hair, transport young children and serve as an emergency brassiere.

A Martian woman would feel naked without it and, by Terrestrial standards, she very nearly would be. This was the first time George had ever been asked to climb up one. As it trailed over his face again he hooked his fingers in it and pulled himself upright.

"That's fine!" the girl cried. Even in the poor light he could see that she was a good-looking girl—though not, of course, as pretty as Darleen. Darleen was like a picture—never a hair out of place. "You hold on, and I'll tie it around the winch."

Still holding the shari she got lightly to her feet and whirled off into the darkness. "Hook your fingers and toes in the mesh!" she called back. George obeyed. After a moment the shari began to move slowly upward. Obviously the girl had tied its end

to a hand winch and was pulling him up. He only hoped the shari wouldn't break.

He stepped out on the level just as the mesh of the shari gave an ominous rip. He was still disentangling himself from it when the girl came back. She was panting a little and her dark red hair was disarranged.

"Tore my shari some," she observed ruefully, taking the net from George. She smoothed her hair with a skillful hand, settled the shari around her head so that it fell in a glinting golden cascade over her nape, and drew the shari's end through her girdle in front to form a garment which, if not exactly modest, was adequate.

Her toilet completed, she looked scrutinizingly at George. "My, he certainly hit you hard," she said. "Did he get away with the pig?"

George winced. The pig was something he didn't want to be reminded of. And anyhow, what did this girl know about it? "What pig?" he asked warily.

"Oh, be reasonable. You know very well what I mean. Idris' pig. You should have taken better care of it."

"Um."

"Well, you should. Say, what's your name?"

"George."

"Well, mine's Blixia. I was supposed to pick up the pig."

This was a little too much. "You're not wearing a black camellia," George pointed out rather acidly. "And you're certainly not a man."

"No, of course not," Blixia agreed, looking down at her slim round body with some complacency. "But there was a last minute change in our plans. The regular messenger couldn't come. They sent me instead. Try me. I know the countersign."

"Perfumed Mars. Planet of perfumes," George said unwillingly.

"Perfumes that take captive or set free the heart," Blixia said briskly. "See. I know it. I was supposed to get the pig."

GEORGE looked at her thoughtfully. His head was aching so much that clear thought was difficult. And besides, the scent that Blixia wore (Martian women were always drenched in it) disturbed and oddly troubled him.

All the same, in the depths of his mind an alarm signal was going off. Blixia might be telling the truth but there was about her, as

palpably as her heady perfume, a positive aura of unreliability. He wouldn't have trusted her as far as he could throw a rhyoorg with one hand.

"Um," he said. They had been walking along slowly as they talked, and by now had come, through the scented Martian shadows, to the top of a little rise. Marsport at night, a glittering twinkling incredible pageant, lay spread out in front of them.

"Well, I was," Blixia said impatiently. "But only Pharol knows where the pig is now."

"Out there somewhere, I guess," George said, indicating the ten thousand dancing lights.

"No doubt," Blixia replied. "But it's too important to dismiss like that. Do you want to help me try to get it back?"

George hesitated. He had an overpowering hunch that a man who was associated with Blixia was heading for trouble. "You'll be sorry!" the zygodactyl had croaked at him. On the other hand, Bill's job depended on making safe delivery of the pig and he had always been fond of Bill in an unsentimental masculine way.

There was the matter of the bonus which would, he was almost sure, provide the final argument in persuading Darleen to marry him. And besides, some reliable person ought to keep an eye on this girl.

"All right," he said. "Nobody can steal my pig and get away with it."

"Fine!" Blixia exclaimed. "Then we'll go hunt a good clairvoyant to locate it for us."

"Clairvoyant?" George echoed incredulously. The idea was so foreign to the notion he had formed of Blixia's character that he could not believe he had heard her aright.

"Certainly. How else are we to find the pig? I never can see why you earth people admit that telepathy and clairvoyance and other sorts of ESP exist, and yet refuse to consult experts in them. It's not reasonable."

They were coming now to populous streets. Blixia's long graceful stride (not as feminine, though, as Darleen's shorter one) made walking with her agreeable. Ahead of them a laughing girl dashed out of a doorway, her white thighs flashing under her blue shari, and ran down the street. A young man ran after her, his sandals going slap slap slap.

A perfume cart, rumbling past, drenched them both and, as the driver came abreast of George, he raised the nozzle and showered

him with the fragrant drops. Somebody was throwing aveen petals from a rooftop. Somebody else was playing on a double anzidar. The music, thin and high and a little sad, floated out excitingly on the warm air. Against his better judgment George found that he was rather enjoying himself.

"Will we be able to find a clairvoyant at this time of night?" he asked. Blixia's idea seemed far-fetched to him but he had to admit there was a certain logic in what she had said.

"Oh, I think so. This is the Anagetalia, you see, and if anybody goes to bed it isn't at night." She pointed down to the cross-iter, where a soma fountain flowed. Twenty or thirty people were clustered around it. A girl had plunged her arms up to the wrist in the gushing fluid. Others were drinking from their cupped hands. Six or eight couples were moving expertly, if a little unsteadily, in the stamping challenging maze of a Dryland dance.

"Um." George and the girl were moving into a poorer quarter now. The buildings, though they still had the typical air of Martian elegance (composed George thought of broadleaved trees and good architecture), stood closer to each other and were made of poorer materials. He decided to put one of the questions that were in his mind.

"Listen, Blixia, how did you know I had the pig?"

Blixia's green eyes (hazel? no, green) laughed at him. "If you had smelled yourself before the perfume cart went by you wouldn't need to ask," she said. "I don't think there's anything in the system that smells quite like Idris' pig. Here we are. There are several clairvoyants here."

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### CHAPTER III

#### *The Martians Are a Funny Race*

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**T**HEY knocked on three doors before they found anyone in. The woman who finally answered them had a haggard, rather handsome face, long dark hair and deep-set burning eyes. She too had been celebrating the Anagetalia, for there was a long rent in her gauzy mauve tunic and a wreath of aveen flowers sat crookedly on her head. She staggered a little as she showed George

and Blixia into her consulting room.

Blixia put the case to her in the long-winded hypothetical Martian manner ("If it should happen that one found a certain object") and the sibyl listened attentively. When Blixia had finished the woman drew a deep breath.

Though her face remained impassive, George felt that she was startled, almost alarmed, by what she had heard. She put a quick question of Blixia in Old Martian and the girl nodded. Once more the woman drew a sharp breath.

She lay down on the long low couch set diagonally in the corner. From a recess she got out fetters of shining metal and slipped them over her hands. She gave one of the balls which terminated the chains to Blixia to hold, the other to George. Then she closed her eyes.

For a long time there was silence in the room. Outside in the street people laughed, sang, played on double and single anzidars. Doors slammed. Once someone screamed. The woman on the couch gave no sign.

George moved restlessly. Blixia quieted him with a severe glance. At last the clairvoyant spoke. "A man," she said, "a man with a shaved head. He has it. The two crowns." She writhed, opened her eyes. After a moment she sat up and yawned.

"Did I say anything?" she asked.

"Shaved head. Two crowns," Blixia answered briefly.

The woman's eyes grew round. After Blixia had paid her she went with them to the door and stood watching them as they went down the street.

"What did she mean?" George asked. Blixia was walking briskly along, apparently headed north.

"She told us who had the pig."

"So I gathered. But who?"

"The Plutonian ambassador."

"What!" The exclamation was jarred out of George. His idea of the present possessors of the pig had gone no higher than geeksters or, perhaps, the agents of some rival cult. "Why?" he asked more calmly.

"This is the Anagetalia," Blixia replied. She looked down at the folds of her gold-spangled shari frowned and rearranged them so that they left a good deal more of her person exposed.

"This is the time of year when we negotiate treaties and handle affairs of state. Mars is a poor planet. If one should happen

to have possession of a certain small blue animal it might, perhaps, be of advantage to him."

"But—look here. I was told that there weren't more than six members altogether of the cult of the pig."

"The person who told you that was wrong. There are eight."

"Well then, if the cult has so few members how could having the pig be of advantage to anyone?"

There was a protracted silence. At last Blixia spoke. "It is because of the nature of my people," she said.

"Go on." They had been walking north all this time. George, whose feet were beginning to hurt, wondered briefly why Blixia did not call an abrotanon car. He decided that it was because all the drivers would be celebrating the Anagetalia too. "Go on," he repeated.

"We Martians are not like you," Blixia said slowly. "We Martians say always that we are more reasonable than Terrestrials and so we are." For a moment pride shone in Blixia's voice. "We are far more reasonable. Sometimes we find it difficult to understand you at all, you do such childish and foolish things.

"But there is one thing about which we Martians are not reasonable in the least. It is as if all the foolishness and illogic and unreason and childishness of our natures, which in you Terrestrials is mixed in with everything you do, were concentrated in one place with us. We are not reasonable about our cults.

"They are not like your religions, which enjoin, I have heard, ethical duties on their followers. We Martians—" again the note of pride in Blixia's voice—"do not need religion to tell us, for example, of the brotherhood of man. We are logical except about our cults.

"They have but few professed members. Your friend was right about that. But everybody on Mars knows about them and very quietly believes in them. Even if they are illogical. Pluto was originally a Martian colony and the ambassador knows how our minds work. That is why it would be of great advantage to someone to have the pig."

They had reached a stately quarter now. Nobly-framed buildings stood among big trees so crowded with blossoms that they were arboreal bouquets. Vines twisted

among their branches and dropped long starry racemes of flowers to the ground. The air was rich with the scent of them.

"I don't know just how we're going to get the pig back from him," Blixia said thoughtfully, "but we'll have to try."

GEORGE slowed down and looked at her. "Why us?" he demanded practically. "If the pig means as much to Martian life as you say, it's clearly a matter for the government."

"Government?" Blixia echoed. She looked almost shocked. "Certainly not. Government is a logical activity. If I went to an official with this he would laugh at me and if I persisted there would be punishment. You don't understand. I should be making him ashamed."

Logical—reasonable—George felt dizzy with the words. His head still hurt where he had been hit. On the other hand Blixia did seem to know what she was talking about and for the first time that evening she impressed him as being sincere.

"Okay," he said.

A few steps farther on Blixia indicated a large building with a broad flat roof. "This is the embassy," she said in a low voice. "I imagine they still have it because it's so hard to get about in Marsport during the festival. Probably they'll try to get it to a Plutonian ship when people are off the streets. Once it's aboard there won't be anything we can do."

They walked past the embassy slowly with George making a deliberate effort to look casual and unconcerned.

The street was still crowded with revelers. When he and Blixia reached the corner they turned and came back again. From an upper window of the embassy, very faint through the scent of the flowers, a trace of a familiar smell came to George. He would never have noticed it if he had not been expecting it and even then he could not be sure. He looked enquiringly at Blixia and she gave him a tiny nod.

Before he realized what she was doing Blixia led him over to the soma font. "We'll have to drink and act like the others," she said in a low voice. "We'd be conspicuous, just hanging about." She slipped lithely through the crowd, George following her.

From the double-spouted fountain she caught some between her hands and held them up for George to drink. As he awk-

wardly sipped at the liquid his lips, unavoidably, brushed the soft flesh of her palms.

Laughing at his clumsiness Blixia helped herself from the fountain and then held up her hands again for him to drink. It was good soma, though not especially strong. George could feel it warming him, relaxing his tension, washing away his headache and his fatigue.

"Let's have some more," he said.

Blixia had turned back to the fountain for more soma when a tall blond Drylander who was standing beside her ran his hands possessively over her shoulders and whirled her off in the first steps of an extremely complicated dance.

George began to frown. It was, of course, none of his business whom Blixia saw fit to dance with but they were here on business.

She ought to remember it. And besides, he could have danced himself if she had taken the trouble to show him how.

When a little dark girl came up to him and said challengingly. "Dance with me, earthman!" he accepted with alacrity.

"Is this one of the DruDehar dances?" he asked after they had moved a few steps. The DruDehar dances (Old Martian for "Golden Garden") are known all over the system as the Mating Cycle.

"Yes, they all are," the girl replied. "You earthmen aren't very good at dancing, are you? Too stiff. When I come forward, you come forward too. Don't pull away from me! There, that's better. Much better. You're doing fine."

The dance ended with a wild swoop of anzidar strings. Smiling at him the small dark girl stood on tip-toe and threw her arms around his neck.

She kissed him several times, affectionately if muzzily.

"For an earthman," she said, "you're rather nice, I think." George was not altogether sorry when her grinning escort whirled the little dark girl away in another dance.

The crowd began to grow thin. Couples disappeared into doorways, around corners, under the shadows of trees. Blixia, flushed and smiling and redolent of perfume, came up and she and George drank more soma together. In a surprisingly short time there was no one left in the street but themselves and a man with wrinkled limbs and thin gray hair, who snored happily as he lay upon the pave.

**B**LIXIA linked her fingers with George's and led him into the shadow of the basalt statue of Chou Kleor. Chou Kleor is the greatest of the poets of Mars. His works, perhaps, are not much read nowadays but every Martian schoolchild knows him as the writer who first spoke of "scented Mars." His statue was a monumental thing and the shadow it cast was correspondingly large.

"We'll wait here," Blixia breathed. "If they happen to be watching from the embassy they'll think we couldn't be paying any attention to them." She sat down on the turf and drew George down by her side.

"Have you any plan for getting the pig?" he asked softly.

"Yes. I imagine they'll just send one man with it because the fewer people who know about a thing like this the better it is. When he comes out I'll walk toward him and pretend to stumble. He'll come toward me and start to help me up. And then you hit him—hit him hard—and get the pig away from him."

It sounded Okay. George nodded. It occurred to him that he was going to a good deal of trouble to get his half of Bill's bonus and marry Darleen. If anything went wrong he'd be in a nasty mess. He hoped Darleen would appreciate it. But Darleen—funny, he'd never thought of it before—Darleen wasn't what you'd call a very appreciative girl.

The city was utterly quiet now. Blixia yawned and in the most natural manner in the world rested her head for a moment against George's chest. He was still trying to decide whether he ought in simple politeness to put his arm around her, when she sat up alertly again.

"I might go to sleep that way," she explained.

The sky was growing lighter. It could not be long until the first signs of day. George bit back a yawn and then another one. Suddenly he leaned forward, transfixed. The embassy door was opening.

Blixia had leaped to her feet. As the door opened wider and a small dark man (the tzintz, George thought with a thrill of recognition, the tzintz who had knocked him out at the drainage pits), slipped out of it she started across the pavement toward him. She was wobbling a little in skillful simulation of drunkenness and crooning softly to herself.

As she came abreast of the tzintz she stumbled and pitched forward on one knee.

It was so well done that George watching was afraid she had really hurt herself. She tried to get up, grimaced.

"My knee," she said plaintively, "my knee!"

The tzintz hesitated. He was carrying in one hand a case that could be nothing but the pig's. Then he made up his mind. He walked toward Blixa, put his hand under her armpit and began solicitously helping her to her feet.

George pounded up to him, his long legs putting out a very creditable burst of speed. He hit the tzintz on the point of the chin. He gave the pig's carrying case a mighty tug.

It was then that the flaw in Blixa's plan became apparent. The pig was chained to the tzintz's wrist.

The three began whirling about in an impromptu saraband. Blixa, popping up, was tugging at the tail of the tzintz's tunic. George on the other end was pulling for all he was worth on the carrying case. And the tzintz, in the middle, was uttering shrill cries.

This state of affairs could not continue. Window irises in the Embassy opened. Heads popped out. People began yelling at each other. Even the inebriated old man who had been sleeping on the pave was sitting up and looking around him bewilderedly.

Blixa abandoned her enterprise suddenly. Yelling, "Run!" at George she let go her hold on tzintz so abruptly that George almost fell over backward. She shouted, "Run!" once more in warning and then whirled around and darted off into the darkness of a side street.

George decided to follow her advice. He dropped the carrying case. He turned. He ran straight into the arms of two big Plutonians.

After that, of course, it was only a matter of minutes until the police carts came.

It was hot in the jail. George had a black eye, two loose front teeth and a fair hang-over from the soma he had drunk. The jailer (George was the only prisoner at the moment) was morose and intractable. George surmised correctly that the man resented his incarceration because it meant that the jailer wouldn't get enough sleep to let him celebrate the Anagetalia adequately.

Everytime the jailer brought him food or came to see how he was doing, George asked to see a lawyer or somebody from the terrestrial Embassy. The jailer only grunted

and went away again. It occurred to George that for a terrestrial to assault a Plutonian on Martian soil might constitute an interplanetary incident. Perhaps he was being held without bail.

The day passed slowly. George spent most of it pacing around his cell or sitting on his bunk and cursing Blixa mentally. Blast the girl, it was all her fault. From the moment he had seen her she had ordered him around, pushed him from one situation into the next, told him what to do. And this was the result.

The *Cyniscus* was taking off for Terra the day after tomorrow. If he wasn't there he'd be blacklisted for the rest of his life. It was the kind of mess he'd spent his existence up till now trying to avoid. Blast the girl. Maybe it wasn't entirely her fault. Blast her anyhow. If he ever saw her again he'd give her a piece of his mind.

## CHAPTER IV

### *The Quivering Egg*

**B**Y the middle of his second day in clink George was down to his last fingernail. Late in the afternoon the jailer came to his cell and grunted that he had a visitor. Visions of liberty began to float through George's mind. He followed the man eagerly.

It was Blixa. After his first surprise George advanced to the grating with fire in his eyes. He was going to tell her what he thought of her.

Blixa beat him to it. "Listen, gesell," she said in a cold voice. "Why didn't you tell me you were pushing the groot?" Her level eyebrows had drawn together and even her green shari looked indignant.

"Groot?" George repeated. He didn't know the word.

"Groot—meema—alaphronein," the girl answered impatiently. "I'd never had bothered with you if I'd known what kind of a man you were."

George knew what alaphronein was. It would have been hard to find anyone on the Three Planets who did not. It was a highly dangerous drug with a rotting effect on the nervous system, which reduced its victims to scabrous husks. It originated on Venus, was sent to earth to be processed and Mars



was the center of its illicit distribution. The Martian government had been making an all-out effort to suppress the traffic in it.

"I'm not pushing it," George said weakly. The accusation was so big it was difficult to deny.

"They found nearly a hundred grams of it on you."

"They *couldn't* have."

"They did, though. It was inside the image in a lucite disk you were carrying."

A great light dawned on George. *Farnsworth!* He had forgotten all about him. Hastily he told Blixia how he had got the disk and what he had been supposed to do with it.

As she listened the girl's face cleared. "My, I'm glad to hear that," she said when he had finished. "I couldn't bear to think I'd been mistaken in you like that. It wasn't reasonable.

"It's a mess, though. Farnsworth must be in open space by now and it's hard to get people off a ship. Anyhow, it's just your word against his. And the government hates the alaphronein traffic so much I'd not be surprised if they hung you up by your thumbs or burned you alive in Ares square. You have no idea the trouble I had getting in to see you."

"I'm darned glad you came," George said sincerely. He had forgotten all about how angry he was at her.

Blixia beamed for an instant and then grew sober again. "It's still a mess," she said ruefully. "They never give bail in drug cases. You'll have to escape."

Out of the corner of his eye George saw that the jailer, who had been hovering discreetly in the background, was coming closer to them. He gave Blixia a warning wink.

The girl raised her chin infinitesimally to show she had understood. "Do you know how much I've cried, thinking about you?" she went, leaning forward intimately. Her voice was a tone or two higher than it usually was.

"Why, my pillow's been sopping wet. My shari was all wet too. I know it wasn't reasonable to cry so much, like one of Vulcan's weeping dolls, but I couldn't help it. I cried and cried until everything was all wet."

What the—? George felt a tickling sensation in his wrist. He looked down and perceived that Blixia, in a series of tiny movements, was passing something no thicker

than a hair through the grating to him.

It was too small to set off the matter-detector built into the grating, being very nearly invisible. George clamped it against his hand with his thumb and began winding it around his wrist. A shade of relief passed over Blixia's face.

"Do you ever think about me, George?" she asked, leaning forward again. She was still speaking in that rather unnatural voice.

"You bet I do." George answered heartily. He was bewildered but still game.

Blixia sighed. "I think about you so much at night," she said. "One always feels so alone at night, doesn't one? It's not so bad during the day but at night one feels so alone."

The jailer came up. "Time to leave, lalania," he said courteously. "Lalania" (Old Martian for "perfuminess") is politely used in addressing ladies.

**B**LIXA got up to go. "I don't know when they'll let me see you again," she said. "Soon, I hope." She blew him a kiss, smiled and was gone.

George was taken back to his cell. He spent the rest of the day in concentrated thought.

By one o'clock that night he was ready to try his escape. He had constructed a reasonably realistic dummy in his bunk. It would, he thought, fool the night jailer when he made his frequent rounds.

Much reflection had convinced George that the key words in what Blixia had said to him were *wet*, *Vulcan's workshop*, *one* and *at night*. Also she had said that she hoped to be seeing him soon. One o'clock, therefore, was the time and water the means.

He had, consequently, put the long hair she had passed him through the grating into his drinking cup to soak. Incredibly, amazingly, as it took up water it had shortened and grown thick. It turned eventually into a largish egg, glossy pink, with a knob at the larger end.

The surface had a most peculiar feel, something between plastic and living flesh and it was faintly warm to the touch. The transformation was so surprising that George saw why Blixia had prepared him for it by the reference to Vulcan's workshop.

Vulcan's workshop, in Martian folklore, is an artificial planetoid at the far end of our galaxy on which an immortal artificer lives. Half divinity, half scientist, he is supposed

to spend his days in the creation of objects of incredible workmanship.

Martians call him master of life and half-life and they ascribe any particularly subtle and cunning device to him. Once or twice before George had run across things whose construction he had been hard put to it to understand. But this was the first time he had seriously wondered whether the legends might be bright.

His cell was windowless with walls of translucent brick. A little nervously, for he was not quite sure what it would do, George held the broad end of the egg against the lower course of brick and pressed the knob. Nothing happened. He bit his lip. Then, in a burst of sheer inspiration, he twisted the knob.

The egg quivered in his left hand. He held it steady. After a moment it began to bite into the brick. Dust showered down and lay in a glittering trail on the floor. Quietly and steadily the egg continued to eat, growing a little thicker. It reminded George of some blindly hungry animal.

In less than half an hour he had cut a circle in the outer wall large enough for him to get through. He reduced the egg to quiescence by twisting its knob in the other direction. Carefully he pulled the cut-out section of translucent brick into his cell and leaned it against the wall. Then he slid into the opening.

His cell was only on the second floor and Martian gravity is less than earth's. George hesitated all the same, deliberately relaxing his muscles before he let go. It would be the height of irony to break an ankle at this stage.

He landed with a thump that took the breath out of him. Blixia detached herself from the shadows and glided up while he was still checking over his anatomy.

"Pharol be praised!" she said in a low voice. "You *did* get the idea. I was afraid you might not. No broken bones?"

"I'm okay."

"Hurry then. I gassed the guard but pretty soon he'll come to." Blixia set off at what was almost a run through the shadows. George hurried after her.

"Hadn't we better take an abrotanon car?" he asked when he had caught up.

Blixia shook her dark red curls. "We're safer on foot. As soon as they miss you the alarm will go out and they'll alert all the cars. Wait a minute though."

She steered him under a light, untied the end of her shari and with the cosmetics it contained began deftly making up his face. His black eye was hidden, his cheek bones heightened. She drew a frown between his eyes and added lines around his mouth. With tiny bits of plastic she even changed the set of his ears.

"That's better," she said, "but—" She rolled up his sleeves, unbuttoned his tunic, tied up its hanging tail. "And don't walk so straight. Slump, sort of. No, not like that. Relax more. Pretend you're drunk—say, have you got the egg?"

GEORGE handed it to her. She tied it up tightly in her shari. "It'll go down as it dries out," she explained. "I wouldn't want to lose it. It's a handy sort of thing."

The streets were so quiet and dark that George asked whether the Anagetalia was over and learned from Blixia that it had ended at twenty-four that night. "Everybody's at home," she said, "getting caught up on his sleep. Say, where are you going? Not that way!"

They had come to Ares Avenue and George had turned to the left, thinking they were going to the spaceport. She tugged at his sleeve.

"The embassy's to the right. What do you think I got you of jail for? We've got to get the pig. You promised you'd help me get the pig."

"Oh," George said. It was all he could think of to say. Somehow he had forgotten all about that blasted, blasted pig.

Blixia looked at him slantingly and laughed. "I'd have got you out anyhow, George," she said. "You know I would. But the pig was the reason I had to hurry so much. I don't know how much longer it will be at the embassy. And it means a lot to Mars."

"Oh," George said again. Without his being aware of it his face relaxed. "You know," he said after a pause, while they walked steadily along, "I have a feeling that somebody's following us."

Blixia nodded. "So do I," she confessed. "But I think it must be nerves. I keep looking around and I never see anyone. Besides, who could it be? The police wouldn't follow us, they'd just arrest you. And nobody else would be following us."

The embassy was quiet with no light showing in any of the window irises. The building itself, however, was subtly different from

the way George remembered it and he had to study it for a moment before he could be sure what the difference was. That faint uncertainty in the building's outline. Those dim slanting golden lines like a much attenuated aurora australis—what did they mean?

"They've put a force-field around it!" he announced suddenly.

Blixia nodded. "They installed it yesterday afternoon," she said.

"Well then, we might as well go home. Down to the ship, I mean. We certainly can't get through a force-field, pig or no pig."

"Who said anything about getting through a force-field?" Blixia demanded. "Do be reasonable! Of course we can't. But there are other ways of handling it. Think! Where are the projectors? I mean, where's the field coming from?"

"Around the edge of the roof," George replied after a moment.

"That's right. The *top* of the building's clear." They had come to the statue of Chou Kleor. Blixia, standing first on one foot and then on the other, took off her sandals and tied them to her belt. "You'd better take off your shoes too," she said softly. "They might slip on the stone."

George eyed her speculatively. She had already taken hold of the statue and was pulling herself up by the folds of its basalt cloak. He removed his shoes and followed her.

They stood at last on the statue's burly shoulder, not more than half a meter below the level of the embassy roof. The roof itself, however, was an uncomfortable distance away.

"How are we going to get over there?" George asked, studying the gap.

Blixia shook her head. The climb had winded her and for the moment all she could do was to hold onto Chou Kleor's basalt ear and pant.

"Bolt anti," she whispered as her breath began to come back. "Not much good but best I could do. Government's cracked down on all anti sales since the geeksters began using them." She fumbled with the end of her shari and produced a flat, blunt object like an old-fashioned air automatic. She handed it to George.

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## CHAPTER V

### *Beware the Cerberus*

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HE examined it distrustfully. He had always considered the bolt anti-grav the most unreliable of anti-gravitic devices. The anti-gravs in commercial use (most strictly supervised, since geeksters and raubsters had discovered their value in mass levitation of stolen goods) were perfectly safe. But the bolt anti-grav worked on a different principle.

Its "doughnut" (discharge) produced what non-material physicists called a reversed stasis of the object it hit. The object in consequence became weightless. The difficulty was that there was no practical way of estimating in advance when the stasis would return to normal and the object acquire weight again.

And, since stasis reversal was potentially harmful to living tissue, all bolt antis had built-in governors preventing their discharge too frequently. Too dangerous for a children's toy, too ineffective for genuine use, the bolt anti was the perfect example of ingrown gadgetry.

"How are you planning to use it?" George asked.

"I'm going to jump over to the roof," Blixia said. "Just as I jump I want you to doughnut me with the bolt. I don't weigh much anyhow and I'm sure the stasis will stay twisted for that long. After I get on the roof there's a trap door and steps leading down. The pig is in a room on the second level. I ought to be able to smell it. They've got it guarded with a cerberus."

"How do you know all this?" George asked a little absently. His mind was still on the bolt anti.

"Oh—news gets around." Blixia's manner was vague. She leaned out from Chou Kleor's shoulder and braced herself. "Now, when I say, 'Shoot!' I want you to doughnut me."

George looked from Blixia to the bolt anti and back again. She didn't weigh much, it was true. But—he had a sudden mental picture of her jumping and falling short as the stasis untwisted again. A simple fall would be bad enough but if she struck against the force field. . . .

NEXT ISSUE

THE HOTHOUSE PLANET

*A Hall of Fame Classic*

By ARTHUR K. BARNES

"I won't do it," he said determinedly.

"Won't do what? Doughnut me?"

"That's right. It's too dangerous."

"No it isn't. Anyhow, I've got to get the pig."

"Give me the egg." Silently Blixia handed him the end of her shari and let him disentangle the object. "I'm going to try the jump," George went on. "Do you think you can doughnut me?"

"Of course. But it's a silly idea."

"Why? I've more muscle than you, and I'm used to greater gee, being from earth. The main thing, though, is that I've had training in free jumps. If you've never jumped free you can't imagine what it's like." George did not think it necessary to add that his training consisted of three jumps made one Sunday afternoon at a pastime park.

Blixia frowned but capitulated. "All right," she said. "Pharol grant it's reasonable." She adjusted the bolt's safety switch. "Now?" she asked.

George arranged his feet carefully. "Now!" he said.

The doughnut hit him admidships just as he jumped. It spread over him in a kind of shudder, a sensation like an intense interior tickling, not painful but highly disagreeable. Then he was soaring over the roof in a long arc, so long that he had time to wonder whether he had miscalculated and was going right on over it.

At the last moment he slanted down, touched, bounced (equal and opposite reaction) and then came down solidly and for good as the stasis reversed itself. He was darned glad he hadn't let Blixia try the jump.

He trotted back to the side where Blixia was. He motioned to her to throw him the bolt anti and after a moment it came spinning over to him. Blixia had her faults but she certainly was quick on the uptake.

He found the trap door and opened it. The last he saw of Blixia, she was leaning forward anxiously from Chou Kleor's shoulder, her hands pressed to her breast. He waved to her reassuringly and started down.

The stair was extremely steep and quite dark. George stole down it with his feet turned sideways. At the bottom he found he was in a tiny windowless room with many shelves, probably a janitor's closet. Sprayers, dusters, grinders and sweepers cluttered the walls. George groped about until he found the door and slipped out into the hall.

It was very nearly as dark as the closet had been. The only light came from floor strips in the cornice. George tiptoed along, listening to snores (this level seemed to be used for sleeping), sniffing from time to time and looking for the stairs.

Martian buildings, even public ones, rarely had levitators or even lifts. The lesser gee made stair-climbing less onerous than on Terra and Martians of both sexes insisted it wasn't reasonable to avoid exercise. Stairs were good for the legs.

George, thinking of Blixia and the little dark girl he had danced with at the Anagetalia, grinned. This momentary inattention was no doubt the reason why he whanged into the tabouret.

**I**T was a spindly thing, loaded with tinkly, jangly, clinky objects and George's collision with it produced a whole series of high-pitched crashes. Things bounced and rolled. The noise of frangible objects breaking seemed to spread out into the darkness like circular ripples in a pond. George, pressed against the wall, thought everyone in the embassy must be awake.

There was a stir in one of the rooms. A man's voice, thick with sleep, said rumblingly, "What was that?"

After a moment a woman's fuzzy contralto answered, "Just the weetareete, dear. Go on back to sleep."

Somebody turned over in bed. There was a tense silence. And then a gradual resumption of the noises of sleep.

Blessing the unknown woman, George detoured cautiously about the tabouret. The flank and back of his tunic were wet with sweat.

He found the stair, a broad low flight with a resilient surface, in the next moment. On the fifth tread a current of air brought an all too familiar odor to his nose. It was mixed with a more agreeable smell which was probably deodorant. Fortunately for George the embassy people had underestimated the amount of deodorant needed to keep the pig inodorous.

By sniffing door after door on the second level George located the room with the pig. It was closed with one of the usual simple-minded Martian locks but somebody had slipped a lucidux alarm disk over it. Tampering with the lock was going to be difficult.

George put his ear to the door panel and

listened. Almost immediately he caught the gurgle and slither of a moving cerberus. He jerked his head back from the panel and swallowed. There were not many things he was really afraid of but a cerberus was certainly one of them. He would almost rather have faced a cage full of cobras. Having the flesh sucked from one's bones by a cerberus' corrosive membranes was such a nasty way to pass out of the viewing plate.

Luckily the window irises in the hall were open and some light was coming in. George studied the door. He couldn't get in through the lock; how about taking off the hinges? No, the screw-heads had been soldered in. It looked as if he'd have to make an opening high up in the panel, higher than the cerberus could extrude, and figure on jumping over it. *Brrrrr!*

He got out the egg. It was a little longer and thinner than it had been but it went dutifully to work on the panel when he turned its switch. In all too short a time there was a hole in the door big enough for him to get through.

George hesitated. Moist fetid air (the cerberus is a life-form from the deep Venusian swamps) was coming through the opening. Beneath the hole he could hear the humping noise the creature made as it tried to climb up for him. Then he jumped.

He landed well beyond the animal. The pig's carrying case was sitting on a table, surrounded by charged wires. One good grab, George decided, and the pig would be his again. The trouble was that the cerberus, in its uncanny, ameboid way, moves extremely fast. Before he could make the three steps to the table and pick up the pig, it would be glued to him.

George could feel his brain whizzing like a mechanical astrogator and star positioner. The cerberus had put out a pseudopod and was now about two centimeters distant from the toe of his boot. With no waste motion at all, George pulled out the bolt anti and doughnuttet it.

The result surpassed his expectations. The cerberus shot up in the air and hung there, rotating wildly in a meter-thick dull-gray ball. Since it had nothing more substantial than air to push against it was unable to move in any direction. The harder it tried the more furiously it spun.

George dashed to the table and snatched up the pig. He got a shock from the wiring that almost made him drop the carrying

case but he hung on doggedly. He rushed back to the door, dodging around the still-suspended cerberus, and began struggling through the hole he had made.

He had got his torso and his right leg through when, the stasis-reversing itself, the cerberus dropped to the floor with a mighty plop. George felt a cold sweat of apprehension break out on him. Almost immediately there was a stab of burning pain in the ankle of his left leg.

George held on to the door so hard he thought his fingers must be denting the panel and kicked. He kicked for all he was worth. The sensation in his ankle, which was like that of a burn being held over a flame, was getting worse. George kicked like a maddened zebrule, his eyes bulging out and his heart knocking against his ribs.

**I**N the fourth or fifth of his desperate lunges the cerberus came loose. It sailed across the room and landed against the far wall with a thud. And George shot out of the hole in the door like a cork out of a champagne bottle. He landed on the small dark tzintz, who had been on his way to get himself a snack out of the coolerator. And from then on things got rather mixed up.

George later had a dim recollection of banging the tzintz on the skull with the pig's carrying case while the pig gave a feeble oink. More vivid in his mind was the gratifying period when he had held the tzintz by the ears and whanged his head repeatedly against the hard, unyielding floor.

"Steal my pig, will you," George had muttered grimly. "You little musteline! I'll teach you to steal my pig!" Thump, thump! Thump! "Ouch!" said the tzintz. "Oink, oink," went the pig. Thump, thump, thump.

George had enjoyed this period immensely, and been sorry when it came to an end. But all things must pass. He left the semi-conscious tzintz recumbent on the floor, his head propped against the dado, and fled down the stair in three long leaps. Behind him the embassy was buzzing like an overturned skep of bees.

George estimated that he had about three seconds before they started shooting at him with stun guns. He halted for a flash by the front door to depress a switch that he hoped shut the force field off. If it didn't he was going to die a hero's death. Then he shot out into the night.

Blixia was waiting for him—she always seemed to be waiting for him to escape from something or other. "Get it?" she demanded excitedly.

Too winded to reply George waved the pig at her. The long roll of a stun gun trilled wickedly past his ear. Blixia winced and then pulled him into a crouch.

"This way," she said, "hurry! And keep bent!" Doubled over, they pounded off into the darkness, headed as far as George could judge for the Grand Canal.

There were shouts behind them and a salvo and then another, of stun gun shots. One of them came so close that it grazed Blixia's shoulder and set her to rubbing it to restore the circulation. There was, however, no concerted pursuit.

"Afraid to chase us," Blixia panted as they jogged along. "Martian citizen—interplanetary incident. And after all it's our pig.

"Let's slow down. By now we're fairly safe—nobody after us except the police."

George slowed obligingly. He looked at her. Blixia was panting hard and drops of perspiration sparkled on her round sides. How different she was from Darleen! Darleen's grooming was always so perfect he couldn't imagine how she'd look excited and warm. It was rather becoming to Blixia though.

"Did you get hurt in the embassy?" Blixia asked. "You're walking with quite a limp."

"It's nothing," George replied modestly, recalling his thoughts. "The cerberus got after my ankle a bit."

"Oh, my!" Frowning, Blixia made him stop and roll up his trouser leg. She drew in her breath at the sight of the raw bloody blotch the cerberus' digestive juices had left. Deftly she plastered the wound with unguent from a tiny jar and slapped a bandijeon on it.

"There," she said, "that'll do until a doctor can look at it. Say, do you still feel that somebody's following us?"

George considered. They had reached the Grand Canal by now and were walking out slowly on one of its footbridges. There was no noise anywhere except the quiet lapping of the dark, slow-flowing water. The streets were utterly empty. Marsport's gigantic heart had almost ceased to beat. It was the quietest hour of the twenty-four, the one time when the whole city slept.

"A little," he replied. "But I don't see anyone. It must be nervous imagination. We've had a good deal tonight to put us

on edge."

"I suppose so," Blixia answered. "Pharol, but it's quiet!" She rested her elbows on the parapet and leaned over, looking down at the black water. "Give me the pig."

George handed the case to her. She opened it, saw that the pig was intact and shut the case again. Then she dropped it deliberately into the water of the canal.

For a second George stood and stared at her. Then he jumped in after the pig.

## CHAPTER VI

### *Symbolical Spare-Ribs*

**T**HERE was a second almost simultaneous splash. Blixia had jumped in beside him. "You let that pig alone!" she said furiously.

George grabbed at the case which, bobbing from the disturbance of the water, was beginning to move slowly downstream. Blixia slapped at his hands.

"You let it alone!" she repeated. "What business is it of yours? It's my pig."

"I—"

"Well, it is. Let it alone." The case was moving gradually out of reach. George eyed it wistfully and then turned to Blixia. He had always known she was unreliable, but he had never thought it would reach this pitch.

"What's the idea?" he said.

"About two kilos down the canal," Blixia said, "there's an island. Some friends of mine are waiting there, watching for the pig. When it comes past they'll wade out and get it. And then they'll make soup out of it. Pharol grant it won't disagree with them."

Blixia turned and began walking upstream toward the flight of stairs that was built into the canal wall. The water was not much more than waist deep. Utterly befogged, George followed her.

She climbed the steps with George in the rear. She had a graceful, swaying walk, and in her thin, drenched shari she looked nuder than nude. George found it hard to keep his mind on her hocus-pocus with the pig. None the less he came to a decision.

"Listen, Blixia," he said when they were standing on dry land again beside a warehouse, "don't you think you owe me an explanation? You Martians talk a lot about

reasonableness. Do you think it's reasonable to treat me like this?"

Blixa looked at him steadily. After a moment she nodded. "You're right," she said. "I'll explain it." Yet she hesitated and lowered her eyes as if she found it hard to begin.

"I'm a Martian patriot, George," she said at last. "You earth people don't understand how Martians feel about Mars." Blixa was speaking slowly and, for the first time since George had known her, she made on him an impression of deep and complete sincerity.

"Because we don't drink toasts to our planet or sing songs about its green hills, because we never brag about how fine it is, you think we have no love for it. Sometimes, I know, you laugh at us because Mars is so poor and there is so much you have without thinking on your planet that we can never have.

"I have heard that your planet was far richer once, that before it came under a planet council much was wasted and washed away. That may be but even so earth in our eyes is rich—rich! And Mars—" Blixa threw out her hands in a gesture of resignation.

"Well! We Martians do not wear our hearts upon our sleeves and if Mars is poor it may be we love our planet only the more dearly because of that.

"Once before I told you a little about the pig. Most Martians learn about its worship—its service—while they are children and grow up without ever thinking about it again. That is a bad thing, for if they thought about it it would disgust and sicken them. The worship of the pig—the worship of the pig—"

Blixa paused and clenched her hand. "I can't talk about it," she confessed as if the confession were somehow disgraceful. "It makes me ashamed. Every thirty-one days, for example, we—no, I can't tell you. It is unreasonable but I can't.

"The pig's worship, George, is like something invented by a feeble-minded child. A nasty, nasty child with a feeble mind. A child who catches flies and swallows them. It makes me ashamed.

"Four of us—two inside the cult and two outside—decided to try to stop the service of the pig. The pig had been sent to Terra as a part of the ritual of the Great Year. When we heard it was coming back it seemed like a good time. The cult messenger was

detained on the island and I was sent to get the pig in his stead. But the Plutonians got there first.

"Now the pig is on its way to the island. It should get there about dawn. When it does there will be a ritual meal, with Daror partaking on behalf of the actual members of the cult and Rhidion and Gleer on behalf of all the people of Mars. And that will be the end of the pig."

There was a short pause. George was trying to assimilate what he had heard. "They—will there be trouble about your having killed the pig?" he asked at last.

**B**LIXA shrugged. "Possibly. On the other hand, many of our cults have as their central feature a ritual meal in which the cult object is eaten symbolically by its worshipers. It isn't far from that to actually eating the object's flesh.

"Gleer is a publicist who specializes in word-of-mouth rumors. He plans to circulate accounts of the meal which present it as a pious act, a necessary sacrifice for Mars' prosperity. People will hiss us for a while but who knows? We might end up as heroes of a sort."

"I should think so," George said. He was feeling somewhat impressed.

Blixa laughed. "The really heroic part," she confided, "will be eating that awful pig. I do wish it weren't necessary. It isn't really alive, you know—I'm sure it came from Vulcan's workshop originally—and only Pharol knows what it will taste like. I hope it won't poison them."

"Our work, of course, will only be beginning when the pig's out of the way. It's too bad there aren't more of us. We'll try to replace the pig's service with something better—a Pharol cult, perhaps, or something from earth. Something that is—well—not too unworthy of Mars."

Blixa's voice died away. George, regarding her faintly-smiling profile, felt that he was seeing her for the first time.

"In the canal?" a high voice said from around the corner of the warehouse.

"N-n-n-no." It was not stuttering but a vibrato caused by an incessant trembling of the tongue and lips. "N-no-t u-un-t-til w-w-e ha-a-ve s-s-o-me f-f-un wi-th t-t-th-em."

George's heart gave a lunge. He'd heard a voice like that once before when one of the *Cyniscus'* passengers had turned out to be a glassy-eyed homicidal maniac. He

whirled around.

The men who held the sliver guns looked more like badly-stuffed half-rotting burlap bags than human beings. The hands on the guns were black with scabs and scaling flesh. They looked like burned and blistered rubber gloves. The hands alone would have identified the men to half the inhabitants of the Martian planet as last-stage alaphronein addicts.

"You see," said softly the one who could still talk normally, "you birded Louey about the groot. Poor Louey! He's got very little groot left. And you birded us. Can't have that. Louey sent us to correct you. Have some fun."

"T-t-the la-ad-y," the shorter addict said. "En-j-joy using the g-gu-n. O-on h-er." He coughed, and spat something thick and blackish on the pavement.

Georgt felt an apprehension that physically sickened him. The dart from a sliver gun is instantly fatal to human beings in a few spots. But over most of the body area its punctures produce a horrible tetany. In the agonized toxic spasm victims not infrequently snap their spines or fracture their own jaws.

He and Blixa would wind up dead in the canal—but before that, Louey's men (Louey must be the person to whom Farnsworth had told George to deliver the alaphronein) would enjoy themselves. Thus would enjoy themselves with their silver guns. And Blixa's smooth, soft skin. . . .

George pushed nausea and fear deep down inside himself and got ready to jump.

Blixa touched him lightly on the arm. "Wait," she breathed. She stepped forward, pulling the shari from her head.

"Care-ful!" the taller addict warned, waving his gun. He was wearing a hard bright happy grin.

"Andor djar," Blixa said. She raised one hand and swept the red curls back from her forehead.

"D-d-dai?" the shorter addict asked.

"Andor," Blixa replied. George, peering at her obliquely, saw that on her forehead shone in pale blue fire the intertwined symbols of the full and crescent moon.

There was a moment of intolerable tension. George realized that he was so keyed up that the smallest unexpected noise would have sent him charging into the two sliver guns. Then the taller of Louey's emissaries put down his hand.

"Pardon, lalania," he said to Blixa.

"—come along, Mnint."

"B-b-u-ut L-l-lo-u-ey s-sa—"

"Bird Louey! He's got hardly any groot. Let's go have fun with *him*." A glance of understanding passed between the two. Then they slouched away.

Blixa leaned back against the wall of the warehouse. She was looking quite white. "Pharol!" she said weakly. "But I was afraid! I hope I never have to do that again."

George put out an arm to steady her. He was feeling a little shaky himself. "What did you tell them? he asked after a moment.

"Why, that I—here comes an abrotanon car! We'd better hide!"

**S**HE whirled about but the driver of the car had already seen them. The car circled, returned and hovered. Its passenger peered intently down at them through the lucitrans bubble that formed the underside of the car. Then the port opened, the stair shot out and the passenger hopped down.

"Is that you, George?" he said. "I thought I recognized the top of your head. Yes, it is. Where the devil have you been? They let me out of hospital last night and I've been looking for you ever since. I've been worried sick. Did you deliver the pig?"

George looked at his cousin Bill for a moment before answering. "Not exactly," he said at last.

"Not exactly? What do you mean by that?"

George indicated Blixa, who was standing beside him. "This lady took charge of it," he answered.

Bill regarded Blixa dubiously for a moment. Then his face cleared. "Why, that's perfectly all right," he said happily. "She's the Idris of the cult—I recognize the marks on her forehead. Legally she can sign anything. Why didn't you tell me you knew her? It would have saved a lot of trouble."

George said nothing. Bill produced a receipt book from an inner tunic pocket and extended it and a brush toward Blixa. "If you don't mind signing here, lalania," he murmured. "An acknowledgement of the delivery of the pig."

"Not at all." Blixa took the brush from him and drew her name quickly in the proper place. She handed the book back to him.

Bill examined the receipt carefully before



he thrust the book back in his pocket. He gave a satisfied nod. "That's fine," he said, "just fine. Thanks a lot for helping out, George. Don't forget, I'll give you half my bonus when it comes. You've really earned it by delivering the pig. And then you can marry Darleen."

He slapped George on the shoulder, nodded with more formal politeness to Blix, and hopped into abrotanon car. It drove away.

There was a silence. Bill's last words, "Marry Darleen," seemed to be floating in the air. Blix looked at George and George alternately looked at her and then down at the ground. What was the matter with him? Why wasn't he happy now that he could marry Darleen?

"Who's Darleen?" Blix asked at last in a colorless voice.

"Girl I know on earth," George mumbled.

There was an even longer silence. It was still quiet beside the canal, but all around came the thousand noises of a great city waking to life. The polar mail went arching

through the sky with a long scream of rockets. George kept looking down at the ground.

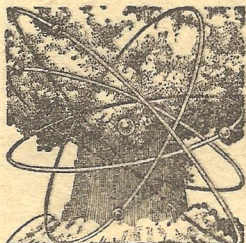
"Was that why you helped me get the pig?" Blix said finally. Her voice was even more impersonal than it had been. "So you could have enough money to marry this Darleen?"

"I—I guess so."

"Are you quite sure?" Blix asked. Her voice was as toneless as ever but something in it made George look up quickly. Blix's eyes were still fixed on him but she had begun to smile. "Are you quite sure?" she said again.

Something in the words ran down George's spine like a drizzle of melted honey. It reached the base of his vertebral column and stayed there, circling in a warm sweet flood. For a moment he looked at Blix unbelievably. Then he advanced on her with the determination of a male rhyoorg in spring.

Blix gave a slight scream. "Be reasonable!" she said. "Ooooh—oooh! Not here, George! It's too public! Be *reasonable!*"



## Nuclear Nuggets

A NEW theoretical method of looking at the world has been devised by physicist Dr. Max Born of Edinburgh University and his collaborator, Dr. H. S. Green. It is their idea that understanding of the basic laws of the universe can only be reached when the same formulæ are used for the subatomic and macrocosmic worlds—a concept which may be new to science but is far from new in science fiction.

THE peaceful controls of atomic research and development, long sought in vain by the United Nations, might be achieved through control of non-military aspects of the atom, according to Dr. Arthur Roberts, Chairman of the Federation of American Scientists. A four-point program for development of international control has been offered the UN by the FAS.

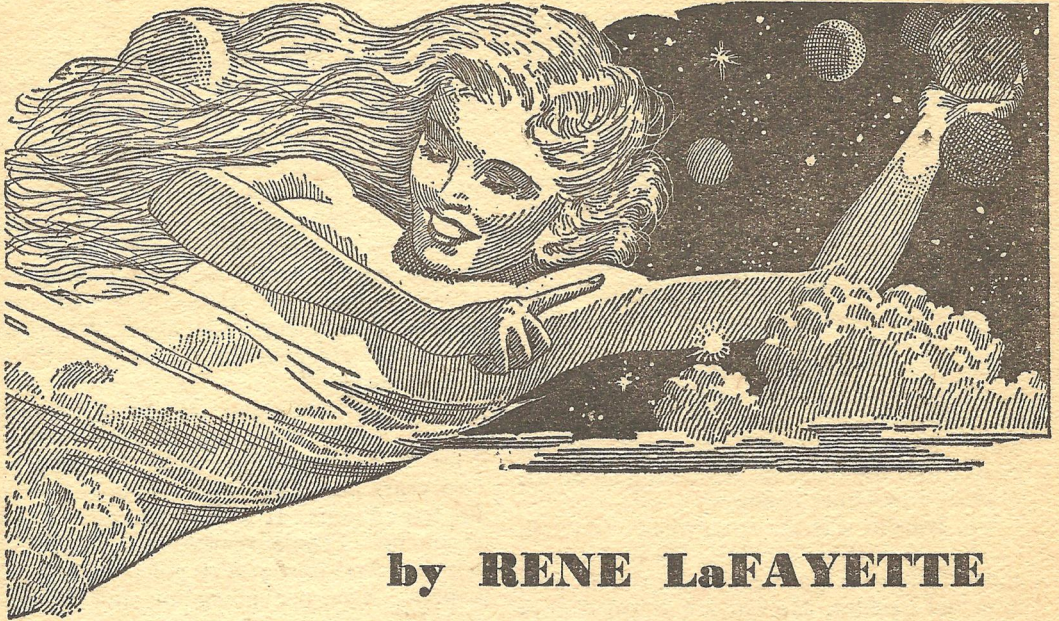
OFFERING radioactive isotopes to qualified scientists without charge is the policy of the U. S. Atomic Energy Commission for the support of anti-cancer and other medical research. A sum of \$450,000 has already been set aside for the support of this policy in its first year. Researchers, to be qualified for such aid, must be associated with an institution having facilities for radioactive research.

MEASUREMENT of the age of anything that has lived within the last 25,000 years via radioactive carbon 14 has been announced as possible following experiments at the Institute for Nuclear Physics of the University of Chicago. Thanks to the presence of a small amount of the carbon, whose aging process is a familiar one, in the air at all times, it has been possible to check its rate of decay against objects whose age is otherwise known and thus develop an infallible age index.

# the unwilling hero

*No hunger for personal glory lured Vic Hardin into the reaches of outer space on a daring rescue mission—he was ordered out there by his editor!*





by **RENE LaFAYETTE**

**T**EN of thousands of years ago, Earth and Earthmen had no concept of the stars nor the destiny of mankind. Difficult as it may be to believe, the tiny planet which gave birth to Barstow, Chun-Ka, Whitlow and Marin looked upon space travel and conquest as a sort of novelty, a thing to be read about in the Sunday Feature Section, a stunt without any great meaning or scope.

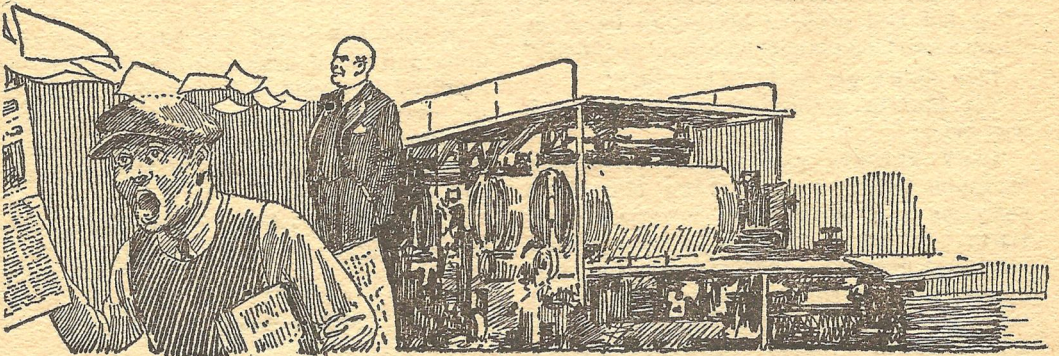
The average Earthman thought such voyages vaguely interesting but of no personal concern to himself. Expeditions, he believed,

went out to help astronomers and check their guesses, to collect new animals for the zoo or provide heroes for parades up Fifth Avenue.

According to the records which exist in the Galactic Archives (exhumed lately from a ruined library on Mars) Victor Hughes Hardin—the V. H. Hardin so dear to legend—had no more idea of being a space explorer before he became one, than he had of being immortal.

The school children who dutifully chant

## One of a series of stories on the Conquest of Space



the dates and events of his life in our schools probably think Vic Hardin was ninety feet tall, breathed fire and lived on raw lion. Certainly this is not their fault. The cold facts revealed in the histories and geographies do nothing to paint a man. Vic Hardin considered himself more of a martyr than a hero.

He became an explorer because he was ordered to do so. He went unwillingly. To him it was just a hard, lonesome, dangerous job. His total preparation for space travel was a course in physics in high school, which he flunked.

He was a newspaper reporter, habituated to receiving assignments and carrying them out with something more than average zeal, which fact brought him, one fall day on Earth, into the office of J. P. Malone of the Malone newspaper chain.

Vic Hardin was far from ninety feet tall. He was about five feet five. He had a wiry shock of hair, a good-natured grin, a snub nose and freckles. He was not afraid of anything commonly met on a reporter's beat except his city editor and Malone.

Malone was built on hero proportions, which may have been why he rarely left his desk. He ran a hundred and five newspapers all over the world and he could have written a check larger than any bank on five continents could have conveniently cashed. He had Vic Hardin in at once.

"I have an assignment for you!" said Malone.

Vic smiled. "Sure."

"Find Whitlow!"

Vic looked at Malone. "You mean his widow, sir?"

"I mean Whitlow!"

**V**IC took a new tack. He was not accustomed to being summoned up from his normal job on the *Star* except when something hot and positive needed to be done. "You mean Commander Whitlow got back!"

"He didn't get back. This did!"

Vic Hardin grabbed the teletype which was brief:

ARMY REPORTS FAINT RADIO MESSAGES RECEIVED FROM OUTER SPACE RECEPTION BLURRED BUT SIGNATURE WHITLOW DISTINCT. FURTHER EFFORTS DURING NIGHT WITHOUT RESULTS. OFFICIAL CIRCLES NON-COMMITTAL BEYOND PROBABILITY THAT COMMANDER STILL ALIVE. MILITARY COMMUNICATIONS STRESS IMPOSSIBILITY OF BEAMING AND WHEREABOUTS OF EXPEDITION

REMAINS UNKNOWN.

Vic read this with interest. Fourteen years before, while Vic was still in school, Commander Whitlow had disappeared with a Government expedition. Whitlow long before that had made a great deal of news by discovering habitable planets around a near star while commanding the first successful Government outer space expedition. Rumors, for all these fourteen years, had arisen that Whitlow was still alive. Vic had interviewed several explorers about the matter.

"I'll get right on this," said Vic. "Make a nice story—"

"No!" said Malone. He leveled a finger at Vic. "You are going to find Whitlow! You interviewed his widow! That was two years back. We had to follow up on it for ten editions. It was a good story. Good reporting. People remembered it. It sold papers. And now you're going to sell more papers. You are going to find Whitlow alive!"

Vic blinked. It had never occurred to him that he would some day go sailing off into the absolute zero of space on a suicide mission. Of the scores of voyages attempted into outer space, only two had come back.

"Whitlow was a hero!" said Malone. "He's news. He will always be news. This is worth everything I can give it even if it costs ten million dollars! You have a unique record of always coming back from assignments with a story. I want you to come back now with Whitlow!"

Vic remembers picking up his hat, bowing politely and saying, "Yes, Mr. Malone."

The most famous manhunt in history had begun.

Vic Hardin went downstairs to Mike's and drank four beers, and wondered disconnectedly whether he should give up his room.

A copy boy found him later in the afternoon and put a draft into his hand for five hundred thousand dollars and until late in the evening Vic sat at the bar, looking at the draft, arising occasionally only to go outside and look up to see if the stars were still there.

The morning edition found him just before midnight. It had a big banner:

WHITLOW ALIVE

Malone Sends Expedition  
To Rescue Hero

Vic stared at himself in the bar mirror and

at the check for five hundred thousand dollars.

Vic Hardin had never felt so lonely in his life.

The next morning Vic went to see Mrs. Whitlow. He had no idea where to begin. All night long he had been seeing nightmares in which J. P. Malone kept throwing stars at him and he dodged only to be chased by unwholesome beasts who turned every time into J. P. Malones. He had no thinnest notion where to start.

Mrs. Whitlow had grown quite old in the two years since he had last seen her. Her hair was white. Every line on her face told how much she had loved her husband and how long she had worried and hoped. Her small apartment graphically showed a government's neglect of a supposed widow of fame. She had papers spread all over the living room, shouting from every page the glorious news that J. P. Malone was going to have Commander Whitlow brought home.

"You're to command an expedition to find him!" said Mrs. Whitlow, eyes luminous with confidence. "Mr. Hardin, when you told me you hoped he was still alive, I didn't know you would start a thing like this."

Vic's conscience suddenly troubled him. He remembered the interview and recalled his own professional talk. Reporter patter. Human interest.

"I didn't think of this," he said.

"But you're going! You're going to risk your life to save my Bob! It's wonderful!"

Vic had come to her to ask her for help. He couldn't now. She had him pedestaled above godhood. He told her he was doing what he could, was vague about departure times, heartened her, tried to tell her, even, that the relief might fail. But she would have none of it and he found himself on the street before noon as hopeless as before.

**I**NSPIRATION came with lunch. He left his hamburger half eaten and caught a cab for the Explorer's Club. Here was the place they could tell him. Here might be the only place he could find out.

The Government, certainly, after the way Malone was hogging glory in the news, was going to be hostile, since it was under fire. But here at the Explorer's Club, in this haloed hall, he would learn what he had to know. How did you get a ship and go to the stars?

The quiet interior was massive and dusty,

filled with old flags, strange trophies, faded photographs and ghosts. He stood looking at the appalling corona of Vega and the plaque for the dead of the Apollo Expedition and the various grim and dreadful reminders of the fatality of space, until he was rescued by an attendant.

No, the secretary wasn't in. The executive secretary would not be here today. Vic was daunted. The very atmosphere seemed laden with glory. What had he, a newspaper reporter, to do with these courageous ghosts.

He would have left but the door opened and a young man came in. Vic waited.

The young man was an uncommon looking youth. It was not in his clothes nor yet in his face. But about him hung something of mystery and high adventure, in the quality of his smile, the sureness of his movements, the quiet depths of his eyes.

"Any mail for me, Gus?" the young man said.

"Just a moment, captain." The attendant went into the mail room to look.

Vic was interested suddenly. This fellow seemed too young to be a captain.

The attendant came, back. "Nothing today, Captain Taylor."

"Wait," said Vic. "Excuse me, but haven't I seen you somewhere?"

"Don't think so," smiled the youth.

"Picture section," said the attendant.

"Oh, well, that," said Taylor.

Vic suddenly beamed. "You're Taylor of the *Martian Queen*!" He thrust out his hand. "I'm in luck. I need help. Lord how I need help! Can you give me a minute, captain. I'm Vic Hardin of the *Star*."

Taylor brightened. "Not the Whitlow rescue man!"

"Unfortunately—yes!"

"Here, sit down!" said Taylor, pushing Vic into a deep chair. "Gus, bring us some tea or something. Say, Mr. Hardin, I'm confounded glad to see you. This place belongs, look, stock and barrel to anybody who'll bring back old Bob. Tell me. What are your plans?"

"That's it," said Vic, getting dejected. "There are no plans. But before you condemn me, hear me out. You're an experienced man. You took the *Martian Queen* to Pluto and you'll know a thing or two. I need a ship. I need a pilot. I need supplies and a million things I don't even suspect. I need help!"

Taylor was silent and thoughtful. He

looked at Amundsen's flag and then at a model of the first Moon ship. Then he called upstairs and a moment or two later an old retired admiral, who served as honorary recorder, permitted himself to be wheedled from his rooms.

"Admiral," said Taylor respectfully, when he had introduced Vic and outlined the problem, "there must be *somebody* fit to go. There has to be! Who would you suggest, sir?"

The old admiral furrowed a wind-beaten brow and thought for a long time. Suddenly his face lighted.

"Taylor, I've got it!"

Vic and the young captain leaned eagerly forward.

"You take him," said the admiral, promptly shaking hands and walking away.

Thus Vic Hardin found himself with a pilot and a ship which could be converted, found himself with several hundred members of an exclusive fraternity trying to outdo each other in favors.

He got the story to Malone before the edition went to bed and the morning papers were stuffed with copy about the project with old pictures of Taylor and the *Martian Queen*.

One month and a day later, in a sphere crammed with food and strange gear, Vic Hardin waved good-by to a battery of flashing cameras and shut the port.

He had learned a very great deal in that month and a day. He had learned that Commander Whitlow's radio message, traveling at the speed of light, might have been sent on the day he landed in some strange system and might have taken every one of those fourteen years getting back.

**H**E HAD learned about a "field drive," which was just making its appearance in space ships of the time and which, when the speed of light was reached, ran on collected particles of energy residual in space. He had learned painfully—for his arithmetic was bad—to calculate the "curve of space" and to perform rudimentary navigation and pilotage. And he had learned, hardest of all, to do without cigarettes.

Taylor took the ship slowly up to a thousand feet on repulse fields and then squared away for the nearest star.

The crowd below shrank and shrank and then became a dot in a vast geometry of fields. Finally the sky turned black and the

Earth grew curved and Vic Hardin was convinced that he was on his way.

During the weeks which followed, Taylor's respect for Vic Hardin increased. Taylor had been an Army pilot up to his twenty-first year, graduating from the Space Flight School maintained at Amarillo at eighteen and riding the superspeeds for three years thereafter in the usual aimless atmosphere of military restraint. He had been lent, then, to the Naval Survey and had spent a violent year with Commodore Millan charting Saturn and Jupiter which project was not completed but ended by Millan's death. A surprised Army had received Taylor's resignation and the usual whispers of broken nerve followed him until his solo to Pluto had given him a distinguished reputation.

At twenty-nine, then, Captain Taylor could truthfully say that he had spent six of his last eight years "off Earth." And flying here in the rebuilt *Queen*, it looked probable to him that he would tally up a few more.

Taylor, watching his companion, grew appreciative day by day. Vic Hardin had a certain adaptable aplomb which blanketed any fears he might feel deep down. To see Earth and the Moon grow small, to behold the Sun dwindling to an unimpressive star, is an experience which has unnerved many a hardy rocket man. To be nothing amongst nothing, to be all encased in pitiless blackness so cold that air would liquify and solidify in an instant, are things upon which it is difficult to dwell without a shudder. For ships are frail. Their force shields can sometimes be pierced by a single insentient particle blasting through. Dwelling on that while hurtling along at a thousand times the speed of light, had crushed the wits of many a strong and able man. And does so even today.

Vic Hardin set up his typewriter so that the force of acceleration would still let the carriage slide, perched upon a provision case, and wrote his departure story.

He looked through the ports back at dwindling Sun and said, "I wish I had a smoke."

Their journey to their first system, Alpha Centauri, was filled with working and planning. The *Martian Queen*, by any modern standard, was cramped, uncomfortable, dangerous and slow. She required constant attention despite her automatic controls. Numerous small machinery habitually broke down. When a man wanted to sleep, he laid

himself out on a cartridge bank or a provision case. A flight meant wearing one's clothes for the duration. No prison ever offered less hospitality. Yet Vic Hardin and his pilot managed to be happy at it.

If our ancestors were superior men, it was a superiority of hardship and daring, but Vic Hardin and Taylor were to spend a long, long time under these circumstances.

Vic, amongst his tricks at repairing, control observation, cooking and studying found time to turn out copy. It was not natural to him not to turn out copy.

They were outrunning all communication. A radio note sent out from that ship, such were the crude communications of the time, would have been pitched down below the range of any possible receiver, such was their speed. The why of all this copy bothered Taylor.

"When we get to the first place and look around, then I send what I got here," Vic said.

"But it won't reach there for years!"

"Okay, so it won't reach for years. But a story is a story."

Taylor looked closely at his friend. "An assignment is really serious business to you, isn't it? I don't think you'll turn back until Whitlow is found."

"This old baby," said Vic, patting the bulkhead of the ship, "and you holding together, no."

"Have you any real idea of the size of a planet?" said Taylor, smiling.

"Sure. It's big."

"What if Whitlow was lost in the Canadian Northwest? Just one small plane down in a wilderness of trees. Think you'd have a good chance?"

"We'll find him."

"Why are you so sure," said Taylor, curious.

"Because I got orders to," said Vic and sat down to write a story about a comet they had just passed.

**T**HEY fetched up in the bleak fastnesses of New Earth, long since discovered and explored and despaired of for its double gravity, poisonous swamps, lumbering beasts and two-hundred-mile per hour storms.

On a lonely stick in the middle of a rocky plateau the tattered fragments of an Explorer's Club flag drooped over a cairn and Taylor pulled forth the records left in it, opened the casque and added a copy sheet

of their own log. He came back to Vic beside the ship to tell him that Whitlow's records were not there and found a thoughtful Vic.

"Coming in," said Vic, "I saw an awful lot of ground. Seas and continents and mountains ten miles high."

"Well?" said Taylor.

"A man could get awful lost in this place," said Vic. "What I mean, it's big."

"Twice Earth," said Taylor. "You want to put a story in that casque?"

Vic shook his head. "It's about sundown. I want to see the Sun."

They plotted it out, when darkness came, although the Sun was a very small star and better seen even through an optical instrument than with the naked eye. The constellations were all askew and this world was full of strange sounds. Vic entered the ship and beamed their antenna. He began to pound brass, a newly learned art of which he was proud. Wireless telegraphy would reach across in years what they had traversed in a few weeks. Two monitor stations on Earth would someday pick up these dots and dashes and some day they would reach Malone's big presses.

The next day they leisurely bobbed in New Earth's stratosphere, their beams for detecting the presence of metal turned on full, their radio alive and listening, their eyes upon the sores of swamps and cruelty of mountains below.

The following day they were still doing it.

"How many planets," asked Vic, "do you suppose there are in a fourteen-light-year range of Earth?"

"I'd guess several hundred."

"It is going to be a long job!" said Vic.

But no matter how long the job, they made the best of their time. Vic kept a minicam running and his antenna beamed at Earth with a flood of copy always going out. Taylor filled notebooks with precise script on matters of technical interest.

They moved from planet to planet. They visited planets no one had ever dreamed existed, even Whitlow, and they moved on to more. They had adventures which would have made more stolid men nervous wrecks for life. And they kept looking.

Once, when they had been out thirteen months, they caught a message which they thought was from Whitlow. It was in the Caligar System, a tiny star not much bigger than Sun surrounded by a huge number of

planets none of which was habitable.

With eagerness they traced it, for the static here was bad and they could not decipher the message, and located it as coming from Vega. Their excitement pitched high for twelve hours and then the message conditions cleared and they knew what it was. They were fifteen light years from Vega and they were receiving, no more and no less, than the message which had begun their original quest.

It was Whitlow's SOS, the same SOS which had started Vic Hardin on his way.

This made them glum, for as a beam it could come from either way and might not be Vega at all but a hundred and eighty degrees reverse. They had been glum anyway for the planet which they currently explored was a strange blue mass of terrible growth whose only life was tiny and insectine. And then Vic conceived his idea.

Up to this moment he was a reporter only, recording exploration but contributing nothing. But there was nothing wrong with his mind; on the contrary.

"We're leaving!" he announced suddenly.

Taylor, who had been half asleep in dejection over a chart, came awake to the brightness of Vic's grin. "Where? Why?"

"Son," said Vic, "can we take shots on this Caligar to estimate our exact distance from it?"

"Certainly."

"And we can drift motionless in space, can't we?"

"Yes."

"Close the hatches. We're gone."

The astonished Taylor complied.

**W**ITH Vic plotting, they went three light days toward Vega and stopped as nearly as one can stop in space. Taylor did not yet understand and when Vic, after waiting forty-eight hours, ordered them on a new course at breakneck speed, Taylor thought his companion had lost his wits. When they traveled eight light days in this new direction, only to stop again, Taylor was sure of it.

But Taylor's opinion abruptly altered. Suddenly, after they had been there but an hour, the SOS came in again.

Vic Hardin had invented a method of location in use for many centuries after. He was playing tag in space with a radio message!

Taylor's liking for Vic Hardin had been

genuine. There was respect in it now. A great deal of respect. And he set himself to do the manual labor of the plotting with which they burned the next sixty Earth days.

They outran the message and caught it again. It was indistinct. It merely said, amongst much interference, "**—ALIVE—STORES—AS SOON AS POSSIBLE IF—INJURED—WHITLOW.**" But it was enough and it could be plotted on a curve and it was plotted on a curve of intercepts.

When they had finished they had a small segment of a sphere. Its diameter averaged thirteen light years. Its azimuth each time, necessary as well to the drawing of that sphere, indicated an unnamed star in Vega's direction.

If jubilation had not fortified them they would have been exhausted by the work, the constant acceleration and deceleration, the tension of waiting and, above all, this long continued laboring in their ship without respite. That they were now nearly as far from their destination as they had been on Earth did not trouble them in the slightest. The weeks which lay before them now were pure pleasure.

Traveling with Sun abeam to port, Vic could occupy his time getting rid of copy as they voyaged. He had become very used to telegraphy and often now he composed with the key instead of his typewriter. That he might be back home long before these messages arrived did not slacken his labor.

For some time past his material had taken on a strange, visionary aspect; but he was beginning to see a dream.

He saw the people of Earth, blinded to the stars by the flash of their lighted signs, cramped on their land by outworn economics and too little food. He saw a planet warring over lands and personalities not worth a breath when compared to time. For he had seen planets with green meadows waiting, planets with their mountains full of fuel and ore, planets with splendid stars to light them and crystal air to breathe. And he not only saw for himself how petty was that life on Earth, he saw also that he must make his readers see.

Man was not an insignificant bug on the small planet of a smaller sun. Man was a gigantic, a strong, a magnificent creature, a god who could conquer All.

He told them of the fog planet and the strange sentient beings there who might



live forever within ten miles of a neighbor and never know he was about. He told them of the sea planet where no land now showed. He told them of the crystal world and how it looked at sunrise.

And he took his tricks with Taylor, turn about at the watch, plunging at a thousand times the speed of light toward Whitlow.

What they would find, Vic did not speculate. He had in the back of his head the gray little woman in the shabby apartment who wanted her Bob. She had waited another fifteen months now.

They called the star Whitlow. And through the groggy days when they never received more than four hours sleep at a time and ate cold food and breathed foul air, Whitlow became to look to their imaginations not like a man but like that point of light they chased, seen blue in their leaded ports, turned bluer by the terrific speed with which they approached it, made visible only by a reducing filter which spaced its rays.

Once they came near disaster. They were into a System they did not know existed and almost upon a gigantic mass which seemed to fill all space. Their guiding star went out suddenly. A new star, a dead star ten thousand times the size of Sun and yet only a pinpoint in this immensity, had almost sucked them in with gravity.

They went over it, tumbling wildly off their course and had the second near coincidence of striking its dead twin. They missed this also. Two hammer blows were felt but their force screens had held against billion ton bits of space dust. Then they were clear.

**UNSTEADILY** Taylor rose, holding his bruised side, a little sick.

"Do you suppose that knocked a hole in the hull?"

"We're alive," said Vic. "Plot it so some poor guy doesn't bump his nose some day."

He looked back through the ports, but nothing could be seen. The incident now could be read on the meters alone. They had passed between that gruesome binary, burned dead eons back, Drago which, one hundred years later was to claim the lives of five hundred men in one fatal, forgetful instant.

Seventy-eight days from their fix, they braked down and gazed upon their goal, Whitlow.

It was an insignificant star to them, so far as size went. But it was history making in

its import.

About one half again the size of Sun, Whitlow burned with a clear brilliance in the telescope. And at this distance of fifty million miles, its planets could be seen, twenty-nine of them.

Nearly sixteen years ago they knew that Commander Whitlow must have sent a message from this place. Now either Whitlow, and whatever remained of the expedition, might be found amongst these twenty-nine planets.

The numerousness of worlds balked them for a little while and they hung for nearly ten hours making intricate recordings of orbits in an effort to get a plot of this system and discover which planets were nearest and which furthest from their sun. It seemed, although their time of observation was hardly long enough, so crude were their instruments, to be conclusive, that this was no pancake system such as Earth's. There were two distinct planes of rotation tipped at seventy degrees to one another as though this star had fused from two stars and two systems, each having planets.

Considering the brilliance of the present sun and measuring the various orbits, they concluded that Whitlow had probably taken the eighth to twelfth orbits as his goal and on this assumption they cruised toward the eighth and landed there on its moon side.

It was a terrible view. A howling sand-storm was in force, sweeping over their ship and shaking it in gusts. Gaunt specters of pinnacles showed themselves yellow and red on every side and a wide blue chasm reached forever downward near at hand. They did not open the ports. They did not dare. This scarlet and saffron world was dead and if it still had air, it had no promise of life for anyone who could have landed there.

They slept for all the storm, so exhausted were they, and took off again in the night.

The planet of the ninth orbit was all the way across the sun but the eleventh was nearer to hand. Rested now, and feeling great confidence, they approached.

It had an atmosphere and, as they settled to sub-curvature height, they realized that here must be a landfall worth making.

In the middle of a huge savannah of grass, then, they landed. A cautious venture out the airlock assured them they could breathe and after scouting the way with that caution which became inborn in all voyageurs, so many and unexpected could be the dangers

there in wait, they found themselves and three-quarter gravity ground, breathing pure air, luxuriating in sunlight and suddenly reborn from that metal monster which had so closely housed them.

If their impatience had not been so great to find Whitlow they would have lingered here for, if any two men needed rest, they did. Such was their nearness to collapse after their hardships that they could not walk naturally but stumbled and fell down.

Vic laughed and tossed up handfuls of grass which settled and spread in the gentle wind. "It's paradise. We'll name it Paradise! I saw a sea when we landed and a river!"

"I see a saw," said Taylor.

They laughed over it as though it was something very funny.

"I sea a saw!" said Vic and began to howl with laughter.

"I sea a seasaw!" said Taylor and rolled on the ground.

**V**IC SUDDENLY sat up. He grimly composed himself. "Hold it, son. We're not going crazy at this late date. Where's our friend. That's the question."

Taylor stopped laughing. He had verged so close to hysteria that it shook him. He went into the ship and began to pound out a call for Whitlow.

Somewhere in this system that message might be received, even sixteen years late. And all that day and night they took turns breathing good air and resting and talking into the mike or pounding brass.

They were much revived by morning. They looked, even to each other now, like tattered scarecrows, unshaven and seedy and unbathed. They could have found water and remedied this but they were too anxious to get on.

At noon, time having been ample for them to have gotten their messages to the furthest planets, with their receiver on full to the emergency band, they drifted upward at finite speeds and scanned the planet with care.

It was a beautiful planet, a habitable planet with all the things man needs. Vegetable life was there but, apparently, no higher forms. It was even temperatured, having very small polar caps, rotating at right angles to its sun and so giving itself no changes of season. But it was not beautiful to them when they could not find Whitlow.

They debated then as to their next step. The thirteenth planet and the ninth were about equidistant. They decided to be orderly and take the ninth.

They spent eight fruitless days cruising it. They found again that it was habitable and beautiful but not to them. They only landed once and then to get a supply of water.

The twelfth seemed closest now and they made a speech of it, growing more careful as they curbed their impatience, sending out a continual stream of messages both to Earth, thirteen years away, and to a possible listener in this system. And although another week was spent it only increased their weariness.

The fourteenth was nearest now and they cruised it to find their third habitable world in this system but their only gain was microfilm and notes for no trace whatever of metal did they find.

Their hearts were low enough when they came to the thirteenth planet, but lower still when they beheld it.

The thirteenth planet of the Whitlow System is, to this day, one of the wonder sights of that galaxy. All manner of adjectives have been expended upon it. It has been called the Rainbow World and perhaps this best describes it.

For the thirteenth planet is a system in itself, a central world surrounded by moon worlds, eight in number, which, each one is a world in itself. The largest of these "moons" is three thousand miles in diameter and the smallest about six hundred. The nearest orbit is about one hundred thousand miles and the furthest about one million two hundred thousand.

The central planet, aside from the one continent of Taylor, is of no great value, having four gravities and being mainly of water. The superabundance of atmosphere and the rapid rotation of the central planet also render it uninhabitable. But of the eight "moons" there is only one which is useless, that one being the smallest which is now domed.

In its pristine state, the sight of it was startling enough to these two haggard men. They saw before them not one planet to search but perhaps nine and their hearts nearly failed them.

They swooped close in and observed the extent of the water and the littleness of the land, saw the enormous rainbows arching through the sky, saw the jewel-like radiance

of the "moons" and drew out, stunned by the fanfare of color which had greeted them.

Vic pounded no brass about it then. He was too disheartened.

Methodically they took the moons one by one. On the first they found no atmosphere but on the second they were amazed to see a rainstorm slanting down in its polar region. They watched it from afar as though they had a toy under inspection.

Their beams here connected and it brought them quickly back to their search even though the contact was an iron mountain.

They progressed out to the fifth planet-moon before they, amazed enough already, could again be startled. They saw below them the regular earthworks which meant fortifications or city walls. They swooped down to find, instead of a living city, a dead thing of shattered towers and broken stairs, with nothing alive within it.

**T**HIS STARTED Vic pounding brass once more for here was speculation enough to fill, as indeed it was destined to do in the centuries to come, a thousand thousand learned books which, at last, resolved upon no solution whatever.

The eighth planet-moon was nearest to them and to this they went. They circled it, saw its atmosphere and its verdure, its storms and calms and seas and came closer to begin a systematic scan.

The search was over so swiftly that their battered wits could not comprehend it. They did not need their radars nor even much of their eyes. On a plateau of about one hundred square miles in white lime letters ten thousand feet long was scrawled "SOS."

They hovered there, their eyes fixed upon that huge and welcome marker. Then Vic the strong, the tough, the newspaperman injured to all emotions, sat down suddenly and began to cry.

Taylor took the ship down and the *Martian Queen* landed near a clear road to the north of the sign. They opened the door on a gentle evening wind which smelled of flowers and walked forth, alert for danger or a hail and so passed down the cliff to a cluster of huts in the dusk.

There was a fire burning in a clearing and a man crouched over it roasting something on a stick. He did not turn at their footsteps and Vic Hardin stood at his elbow before he looked up.

He was a very old man, ragged and thin,

and his sight was evidently made uncertain by staring into the flames.

"Sir, I am Vic Hardin of the *New York Star*. May I introduce my captain, Gene Taylor?"

The old man stood up. He put the stick carefully aside and wiped off his palm before extending it.

"Commander Robert Whitlow, sir."

But the hand was not extended toward them but off to the side and Vic Hardin, looking closely, saw that Robert Whitlow was blind.

They shook gravely and sat down on the stones before the fire.

"I knew you would come," said the old man quietly, and fumbled for and found his stick.

\* \* \* \* \*

When the three men who remained alive of the Whitlow Expedition arrived in New York City, a stunned press and a wild populace received them. The mobs on Fifth Avenue were so thick and so hysterical that it took fourteen hours to pass along the street from one end to the other. They had known of this rescue five days before Hardin's arrival. The mighty press of J. P. Malone had thundered headlines almost every hour of those five, as Hardin's story, teletyped from Mars, rolled in.

Vic Hardin's copy snowballed into columns and columns on his arrival and pages of comment from other papers followed suit.

Sitting on a folded top of a car, Whitlow waved back to the faces he could not see and his gaunt men grinned as they were buried under ovations. Vic Hardin had not intended to be in this parade. He had intended to cover it. But before five blocks had gone by he was thrust with Taylor into Whitlow's car and the crowds bellowed themselves hoarse.

The needle in the haystack hunt was ended. The alive had been returned from the dead. Newspapers had been sold by the billions and the story of Vic Hardin had become, all in an instant, a legend. His book, "How We Found Whitlow," sold through a hundred editions and became the model of most of those books which followed. He became a boy's dream of grandeur and so he has remained.

New worlds untrod by man, new suns never seen, new frontiers untouched, all these Vic Hardin gave to Earth, far above the return of a sick and weary old man.

(Concluded on page 124)

# Hollywood on the Moon

## CHAPTER I

*Camera: Ether Eddy*

**M**ARE IMBRIUM is the most desolate spot on the Moon. It is a bleak fantastic inferno of jagged rocks and volcanic ash, airless and frigid.

The monotony of the scene is broken only by craters of varying sizes, ominous reminders of the meteors that plunge like bullets through the void, a deadly, ever-present menace to the Earthman hardy enough to venture there. Yet in this lunar no-man's-land two figures in bulky spacesuits were racing desperately toward a high outcropping of stone.

Though apparently nothing pursued them there was stark horror in the glances they

threw over their shoulders. One was a girl, her dark hair a cloudy mass within the transparent helmet. The other was a man whose face was curiously expressionless, and whose movements somehow failed to match the animation of the girl's.

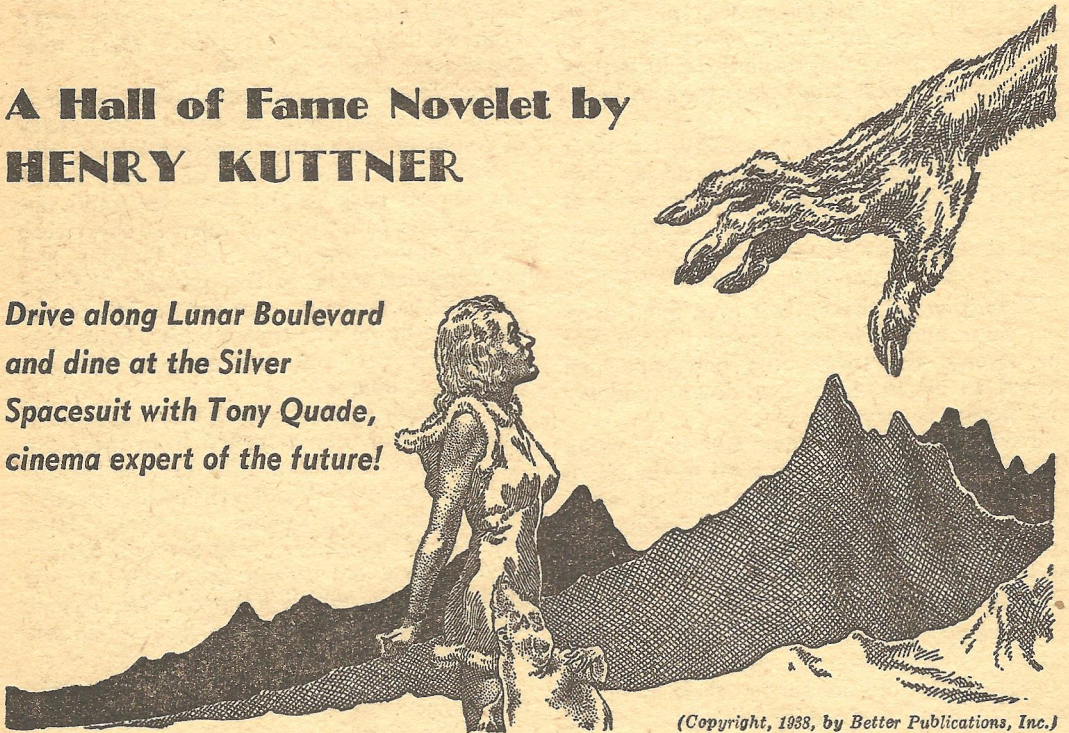
Yet when she stumbled and fell he paused and helped her to her feet. About to resume her flight the girl's mouth gaped in an open square of terror. She flung up a pointing glove.

The shining thing had sprung into existence without warning. Its brilliance eclipsed the dim globe of the Earth, low on the horizon, and the white splendor of the stars.

It seemed to be a gigantic shell of flame, spinning madly in a blaze of glaring colors, the poles of its axis elongated into two thin

## A Hall of Fame Novelet by **HENRY KUTTNER**

*Drive along Lunar Boulevard  
and dine at the Silver  
Spacesuit with Tony Quade,  
cinema expert of the future!*



*(Copyright, 1938, by Better Publications, Inc.)*

Quade had no time to draw  
his gun before a tree-like  
arm scooped him up



cords of light that trailed into nothingness. It hesitated, hovering, then dipped as though in mocking salute. It swept down toward the two.

From its flaming core streamers of light flared out. Abruptly the man in the spacesuit was lifted as though by giant, invisible hands. Writhing and twisting he was pulled closer to the shining thing. The girl made a frantic clutch at her belt and drew a slender tube but before she could use it the inexplicable power had dragged her feet clear of the ground. She hung for a moment, motionless.

From above a beam of light fingered out but the girl did not glance up. She was staring, horror-stricken, at her companion.

His eyes were distended hideously. All over the spacesuit a dim lambent radiance seemed to play. Then, abruptly, fire spouted from the neckband of his suit. A flower of flame blossomed where his helmet had been. Instinct with a weird and terrible beauty, it flamed up into a tapering spire—elongated and stretched until a lambent thread stretched out toward the spinning thing of light.

And from every joint in the spacesuit—wrists and feet and waist—streamers blazed out, gleaming tracers that united and stretched avid fingers toward the whirling blaze.

From the tube in the girl's gloved hand a thin bluish beam sprang. Already her suit was glowing ominously as she was drawn inexorably closer. Her face was drained of blood, contorted in an agony of fear.

**A**NTHONY QUADE spoke sleepily. "Ho, hum. Take it over, Peters. The chief's buzzing me."

Tony Quade, turning from a camera in the transparent nose of the space-ship, cast a last glance at the scene below, vividly distinct in the searchlight's beam. Valyne Ross was a good stunt girl. There wasn't a star on the payroll of Nine Planets Films, Inc., who would risk her skin on this side of the Moon.

But the job had to be done and Quade knew Valyne would do it. Quade had a trick of knowing such things. That was why, when Nine Planets wanted special effects that entailed plenty of risk, they hired Quade for the job.

*Space Bandit* needed Quade. It was the biggest picture on Nine Planets' schedule this year and they had already expended a

fantastic sum on its production. Van Zorn, the chief, would get it back, of course, provided Quade did his job well.

*Space Bandit* would be big box-office on its special effects—and Tony Quade, with his picked band of film experts, was the only man able enough and courageous enough to tackle the assignment. On a contingent basis at that.

Gaunt hollow-cheeked, Peters slipped into Quade's seat before the telephoto-lensed camera and began to manipulate the keyboard, occasionally pausing to peer through a finder. On other levels various members of the crew were busy operating lights and cameras.

Tony Quade went through a door, stooping slightly to avoid bumping his head, and arranged his big-boned body in a chair before the televisior. For a second he contemplatively eyed the peroxidized blonde who was gazing out at him and murmuring, "Mr. Quade, plee-uz . . . Mr. Quade, plee-uz!" He flipped over a switch.

Immediately a gigantic eye appeared on the screen and a hoarse voice was heard growling curses.

"Hello, Chief," Quade said tentatively. Apparently Von Zorn was in a bad humor.

The eye withdrew and gave place to a small, simian face with a tooth-brush mustache and a crop of bristling hair. Snapping black eyes regarded Quade menacingly.

"The deadline on your special effects for *Space Bandit* is November ninth. You haven't by any chance forgotten that, Quade?" Von Zorn inquired with feigned politeness.

"Oh, for Pete's sake!" Quade said, relieved. "I'll have the stuff for you by then. There's plenty of time. You're not worrying already, are you?"

"You'll be the one to do the worrying," Von Zorn observed. "Unless you turn in a satisfactory film you don't get paid. I don't give a hoot in Mercury about that. But unfortunately we've advertised *Space Bandit* so big that unless you deliver the goods it won't draw flies."

"Okay," Quade nodded. "I'm shooting the last of the Mare Imbrium sequence now and it's coming along fine. The work on Eros will be finished pretty soon and we can blow a hole in that asteroid big enough to give you a super-colossal spectacle."

"Gregg did your calculations, didn't he? Well, he made a big mistake somewhere. You can't use Eros!"

Quade's eyes changed. He leaned forward.

"What the heck! I've rented the asteroid for a month—my claim's perfectly good. There's no intelligent life there above the eighth level. In fact, there's no life at—"

"I know," Von Zorn said unpleasantly. "I've read the law. All matter in the Solar System is the property of the Earth Government and can be rented or purchased from it unless already inhabited by life above the eighth level of the intelligence—which is about that of Gregg. Lord knows how it happened. He should have checked and double-checked his figures."

Quade restrained himself with an effort.

"Would you mind telling me just why I can't use Eros?" he inquired.

"Because it's heading into an ether eddy. And you know what that means. Extinction. Blotto. Your polar city isn't half built and it'll take ten days to complete it. The ether eddy will reach Eros orbit in a week."

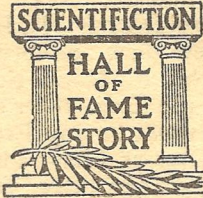
"Thanks for telling me," Quade said and shut off the televisor. He sat silent, regarding his large capable hands. He had built up a fortune with them and now, at one stroke, he was losing it. For he had staked almost everything he owned on this enterprise.

Quade looked up as Peters came in. "The shooting's done, Tony," the gaunt man said. "We're taking Valyne and the robot aboard now. It looks pretty good."

"Okay," Quade grunted. "No more shots today. Tell the pilot to head for Hollywood on the Moon. Muy pronto!"

**F**ROWNING, Quade went into the ship's transparent nose. He stood there silent, watching the silvery-gray surface of Mare Imbrium race past below. As the ship's speed increased the Apennines became visible, towering against the star-speckled sky to the north, but the gigantic range was soon left behind. They fled over the crater of Herodotus and sped on while the Earth sank lower and lower and at last dropped beneath the horizon.

The Moon is egg-shaped. The larger part is turned perpetually toward the Earth but the smaller end is scooped out into a vast crater, whence volcanic activity in some long past eon had blown a fragment as large as the asteroid Vesta. Within this great hollow are an atmosphere, life, great buildings and studios—Hollywood on the Moon!"



**S**OME stories are forgotten almost as soon as they are printed. Others stand the test of time.

Because "Hollywood on the Moon," by Henry Kuttner, has stood this test, it has been nominated for SCIENTIFUNCTION'S HALL

OF FAME and is reprinted here.

In each issue we will honor one of the most outstanding fantasy classics of all time as selected by our readers.

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A little thrill shook Quade as the ship sped over the Great Rim and he saw beneath him the film capital. He could never become quite used to this tremendous city, rising from an arid and inhospitable world.

And, because films were the breath of life to Quade, he felt oddly cold at the thought of going broke and dropping out of the life of the picture metropolis. For in Hollywood on the Moon is no place for the weakling. It is run through a combination of power, graft and efficiency—but there is no room for incompetents.

The city of terraces and towers and wide streets was the most healthful in the Solar System because of the artificial atmosphere, germ-free and automatically purified, kept on the Moon by an electro-magnetic gravity field created by gigantic machines in the caverns beneath the surface.

The air-blanket shields Hollywood on the Moon from the blazing rays of the Sun, protects it from the chill of frigid space, aided by huge plates that broadcast radiant heat. It is the dream of every girl's life to drive along Lunar Boulevard and dance at the Silver Spacesuit. A dream one girl in a hundred thousand ever realizes.

Quade called Peters. The gaunt-faced camera expert came into the ship's nose, scratching a gray-stubbed cheek. He cast a quick glance down at the sunlit city.

"Nice to be back but—there's trouble, Tony, isn't there? What's happened?"

Swiftly Quade told him. Peters whistled.

"Well, what can we do?"

"Use Ganymede."

"Jupiter's moon? It's too far."

"No, you sap, the asteroid Ganymede. It'll be at perihelion in a few days and that'll bring it within the orbit of Mars, close enough for us. We can't use Eros. After the ether eddy hits it there won't be any Eros. We'll have to put up a set at Ganymede's pole and film the explosion from there. It'll be a rush job but we can make it before the deadline."

"What about property rights?" Peters asked.

"I want you to attend to that. I'm going to get my own cruiser refueled and head for Ganymede to look things over. You rent Ganymede for a month and—yeah, better get an option, too. If we kick it out of its orbit we can just take up the option and we'll be safe—it'll be our own property then."

"Order the Eros crew over to Ganymede right away and tell 'em to get started building the set. You finish the Mare Imbrium scenes, then follow. We'll need all the help we can get."

"Oke," Peters assented, as the ship grounded with a jar. "Where are you off to now?"

"I," said Quade grimly, "am going to find Gregg."

Gregg was (at the Silver Spacesuit, his round fat face ludicrously disconsolate beneath his glistening bald dome. When he saw Quade he looked as though he were going to cry.

"Oh, don't take it so hard," Quade growled, sliding into a cushioned chair at Gregg's side. "I'm not going to fire you though you know darn well you deserve it. What happened?"

"It was my fault, Tony," Gregg said in a choked voice. "You don't know how sorry I am. I know what it means to you. I've been nearly crazy for the last few weeks."

"Eh?" Quade stared, and then glanced up as a waitress glided up in her tiny gilded autocar. "I'm not hungry, thanks. Wait a minute. Yes, I am. I've got a long ride ahead. Double order of ham and eggs."

**T**HE girl looked shocked and made a feeble attempt to suggest Moontruffle salad instead but Quade waved her away and turned back to Gregg.

"Now what is this all about?"

"It's my daughter," Gregg said, scrubbing at his plump cheeks. "I know it's nothing to you but it's the reason I made such an

awful mistake and overlooked that other eddy. I've been worrying about my daughter, been half crazy. She's movie-struck, Tony—you know."

Quade nodded. "What'd she do? Stow away on a Moon ship?"

Gregg nodded miserably.

"Her mother wrote me that she'd left a note and was coming to Hollywood on the Moon to get in pictures. You know what that means!"

Quade knew. He'd never approved of the law that the film magnates had passed. Yet he could understand their attitude. In the early days the glamour of Hollywood on the Moon had called girls from all over the world—Europe, Asia, America, Australia—and a veritable flood of eager applicants had poured in, smothering Moon City until regular work had been impossible.

In ancient times, when Hollywood had been a tiny town on the shore of the Pacific Ocean, it had been easy for disappointed would-be stars to return home or find jobs.

But the Moon is 239,000 miles away from the Earth and it had cost the studios a fortune when in desperation they had herded the movie-struck girls together and shipped them home.

They couldn't be allowed to stay. There wasn't room. And now the penalty for Moon-stowaways was a fine of fifteen thousand dollars or fifteen years' imprisonment.

"I haven't got the money, of course," Gregg said. "And, worse, I can't find Kathleen. She's afraid of the police, I'll bet, and hasn't dared get in touch with me. Or something may have happened to her."

"For Pete's sake," Quade said. "Why didn't you tell me this weeks ago? I'd have paid the fine and you could have sent the kid back home with a good spanking."

"You were on location. I didn't have a chance. Besides, I couldn't let you pay, Tony."

"Rats! I'll—uh—I guess I can't pay anyway, Gregg! I've got all my dough tied up in this job and if it flops I won't have a split penny left." Quade's face fell. "No use trying to pull any wires, either. I'm *persona non grata* on the Moon unless I bring home the bacon."

"And it's my fault. Blast it, Tony, I feel like jumping off the Rim."

"Shut up," Quade said affectionately. "You lop-eared idiot! Everybody makes mistakes, and you couldn't help it anyway. I'm



heading for Ganymede and we'll have everything sewed up in a week. If you find your kid, keep her under cover until I get back.

"Okay," Gregg said, getting up. "That's why I came here. I thought she might have got a job as waitress somehow. But I guess not. Well—good luck."

Quade grinned reassuringly at him and attacked his ham and eggs. Presently the lights were dimmed and a crimson spot outlined the shimmering silver-clad figure of a girl who hung apparently suspended in empty air in the center of the dining room. Warm throbbing music pulsed out and the girl's throaty languorous voice began to sing:

"Give me a ship to roam the lone star-ways,

Out around Venus I'll follow the far ways,

But my heart will turn home . . ."

"Hello, sap!"

Quade looked up. It was Sandra Steele. He grimaced and returned to his meal.

Sandra Steele was the ultimate product of Hollywood on the Moon.

Her skin was a lifeless white, almost luminous, and her eyes, originally brown, had been tattooed a startling shade of violet. Her hair was a silvery web that floated unbound about her shoulders.

"On your way, pig," Quade grunted. "I don't want your autograph."

No screen star likes to be called a pig—a synonym for chorus girl. Sandra's blue-nailed slender fingers twitched visibly but she restrained herself.

"You filthy little swine," she observed softly. "Just watch how fast I'll break you now I'm in with Von Zorn. I've had enough of your impudence."

Quade drank some water and blinked sleepily. However, he knew Sandra was a dangerous enemy. If it hadn't meant losing all self-respect he'd have made a different answer when she had first invited him to become what amounted to her gigolo. He had said no and had told her a few unpleasant truths, hoping they'd be good for her soul.

Now she was playing up to Von Zorn, the chief—and that meant power.

"Listen, Tony," she said, bending to look directly into his eyes. "Why not be nice? Von Zorn's mad as a hornet about this Eros trouble but I can take care of him. How about it?"

"Go chase a meteor," Quade said, and left her.

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## CHAPTER II

### *Cut to: Space Cruiser*

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QUADE hailed a taxi and was hurtled along Lunar Boulevard to the spaceport, where his ship waited, refueled and ready. It was a two-man cruiser with the usual transparent camera-ship nose, speedy and powerful.

Nodding to the mechanic, Quade glanced at the setting sun and climbed aboard. Quade entered the forward compartment and touched the siren that warned aircraft a spaceship was taking off. He set the gravity plates and went back into the rear room.

A man was asleep in the hammock with Quade's best fur robe pulled over him. Quade emitted a startled oath and fled back to the instrument board to reverse the gravity. The ship, which had been lifting, settled.

With hasty strides Quade returned to his passenger and planted the toe of his boot firmly where he thought it would do the most good. The next moment he was staggering back with his ears buzzing and the imprint of a hand red on his tanned cheek.

"Jupiter!" he exclaimed incredulously. "A girl! For Pete's sake—you can't be Gregg's kid!"

The girl looked like an indignant rabbit with a furry white helmet drawn tightly about her oval face, a stubborn little chin and snapping brown eyes. She bounced out of the hammock and Quade retreated hastily.

A humming drone came from the other compartment. With a bewildered look on his face Quade stepped back into the nose of the ship and met the gaze of Von Zorn.

"Lord!" he moaned to himself. "What have I done to deserve this?" But he shut the door quickly behind him and smiled in what he hoped was a disarming fashion.

At close range Von Zorn more than ever resembled an ape. He knew it and was enormously sensitive about his appearance. Only a week ago he had fired an ace director who had made some wisecrack about the chief's simian appearance.

"What are you grinning about?" he asked, eyeing Quade with distaste. "How about my picture?"

"Space Bandit?" Quade put his back against the door. "Simple. I'm switching

the location to Ganymede. Going there now, in fact. My Eros crew has already landed, I guess."

Von Zorn took out a cigar, made from the aromatic, greenish tobacco grown on the Moon and cut it carefully. "I've trouble enough without you making it worse," he growled. "Our last Venusian picture is flopping and we invested over a million in it. That blasted Carlyle woman's blown it sky-high."

"Gerry Carlyle?"

"Yeah, The catch-'em-alive dame. We pay out half a million to the biological labs to create duplicates of Venusian animals and now there aren't any audiences because Gerry Carlyle's brought back the real thing." He lapsed into a stream of fluent profanity.

"I had another picture ready for you, Quade—a super-special, *The Star Parade*—but it doesn't look as if you'll get the assignment. Sandra Steel's featured in it and she won't work with you."

"That's nice of her," Quade said, gently edging Von Zorn toward the door and hoping the girl would keep quiet. "I'll see you later, Chief. I've got to hurry."

Von Zorn became reflective. "You know, I've half a mind to go with you," he said. He paused and Quade stopped breathing. "But I've got a date with Sandra tonight. So you'll have to get along without me."

"That'll be tough," Quade responded hoarsely and shut the door behind the chief. He was at the instrument board in a single leap and had sent the spaceship rocketing up almost before Von Zorn had had time to get clear. Quickly he set the course.

"Where the heck are you taking me?" an angry voice asked behind him. Quade got up slowly, mopping his forehead.

"Listen," he said very gently. "I've been through a lot today. You may not know it but you've caused enough trouble to throw Jupiter out of its orbit. And unless you're careful, young lady, you're going to get the spanking I told your father you deserved."

**S**HE had pulled off her white helmet but still wore a close-fitting worker's uniform of brown leather. Her chin went up.

"I don't care if my father does work for you. You can't talk to me that way, mister. I came here because I thought you'd help me out, the way Dad's cracked you up in his letters—but I guess he was wrong. So just take me back to the spaceport."

Quade grinned maliciously. "You're not going to have your own way this time," he told her. "In fact, I think you're going to get more than you bargained for. Our first stop is Ganymede!"

Several hours later Quade said didactically, "Ganymede is a small asteroid which has an atmosphere because its mass is so great. It's very heavy. Understand?"

Kathleen nodded. She was sitting at Quade's feet, looking out through the ship's nose at the blazing vastness of interplanetary space.

"I didn't think it was big enough to have any air. Is it breathable, Tony?"

"Sure. There isn't quite enough oxygen, though, so it isn't very comfortable. But it's tremendously heavy for such a tiny world. We'll land there pretty soon."

The televisor buzzed shrilly. Quade reached out a long leg and clicked over the switch. On the screen a man's face sprang out in sharp detail.

He had good-looking, bony features with shaggy eyebrows and a jutting jaw, under a harsh mouth like a steel trap.

"Tony?" he said sharply. "There's trouble! We left Eros when we got your message. We've been on Ganymede four hours now and the work's been started. But a herd of Hyclops cleaned out the camp!"

Quade sucked in his breath.

"Yeah? What happened?"

"They drove the crew away, the ones they didn't kidnap. I'm in the ship and they can't get at me but I can't handle it alone. Ghiorso just wigwagged a message from outside. The Hyclops are chasing him and he says he'll go south along the Bore. Are you armed?"

"Sure. But I'd better come right to the camp, Perrin."

The Hyclops will kill Ghiorso and the others if you do. Better do as he says, Tony, and head this way afterward."

Quade hesitated. "All right. Hold on, kid. I'll be along."

He snapped off the televisor and let his fingers dance over the keyboard. The ship leaped forward at an acceleration that would have killed the occupants if it had not been for the neutralizing gravity field.

"Can I help?" the girl asked.

"Yeah. Keep quiet . . . sorry. Wait until we hit Ganymede. Then you can help, all right."

Far ahead, spinning like a tiny ball

through space, the asteroid came into view. Stretching across the face of the globe was a thin black line—the Bore, a broad channel that held practically all the water on Ganymede. Gripped by the mass of the asteroid it nevertheless moved in a tremendous tide along the Bore whenever Ganymede came close to another body whose gravitation had appreciable influence.

It was some time before they reached the Bore and cruised swiftly northward, keeping a sharp watch for refugees. Kathleen first saw the man. He was staggering along the rocky bank, tripping occasionally on the grayish moss. Quade grounded the ship almost beside him.

The refugee stumbled to his knees, clawing at the ground. Quade flung open the door and sprang out, Kathleen beside him. He lifted the other.

"Perrin!"

The steel-trap mouth of the televisior operator gaped.

"Yeah—they got in the ship. I had to run for it. Get Ghiorso, Tony."

"Sure." Quade lifted the other easily and turned to the cruiser but Perrin struggled feebly. "He's just—up the Bore a little ways. Behind that rock. Couldn't come any further."

**G**ENTLY Quade put Perrin down. "Wait here," he said to the girl and sprinted along the Bore. The rock was some distance away and he found himself breathing heavily in the alien atmosphere, with its deficiency of oxygen. He reached the boulder—and saw that there was no one behind it.

Then he heard Kathleen's cry.

He swung about. Despite the mass of Ganymede, the gravity was less than terrestrial and he made a great bound that brought him almost above the asteroid's close-lying air blanket. He held his breath, feeling an icy chill strike him. Looking down he saw Perrin and the girl struggling. Kathleen went down, clutching at the man's legs, but he kicked free viciously, leaped within the space ship. The door thudded shut.

Quade sprinted the rest of the way, though he knew he'd be too late. The space cruiser lifted and drove up and in a moment was lost beyond the sharp curve of the horizon. He stopped beside Kathleen. She was rubbing a bruise on her forehead.

"No," she said, answering Quade's ques-

tion. "Not hurt a bit except my head. But I could stop him. He just hit me and started to get in the ship."

"Swell," Quade grunted. "What is that rat up to? I wonder." He shrugged and turned to stare northward. "Well, unless we want to stay here and starve we'd better head for the pole. It can't be far. Can you walk?"

"Sure," she said, eyeing him. "You're a cold-blooded person aren't you? Haven't you any idea why he stole our ship?"

"My ship, you mean." Quade corrected pointedly. "No. But I can probably find out at camp, so let's get started. You'll slow me down enough as it is."

Kathleen compressed her lips on some retort and fell in behind Quade as he started along the bank of the Bore. There was no water in the channel. It was probably on the other side of the planetoid, drawn by the gravitational influence of Mars. The landscape was bleak and barren—rocks and a rubbery grayish kind of moss. The curve of the horizon was startling.

Quade turned to the girl suddenly.

"See that?" he asked, pointing.

Something was bounding toward them in a series of short leaps. At first a scarcely visible dot, it grew rapidly in size until it plopped down directly in front of them and stood staring. It was about a foot and a half high.

Quade, watching Kathleen's face, chuckled. "Never seen anything like that before, have you?" he asked.

She shook her head wondering.

"What is it, Tony?"

"I don't know the Latin name but—you noticed the way it travels? It's vulgarly known as a bouncer. Stanhope called 'em that when he first landed on Ganymede and the name's stuck. But there isn't much known about them, as this asteroid is rather an outpost. Nothing to bring people here."

The Bouncer eyed the two curiously. It had a turnip-shaped head with two huge staring eyes, between which a button of a snout was set. Beneath a fantastically long upper lip was a puckered sad-looking mouth. Underneath a fuzzy growth of soft white hair its flesh was pink.

Its body was shaped like that of a kangaroo, save that it had no tail. A round, bulging paunch made it resemble a grotesque little gnome. The short forearms and paws were curiously anthropoid in contour.

"Notice its eyes," Quade said. "It's got a unique range of vision. Sees the infra-red and ultra-violet rays. There's another funny thing about it too. Listen."

**T**HE puckered mouth opened. The bouncer nodded its turnip-shaped head a few times and suddenly announced, "Your face is dirty, Kate."

Kathleen gave a soft little scream and started violently while Quade roared with laughter. The bouncer jiggled up and down, nodding as though pleased with itself, and observed, "It talked. It actually talked."

"You're not hearing things," Quade chuckled. "I told you bouncers are funny animals. Besides seeing ultra-violet and infra-red light they can read thoughts!"

Kathleen swallowed with an effort.

"Really, Tony? I—I still don't believe it."

"Why not? Our thoughts are a combination of words and images and bouncers can pick up strong vibrations broadcast by a brain. Try it. Think something—hard."

Kathleen looked at him questioningly, then glanced down at the bouncer, who nodded and worked his puckered mouth swiftly. She squared her shoulders and her chin came up.

"Only a mannerless tramp would criticize a lady's personal appearance," the bouncer declared. "I guess that's telling him. Oh, for heaven's sake, how do I turn it off? I can't stop—"

The small voice died into silence as Quade grinned.

"See? It picks up strong thought-impulses—and that's probably why it never became popular as a pet. Too dangerous. I don't believe more than a couple were ever exported from Ganymede."

Kathleen dropped to her knees beside the little animal and it pawed the air violently with its tiny hands. She scratched the pointed head gently. It jiggled with delight and said, "Her hair's awfully pretty. If she weren't such a spoiled kid—"

"Come on!" Quade said loudly and hastily started up the bank, his face flaming. Smiling maliciously, Kathleen followed and after a brief hesitation the bouncer made the party a trio. The girl quickly struck up a firm friendship with the agile little creature and, after asking Quade for an opinion which he refused to give, decided to call him Bill.

"For Bill's no worse than any other name," she told the Bouncer, to which he replied, "Especially if Tony doesn't like

it." After that Bill became silent while both Kathleen and Quade tried desperately to suppress the strength of their thoughts.

The scenery changed little as they advanced. It was a tumbled wilderness of rocks, the eternal soft gray moss and the dry Bore at their right. At last, without warning, they found Ghiorso.

Quade should have guessed what was wrong. Certainly the man's body didn't look normal with its bloated torso and withered shrunken limbs, as it lay crumpled on the moss, a skull-face turned up blindly to the purple sky. As it was, he paused a dozen feet from the corpse and gripped Kathleen's arm.

"Wait a minute," he murmured. "I'm trying to remember something. I think—"

Bill made his mistake, one that was almost fatal. Bounding about the two like an India-rubber ball he caught sight of Ghiorso's body and immediately hopped toward it. He was scarcely two feet away when the corpse seemed to split down the center and a sinuous blood-red thing flowed out on the moss.

The bouncer gave a terrified squeak, hopped entirely over Ghiorso's body and continued on without pausing until he vanished behind a cluster of rocks. But the scarlet thing had stopped and, with one end lifted waving about slowly in the air, seemed to be listening or watching.

Kathleen caught sight of Quade's white face as he stepped in front of her. He took a stubby dangerous-looking pistol from his pocket.

### CHAPTER III

#### *Close Shot: Ganymede*

**T**HE red thing was moving closer, very very slowly. It looked something like a centipede but its glistening body was plump and cylindrical and seemed distended. Moreover all over it grew wiry pliant cilia or tubes and these propelled it over the moss. It hesitated, and coiled up suddenly like a great spring.

Quade's breath hissed between his teeth. A bolt of white flame leaped from the muzzle of the pistol and simultaneously the monster flashed into the air toward them, disintegrating as it sprang. Quade, his arm about

Kathleen, propelled her away with a wary backward glance. At a safe distance he paused.

"Look yourself over," he said urgently. "Those little feelers can burrow into your body even if they're only an inch long. He examined his clothing carefully and the girl did likewise.

"What was it, Tony?" she asked at last. "I don't think I've got any on me."

"If you had, you'd know it by now," he told her. "Those are the red leeches. The nastiest things on nine planets." He holstered the gun and started along the Bore, the girl keeping pace with him.

"We'll have to keep our eyes open now," Quade said. "I'd really forgotten about the leeches. If you hear me yell or see anything coming at your face put your hands over your nose and mouth and keep 'em there, no matter what happens."

Kathleen looked frightened.

"What do they do?"

"You saw what this did to Ghiorso. If I hadn't killed that leech every one of those little tubes on its body would have dropped off eventually and become new individuals. They're hardly as long as your little finger then and they coil up on the ground until some animal—or man—comes along.

"Then they spring for his mouth or nose and burrow down inside his lungs or stomach, feeding as they go. They're enormously elastic and simply eat until only the skin of their host is left. And then they wait until the next course comes by."

The girl shuddered and increased her pace. The bouncer suddenly popped up behind a boulder and hopped toward the two. Quade made a threatening gesture.

"Beat it," he warned. "Go chase a meteor. D'you want me to wring your neck?"

"Oh, leave him alone, Tony," Kathleen said. "He's—company."

"He got that leech started after us," Quade grunted. "Company, eh?"

The bouncer jiggled up and down excitedly.

"More company than you are, you cold-blooded fish," he told Quade, who promptly reached for a stone. Bill squeaked shrilly and fled to Kathleen, to whose leg he clung fearfully, casting quick glances over his furry shoulders.

"Stop it, Tony," Kathleen said, trying not to laugh. "It isn't his fault. He just broadcasts thoughts. You said so yourself."

"Movie-struck spoiled brat," Bill declared and Kathleen's chin went up. Without another glance at Quade she marched along the bank of the Bore.

Mars rose above the horizon, a pale reddish globe larger than the Sun but far less bright. Quade kept looking up the channel, listening intently. At last he hesitated.

"Do you hear something? Listen."

Kathleen was still annoyed, but she cupped her ear with a small hand.

"Yes. I think so. A roaring, very low—"

"That's it! Come on, quick!" Quade caught her arm and hurried her toward a cairn of rocks some distance from the bank. "It's the Bore. The tide. Mars is dragging it around the planet and we want to be high and dry when it gets here. Step it up, can't you?"

"I—I'm hurrying—as fast as I can!" Kathleen gasped, a sharp pain in her chest. The atmosphere, lacking sufficient oxygen, had told on the two and they were exhausted by the time they reached the summit of the mound. There they lay panting for breath and looking north along the Bore.

**A** GREAT wave came sweeping up the channel. Thirty feet high, overflowing the banks and spreading out over the surrounding ground, it came rushing southward and involuntarily Kathleen huddled close to Quade. The tidal wave smashed against the base of the cairn and spray showered the two on its top.

Bill, cowering in the hollow of Kathleen's arm, squeaked faintly and crouched down, hiding his head in ineffectual paws. The girl followed his example and as the rocking thunder of mighty waters shook the ground she shut her eyes and burrowed her face into Quade's shoulder. Grinning, he put his arm around her.

The tide drove on south. In its wake came floating huge creatures like turtles, with tall webbed fins standing up like sails on their backs. Flat, reptilian heads lifted, peering around curiously as the things tacked and veered in the winds the Bore lifted in its wake.

Kathleen had wriggled free.

"What are those?" she wanted to know.

Quade shrugged. "We don't know half the forms of life that exist on the planets, much less the asteroids. Anyway, I don't much care what they are. We'll be at camp soon—and I can find out what Perrin was

up to. Shall we get started, Kate?"

She nodded and they picked their way down the mound. The rocks and moss were damp but the flood had passed, though the channel was almost filled with a swiftly-racing stream.

The sun went down and with its going Mars seemed to spring out in startling crimson radiance. Deimos and Phobos, the two satellites, were visible as tiny spots of light near the red planet. The air was colder now and there was an ache in Kathleen's chest that gnawed painfully though she did not mention it to Quade.

She was watching her path carefully to avoid stumbling in the eerie reddish twilight, and so was Quade. The bouncer seemed pleased at the semi-darkness, which was no hindrance to his strange eyes. He made frequent hopping excursions among the rocks and at last returned with great haste and clung to Kathleen's leg, making her stumble. She looked up.

Bill hid his face and shivered, declaring, "What's this? There's something coming!"

Quade stopped, peering into the gloom. Something certainly was coming—a great white giant that lurched toward them with startling speed. One moment it was a half-seen formlessness emerging from the shadows. The next it was towering above them, an idolon of shaggy white fur from which two insanely grinning faces glared down at them from a height of thirty feet.

So sudden was its arrival that Quade scarcely had time to draw his gun before a treelike arm swooped down and scooped him up. He was smashed against a hairy, barrel-like chest with an impact that made him go weak and dizzy. He struggled feebly—and realized that his right hand was empty. A metallic thud sounded from below.

"Kate!" he called desperately. "Beat it! Quick! I've dropped my gun. Get to camp and—"

His breath was squeezed out as his gigantic captor whirled and bent. Abruptly he found Kathleen beside him, both of them cradled in the hollow of a great arm.

She was white-faced and shaking and her stubborn little chin was trembling despite herself. Her breath was warm on Quade's cheek.

"Tony!" she gasped. "Wha—"

"Hold it, kid!" he told her sharply. "No hysterics. We're safe enough. I know what these things are."

He tried to look down but could see only a vague rocky landscape jolting rapidly past as the giant lurched on into the red gloom.

"It's a Hyclops," Quade went on, trying to wriggle free and finding it impossible. The furry arm of the creature, thickly padded with rolls of fat, held him as firmly as though he had been squeezed between two mattresses. "Not dangerous. But its cubs are. We're okay until we reach its den."

Kathleen's teeth were chattering.

"What'll happen then, Tony? Is it—bad?"

**Q**UADE forced a laugh he hoped didn't sound artificial. "Not as bad as all that. Buck up!" He fell silent as a mass of matted fur was thrust into his open mouth and, coughing and choking, he spat it out. "Ugh! Kate—look up, will you?"

She obeyed. "Yes? What—oh! It's got two heads! I noticed that before but I thought I was just seeing things."

Above the grotesque apelike body sprouted double heads, each with its own neck, joined at the shoulders. The skulls were naked, covered with rolls of fat that sagged loosely beneath pied, yellowish skin.

Each face reminded Kathleen of that of a microcephalic idiot, though more bestial in contour. A single luminous eye set in a pit of fat peered down from each head. An elongated muzzle protruded above a clownish, grinning mouth, filled with unpleasant-looking teeth.

"It looks like a lunatic" Kathleen gasped. "I mean—they do. Tony, are they one or two?"

"Bi-sexual," he told her. "Single body and two heads. In one of them the male element predominates, the female in the other. Like an earthworm, you know. Hyclops, from Hydra—two or more heads—and Cyclops—one eye in the center of the forehead. I wish I had my gun." At the note of despair in his voice Kathleen twisted around to stare at him.

"I thought you said—Tony, something's going to happen, isn't it? Something pretty bad?"

He hesitated for a moment, then shrugged or tried to.

"I guess so. The Hyclops cubs are the nastiest hungriest little beasts on Ganymede. They're born with the tempers of savages and as soon as their eyes open they start killing and eating each other.

"Then this—thing—is taking us to its

den for food for its cubs?"

"Oh, no. Not intentionally at any rate. It's a funny thing"—Quade was trying to distract Kathleen's attention so she would not see what was coming into view ahead—"usually only one Hyclops cub survives, the strongest one. As it gets older it entirely loses its savagery. The adult Hyclops has the most highly developed maternal instinct of any animal. It's also one of the dumbest.

"It sits around watching its cubs kill and eat one another without making a move to prevent it and then can't figure out what's happened to the little beasts. So it goes out and kidnaps some other animal—and adopts it. The way a mother cat will adopt puppies, sometimes.

"Unfortunately the poor beasts the Hyclops brings home get eaten by the cubs, so it's a case of being killed with kindness. This two-headed gorilla that's carrying us loves us both—don't make any mistake about that. But the cubs—that's different!"

Kathleen was looking down, her eyes wide and frightened. The Hyclops was descending the side of a steep hollow, at the bottom of which a couple of gleaming white forms moved sluggishly.

"Here it comes!" Quade whispered. "If I only had my gun!"

The Hyclops reached the floor of the pit and deposited its two captives gently on the ground. Then it simply squatted on its haunches, folding its furry arms across its stomach, and watched them.

Looking up at that incredible monster, with its two bloated, inanely grinning heads nodding high above in the red twilight, Kathleen felt a little wave of hysteria sweep over her. Desperately she fought it back.

Quade gripped her shoulder.

"We'll have to dodge the things," he said curtly. "They can't move fast on smooth ground but if we tried to climb out of this pit they'd have us like a shot. Come on!"

There were only two cubs, each about seven feet all, miniature replicas of their parent. But these were lean and rangy rather than fat and their naked yellow faces wore vicious snarls rather than imbecile grins. They came loping purposefully forward.

Quade seized Kathleen's hand and fled. It was an insane flight over cracking, gnawed bones that sprinkled the pit's floor under the brainlessly grinning gaze of the two-headed colossus! Mars was sinking toward the rim of the crater, and when it was gone, Quade

knew, they could no longer escape from the night-seeing cubs.

The monsters made no sound as they followed the two human beings. An agonizing pain was burning into Kathleen's chest and she would have fallen if it had not been for Quad's arm about her. She turned up a white perspiring face to him. Her lips parted.

But before she could speak a voice came from the shadows above.

"I can't go on," it said dispassionately. "I can't, Tony. They'll get us anyway."

Quade looked around quickly, and saw a furry white object bound up, silhouetted against Mars. Something arched through the air toward him and made a metallic clashing at his feet. He scooped it up, whirling swiftly.

The cold metal of the gun was familiar against his palm. Almost upon him was the bulk of the nearer cub, its monstrous heads nodding, its paws clutching out toward him. Quade squeezed the trigger.

The creature exploded in his face. Fur and flesh and whitish, curiously aromatic blood splattered. Without pausing Quade fired another bullet at the other cub, which was racing forward.

His aim was good. There was only the parent Hyclops left now. Quade hastily dug another bullet out of his belt and clipped it into the pistol.

"Triple charge," he said, dragging Kathleen after him up the side of the pit. "I don't want to use it unless—"

Grinning, the Hyclops arose. It paid no heed to the shambles at its feet but lumbered forward, intent on recapturing Quade and Kathleen. Quade steadied himself and shot the monster.

The recoil slammed him back against the girl, knocking them both down. Where the thirty-foot Hyclops had been were two furry legs, still twitching with reflex action.

**G**ROANING, Quade got up rubbing his shoulder, which had almost been dislocated. Kathleen scrambled up, averting her eyes from the ruined remnants of the Hyclops.

The bouncer hopped into view and clung to Kathleen's leg, squeaking gently. She bent to caress its head.

"You saved us that time," Bill declared, with an entire lack of modesty. "Tony, I think you owe him an apology. He brought you your gun."

Quade, still examining his shoulder, lifted an eyebrow.

"He got the Hyclops after us in the first place," the bouncer said inconsistently. "No apology necessary."

A light sprang up, illuminating the scene in vivid detail. Quade whirled, involuntarily lifting his pistol.

"Hold it!" a voice hailed. "It's Wolfe, Tony. Are you okay?"

With a sigh of relief Quade holstered the weapon. "We're safe now," he said in a swift aside to Kathleen. "Sure, Wolfe. Glad you're here. Did you hear the shots?"

A row-boned lanky figure, carrying a flashlight, hurried forward and gripped Quade's hand. A mass of yellow hair tumbled over a thin, eager face and sharp blue eyes. Behind Wolfe was Peters, gaunt and hollow-cheeked, frowning anxiously.

"Camp's just over the ridge," Peters said. "There's trouble and lots of it. Who's this?"

"It's a mechanic," Quade said quickly. "Let's have your helmet, Peters." He handed it to Kathleen, who slipped it over her brown curls. "Keep this quiet, boys. She's a stow-away and you know what that means."

The others nodded. "Right," Wolfe said. "Come along, Tony. We'll talk as we go. I thought I had bad news but Peters just got here and he's got worse."

Kathleen was hard put to it to match the long strides of the men.

"What about Perrin and Ghiorso?" Quade asked. Quickly he explained what had happened.

Wolfe whistled. "It's Perrin's fault, the dirty swine. We landed on Ganymede and started to build the set *muuy pronto* and when we'd scooped out a pit for the amphitheatre we hit radium! Lots of it—the biggest find since Callisto. Way I figure it out Perrin sent you the message and then disabled our ship and our radio, so we were stuck. Then he hiked with Ghiorso."

"What for! Quade growled. "What was his game?"

Peters broke in. "He got back to the Moon in your cruiser and sold his information to Sobelin. The financier, you know—the boss of Star Mines Company. And Sobelin pulled some wires and got your option canceled. He's bought Ganymede lock, stock and barrel."

Quade ruffed his hair with both hands. "Lord, oh Lord! Did they—"

"We've been ordered off Ganymede. Von

Zorn got wind of the affair and he's nearly crazy. Started a lawsuit against Sobelin in your name. You were working for the chief when the radium was found and you had an option on the asteroid, so—"

"That means trouble," Quade said. "Remember the old Sobelin-Transport scrap over Ceres? It was a regular war between the two companies and they nearly wrecked Ceres before they'd finished. Nearly a thousand men killed on both sides before the government stepped in."

"There's nothing Washington can do here," Peters declared. "It's dirty politics, but legal enough. What'll *we* do, Tony? That's what I'm worrying about."

Quade hesitated, snapped his fingers. "We'll have to gamble. We'll go back to Eros. It's still my property for a few weeks. Is your ship repaired, Wolfe?"

The lanky blond nodded.

"Yeah, I got the parts I needed from Peters."

"Swell. We're heading for Eros then—all of us! We'll beat Sobelin, Perrin and the whole System if necessary. The set's half set up—well, we'll just have to rush and finish the job and take the pix before the ether eddy hits Eros. Come on!"

## CHAPTER IV

*Dissolve to: Hollywood on the Moon.*

**I**N THE next few days Kathleen came to know a new Tony Quade. He seemed like a machine, fired with inexhaustible energy. He had no need to drive the men, for they worked like demons, but he drove himself without pause.

The job had to be done! The polar city—the Eros set—had to be completed! The sequence had to be filmed before the ether eddy wiped out the asteroid!

Blast out the lakes and canals—whittle down the peaks and mounds with atomic blasters—file them into the shape of gigantic buildings, towering to the sky—faster, faster, faster!

Inexorably the ether eddy swept in from space, a black blot of nothingness. Quade had to cancel some of his plans. The central palace was left incomplete. Many of the lakes were dry. The node would be reached



sooner than anyone had expected.

The deadline was close—too close. The two great ships and Quade's little cruiser hung out in space at last, cameras grinding, while Eros revolved slowly beneath them. Quade kept casting worried glances at a little starless hole that was moving slowly across space toward the asteroid.

He was in the cruiser, with Kathleen beside him, the bouncer squatting in a corner watching them with curious eyes. The girl had insisted on helping. She had mastered enough technique to learn how to operate one of the three-dimensional cameras.

The revolving double-shutter provided the necessary stereopticon effect, and her main job was to keep the polar city within the range of the finder. Quade's camera possessed a telephoto lens, which would bring the set into a magnified close-up view.

"It's too late," Bill said, hopping to Kathleen's side and embracing her leg. "We waited too long."

She turned worried eyes to Quade.

"Do you think so, Tony? Everything's ready, you know."

He pointed.

"Look at the ether eddy. I cut the line too close, Kate. The explosion's due now."

The blot of shadow swept closer. The artificial polar city shone in the sunlight far below on the surface of the asteroid—and without warning it happened. A little jet of smoke shot up, the forerunner of the explosion that would blast the city into space. Quade bent over his keyboard—

Eros was blotted out! It vanished—puffed out into nothingness! There was nothing spectacular about it. One moment it was there, spinning whitely among the stars—then it was gone as the eddy enveloped it. Quade cursed.

"My luck," Quade said bitterly. "Once in a thousand years the System gets an ether eddy. And it just has to do this." He shut off the camera, stood up. "Well, it's all over, Kate. I'd land you on Earth but I haven't enough fuel. And I couldn't buy an ounce, now. You're looking at the worst flop in the Galaxy."

The bouncer was cowering in a corner, scrubbing at his eyes with frantic paws. Kathleen glanced at it and turned a level gaze on Quade.

"Buck up, Tony. You've said that to me often enough. You're not licked yet, are you?"

"Yeah," he grunted. "You're darn right I'm licked. I don't mind for myself so much, but there's my crew—they've stuck with me for years. And you, too, kid—thought I could help you out. But—"

Bill was behaving strangely. The bouncer scurried to the nose of the ship; pressing his face against the transparent portion, then hopped back to cower in a corner. Kathleen eyed him.

"Tony," she said suddenly, "do me a favor. Develop the film, will you?"

Quade stared.

"What's the use? It'll just be blackness. Von Zorn can't use that."

"I've an idea. Please, Tony. The process takes only a minute."

He shrugged.

"All right. Tell the gang to head for the Moon. He unhooked a can of film and went into the rear compartment, while Kathleen turned to the televisor. Presently Quade called her.

"All set. Come in, Kate."

**B**ILL at her heels, she went through the door. The developed reel of film was on the projector, and Quade started it unrolling as she entered. On the screen Eros sprang out in sharp detail.

"Long shot. Here's where the telephoto lens comes in."

A city leaped into visibility in natural colors, a little blurred.

"I'll speed it up a bit," Quade said. "The two pictures have to be transposed so you see one with each eye. That gives the three-dimensional effect."

A puff of dust appeared—and the screen went black. Simultaneously the bouncer became violently excited. He leaped up, almost hitting the ceiling, and squeaked frantically.

Quade said. "That's funny. I wonder—"

Bill declared. "It's his eyes. He sees more than us."

"Think so?" Quade's face wore an incredulous expression. "D'you really think that's it, Kate? Maybe—I'll try the infrared."

He manipulated the projector, but no change came on the screen. "Well then, the ultra-violet." He flicked lenses into place.

The bouncer quieted, staring around in an absent fashion. He hopped to Kathleen's side and tugged at her hand. But she paid

no attention. She was staring, open-mouthed, at the amazing spectacle on the screen, brought into sharp visibility by the ultra-violet filter.

"By the nine moons of Saturn!" Quade gasped hoarsely. "Do you see it? Kate—am I crazy? Do you see it too?"

"Yeah," she managed to whisper. "But I don't believe it."

His voice was hushed.

"Do you know what we're looking at? *The fourth dimension!*"

A planet was visible on the screen, growing rapidly in size as it revolved. A planet that was unlike any other in three dimensional space. For it was not a sphere. It was a dozen spheres—a thousand! Kathleen blinked in amazement.

"I—Tony I can see inside of it! And all around it!"

"We're looking into fourth dimensional space," Quade gloated. "So that's the explanation of the ether eddy. It marks the orbit of a body in another continuum—a fourth dimensional continuum. It's a hole in space, a hole created by a planet in another Universe. Look at that!"

The amazing world or group of worlds drew closer. Fantastic, unbelievable colors shocked Kathleen's eyes. The surface of this planet was covered with incredible things.

"Animal, vegetable or mineral?" Quade asked gleefully. "Lord knows! It doesn't matter. Whew, what a break! And I've got two-dozen reels of that thing, taken from different angles. Kate, do you know what Van Zorn will pay for this?" He didn't wait for her answer.

"He wants a super-colossal picture—well, this is super-galactic! There's never been anything like it in the System. A fourth-dimensional flicker! Oh, sweet Saturn!"

"He scooped up the startled bouncer and planted a kiss on the creature's astonished face. "You'll get a diamond-studded collar for this. And Kate—I'll see Von Zorn gives you the fattest rôle he's got."

"Will Von Zorn pay through the nose for this!" Bill declared, struggling to escape from Quade's grip. "And will Sandra be mad?"

"Who," Kathleen asked, "is Sandra?"

The bouncer plopped to the floor, remarking, "I wonder if she's jealous?" At which Kathleen turned fiery red and hastily went into the other compartment, leaving

the chortling Quade to watch the amazing film.

\* \* \* \* \*

Hollywood on the Moon was in a furore. Von Zorn had seen the fourth-dimensional films and had promptly called for his check-book. His apish face was wreathed in smiles as he ordered a screen-test for Kathleen and fed the bouncer sweetmeats.

He was fascinated by the little creature's mind-reading abilities but Quade carried Bill off quickly and handed him over to the Psychology Bureau after enlisting a government agent's aid. Quade had an idea. He had been worrying about the impending Sobelin-Nine Planets battle, especially as Von Zorn showed no inclination to retreat.

"It doesn't matter what you want," the chief had told him firmly. "There's a fortune in radium on Ganymede and my lawyers tell me I've as much right to it as Sobelin. More, because you were working for me when you took out the option."

**L**ATER Quade returned to Von Zorn's office with Kathleen, Bill and the government agent. The chief was grinning fatuously as he talked with Sandra Steele, who was turning on him fifty thousand watts and the full battery of her violet eyes.

Von Zorn glanced up and a curious look came into his face.

"Ah," he said, fingering his scrubby mustache. "Miss Gregg. I have rather bad news for you, I'm afraid."

Kathleen looked startled. "Didn't the test come out all right? The cameraman said—"

"Uh—it was fine. Yes. But circumstances have arisen—" He glanced sideward at Sandra. "We will be unable to use you in pictures. Your passage back to Earth will be paid, of course. I'm sorry."

Quade took a step forward, glaring at Sandra.

"You chiseling little pig," he told her angrily. "This is your doing, isn't it?"

Sandra smiled as Von Zorn stood up.

"Don't talk that way to Miss Steele," he snapped. "You were well paid for your pictures. I'm grateful—sure. But that doesn't give you any license to run Nine Planets or to insult Sandra."

"I see," Quade said. "Okay. I'm sorry, Kate," he said to the girl, whose eyes were

wet despite the stubborn firmness of her chin. "You deserve a better break."

She turned blindly to the door and went out. The government agent came forward, digging into a pocket of his black uniform.

"Here's something for you," he said, handing Von Zorn a paper. "And believe me, I'm glad to give it to you, mister." He winked at Quade.

The chief stared at the document.

"What the devil! Quade—what is this? A restraining order—Washington can't do this! I've as much right to Ganymede as Sobelin! You can't freeze me out this way!"

"Sobelin's getting one too," Quade said with satisfaction. "Neither of you has any

"Oh, boy! Bill said, although it wasn't plain whose thoughts he was broadcasting.

Suddenly Von Zorn grinned.

"Okay—as long as Sobelin is out too. I don't care so much about the radium. We'll clean up on *Space Bandit* anyway—but I wasn't going to see that crook put anything over on me. Congratulations, Bill!" And he deposited a sweetmeat in the bouncer's open mouth.

"I'm glad you're taking it like that," Quade said. "You haven't changed your mind about Kate, though?"

Von Zorn hesitated and glanced at Sandra. At the look in her violet eyes he compressed his lips.

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right to Ganymede. Remember the old property law—the right of eminent domain?"

"But—but—Ganymede isn't inhabited by intelligent life! Not over the eighth level, anyway."

"Sure it is," the agent interrupted. "This little fellow here is probably smarter than you are." He indicated the bouncer. "He doesn't look it, but he's just over the eighth level. Mr. Quade called me in and wanted an intelligence test made. And it turned out he was right.

"Ganymede is already inhabited by these jiggers—which are over the eighth level of intelligence—so the asteroid belongs to them and Washington says so. And I'll bet neither you nor Sobelin wants to buck the Government."

Von Zorn gulped.

"Uh—no, of course not. You say Sobelin won't get anything?"

"He hasn't a claim. Washington will establish a colony on Ganymede, mine the radium and use it for the benefit of the inhabitants—exterminate the dangerous animals and give these little fellows the break they deserve."

"I'm sorry, Quade. I can't use her. But you've a good assignment on *The Star Parade* and—"

**W**ITHOUT another word Quade went out. He found Kathleen at the turn of the corridor, dabbing at her eyes with a futile bit of lace.

"Buck up!" he said, putting his arm around her. "Here use this," And he applied a large handkerchief to her face.

"Don't—don't rub my nose off!" she gasped. "Oh, Tony, I'd like to scratch that woman's eyes out. She makes me sick."

"I don't see how Von Zorn managed to fall for her," Quade admitted ruefully. "But he did. Eats out of her hand."

The door of the chief's office banged open suddenly. Furious voices were raised in bitter argument. Abruptly the bouncer emerged and hopped frantically along the corridor. Behind him Sandra Steel raced purposefully, anger plain on her face. Bill squeaked with fear and took shelter behind Kathleen's ankles.

Sandra made a snatch for Bill.

"Give me that—that thing!" she gritted.

"I'm going to wring its head off."

"You're not!" Kathleen told her sharply. "Leave him alone. Tony—"

But before Quade could move Sandra had whipped out a vicious hand and slapped Kathleen smartly.

Kathleen's chin came up. She brought around a capable hand, clenched into a hard little fist, and punched Sandra Steel in the nose. With an incredulous scream of pain the screen star staggered back and came violently in contact with the wall. She slid down to a sitting position, spitting like a cat.

"Had enough?" Kathleen asked belligerently, stepping forward. "You leave Bill alone!"

It seemed Sandra had had enough. She scrambled to her feet and made off, trailing a string of vituperation that made Quade's ears burn. Abruptly he became conscious that Von Zorn was standing nearby, regarding Kathleen.

"Jupiter!" he gasped. "That's torn it!"

But he thrust himself between Von Zorn and the girl, fists clenched.

The chief waved him aside, his lips twitching strangely. "Ah—Miss Gregg," he said in a muffled voice. I—uh—fear Miss Steele will be unable to appear in *The Star Parade*. Inasmuch as your test turned out so well I'd like to offer you the role." He coughed violently. "You're a very capable person," he told the astounded Kathleen and hurried away.

Quade stared at him in amazement, then turned to eye Kathleen's delighted face. "I guess I'm hearing things," he murmured. "You sock Sandra—and get her part. For

Pete's sake!" He looked up as a new voice spoke.

"For Bill's sake, you mean. I'm commencing to think that little gadget is smarter than any of us." The Government agent was standing before them, amusedly eyeing the bouncer, who was clinging to Kathleen's leg and squeaking with apparent delight.

"You can't tell me he isn't laughing," the agent chuckled. "And he's got a right to. Know what happened?"

"What?" Quade asked. "It must have been plenty."

"It was. After you went out this dame Sandra Steele started making up to Von Zorn and he pulled her on his lap and asked her for a kiss. And just then Bill bounced up to the desk and said, 'If you think I'm going to kiss that repulsive monkey face of yours, you're crazy!'"

The agent spluttered with delight.

"What a scrap! Von Zorn dropped the dame like a hot potato and they lit into each other hot and heavy. 'So that's what you think of me,' he yells. 'A monkey-face, eh? Been making a sap out of me, have you?' And then she started after Bill, and Von Zorn after her—"

"This is the life!" The bouncer interrupted, jiggling excitedly. "How about a kiss?"

The agent hastily turned away. "I know I didn't think that," he observed over his shoulder. "So—"

Neither Quade nor Kathleen was paying any attention to him. Bill, however, bounced up to the ceiling and declared triumphantly. "She loves me! She loves me! She loves me!"

## THE UNWILLING HERO

(Concluded from page 107)

Space exploration was suddenly popular. Money was abruptly available for it. Plans of conquest of new worlds were formed properly, as they should be, by thinking governments and Man was no longer a insignificant nothing on a minor planet of a minor sun. Man was suddenly tall, suddenly the proprietor of uncounted worlds, possessor of his right, ruler of the Universe.

But probably Vic Hardin was not thinking about that the day of his return. He makes no comment in his letters or his books of what J. P. Malone must certainly have

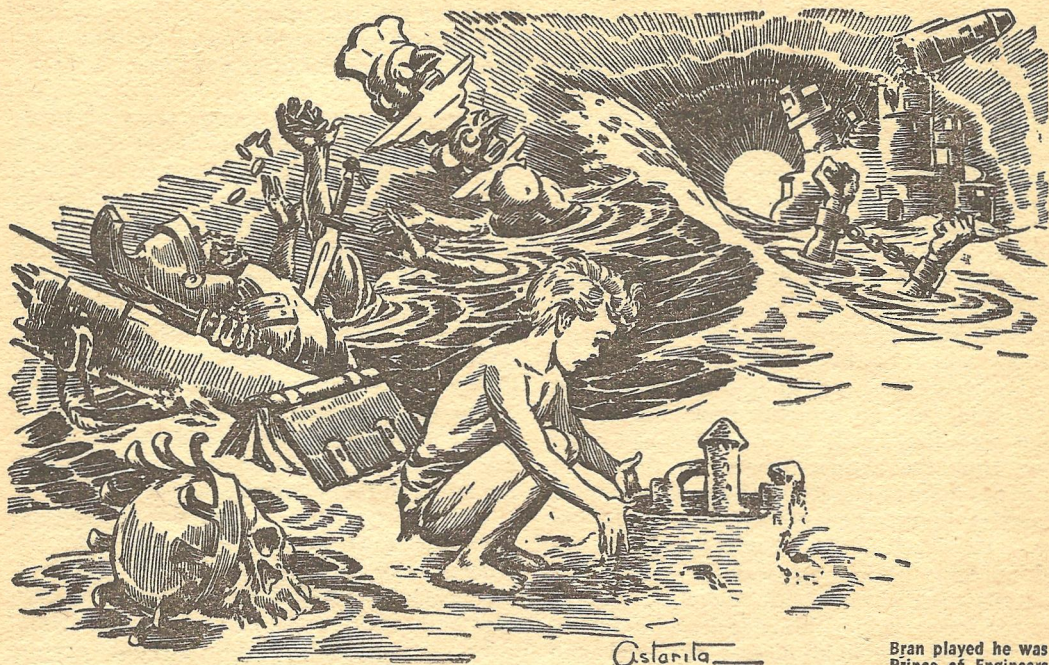
said to him in extravagant compliment on his return.

The big moment of that day for Vic Hardin was not found in the shouts of the crowds nor the glare of the headlines. He writes of it simply in his autobiography.

He got all the reward he wanted in a shabby little apartment uptown when he brought Bob Whitlow home.

An old lady, gray with waiting gave him his reward when she took his hand and said, holding back the tears,

"God bless you."



Bran played he was  
Prince of Engineers

# TRANSIENCE

BY

## ARTHUR C. CLARKE

*Though the world may die, man will go on!*

*Smooth between sea and land  
Is laid the level sand,  
And here through summer days  
The seed of Adam plays.*

A. E. HOUSEMAN.

**T**HE forest, which came almost to the edge of the beach, climbed away into the distance up the flanks of the low, misty hills. Underfoot, the sand was coarse and mixed with myriads of broken shells. Here and there the retreating tide had left long streamers of weed trailed across the beach. The rain, which seldom ceased, had for the moment passed inland, but ever and again large, angry drops would beat tiny craters in the sand.

It was hot and sultry, for the war between sun and rain was never ending. Sometimes

the mists would lift for a while and the hills would stand out clearly above the land they guarded. These hills arced in a semi-circle along the bay, following the line of the beach, and beyond them could sometimes be seen, at an immense distance, a wall of mountains lying beneath perpetual clouds. The trees grew everywhere, softening the contours of the land so that the hills blended smoothly into each other. Only in one place could the bare, uncovered rock be seen, where long ago some fault had weakened the foundations of the hills, so that for a mile or more the skyline fell sharply away, drooping down to the sea like a broken wing.

Moving with the cautious alertness of a wild animal, the child came through the stunted trees at the forest's edge. For a moment he hesitated; then, since there

seemed no danger, walked slowly out on to the beach.

He was naked, heavily built and with coarse black hair tangled over his shoulders. His face, brutish though it was, might almost have passed in human society; but the eyes would have betrayed him. They were not the eyes of an animal, for there was something in their depths that no animal had ever known. But it was no more than a promise. For this child, as for all his race, the light of reason had yet to dawn. Only a hair's-breadth still separated him from the beasts among whom he dwelt.

The tribe had not long since come into this land, and he was the first ever to set foot upon that lonely beach. What had lured him from the known dangers of the forest into the unknown and therefore more terrible dangers of this new element, he could not have told even had he possessed the power of speech. Slowly he walked out to the water's edge always with backward glances at the forest behind him; and as he did so, for the first time in all history, the level sand bore upon its face the footprints it would one day know so well.

He had met water before, but always it had been bounded and confined by land. Now it stretched endlessly before him, and the sound of its labouring beat ceaselessly upon his ears.

With the timeless patience of the savage, he stood on the moist sand that the water had just relinquished, and as the tide-line moved out he followed it slowly, pace by pace. When the waves reached toward his feet with a sudden access of energy, he would retreat a little way towards the land. But something held him here at the water's edge, while his shadow lengthened along the sands and the cold evening wind began to rise around him.

Perhaps into his mind had come something of the wonder of the sea, and a hint of all that it would one day mean to Man. Though the first gods of his people still lay far in the future, he felt a dim sense of worship stir within him. He knew that he was now in the presence of something greater than all the powers and forces he had ever met.

The tide was turning. Far away in the forest, a wolf howled once and was suddenly silent. The noises of the night were rising round him, and it was time to go.

Under the low moon, the two lines of footprints interlaced across the sand. Swiftly the

oncoming tide was smoothing them away. But they would return, in their thousands and millions, in the centuries yet to be.

**T**HE child playing among the rock-pools knew nothing of the forest that had once ruled all the land around him. It had left no trace of its existence. As ephemeral as the mists that had so often rolled down from the hills, it too had veiled them for a little while and now was gone. In its place had come a checker-board of fields, the legacy of a thousand years of patient toil. And so the illusion of permanence remained, though everything had altered save the line of the hills against the sky. On the beach, the sand was finer now, and the land had lifted so that the old tide-line was far beyond the reach of the queuing waves.

Beyond the sea wall and the promenade, the little town was sleeping through the golden summer day. Here and there along the beach people lay at rest, drowsy with heat and lulled by the murmur of the waves.

Out across the bay, white and gold against the water, a great ship was moving slowly to sea. The boy could hear, faint and far away, the beat of its screws and could still see the tiny figures moving upon its decks and superstructure. To the child—and not to him alone—it was a thing of wonder and beauty. He knew its name and the land to which it was steaming; but he did not know that the splendid ship was both the last and the greatest of its kind. He scarcely noticed, almost lost against the glare of the sun, the thin white vapour-trails that spelt the doom of the proud and lovely giant.

Soon the great liner was no more than a dark smudge on the horizon, and the boy turned again to his interrupted play, to the tireless building of his battlements of sand. In the west the sun was beginning its long decline, but the evening was still far away.

Yet it came at last, when the tide was returning to the land. At his mother's words the child gathered up his playthings and, wearily contented, began to follow his parents back to the shore. He glanced once only at the sand-castles he had built with such labour and would not see again. Without regret he left them to the advancing waves, for tomorrow he would return and the future stretched endlessly before him.

That tomorrow would not always come, either for himself or for the world, he was still too young to know.

AND now even the hills had changed, worn away by the weight of years. Not all the change was the work of nature, for one night in the long-forgotten past something had come sliding down from the stars and the little town had vanished in a spinning tower of flame. But that was so long ago that it was beyond sorrow or regret. Like the fall of fabled Troy or the overwhelming of Pompeii, it was part of the irremediable past and could rouse no pity now.

On the broken skyline lay a long metal building supporting a maze of mirrors that turned and glittered in the sun. No one from an earlier age could have guessed its purpose. It was as meaningless as an observatory or a radio station would have been to ancient man. But it was neither of these things.

Since noon, Bran had been playing among the shallow pools left by the retreating tide. He was quite alone, though the machine that guarded him was watching unobtrusively from the shore. Only a few days ago there had been other children playing beside the blue waters of this lovely bay. Bran sometimes wondered where they had vanished, but he was a solitary child and did not greatly care. Lost in his own dreams, he was content to be left alone.

In the last few hours he had linked the tiny pools with an intricate network of waterways. His thoughts were very far from Earth, both in space and time. Around him now were the dull, red sands of another world. He was Cardenis, prince of engineers, fighting to save his people from the encroaching deserts. For Bran had looked upon the ravaged face of Mars; he knew the story of its long tragedy and the help from Earth that had come too late.

Out to the horizon the sea was empty, untroubled by ships as it had been for ages. For a little while, near the beginning of time, Man had fought his brief war against the oceans of the world. Now it seemed that only a moment lay between the coming of the first canoes and the passing of the last great sloths of the seas.

Bran did not even glance at the sky when the monstrous shadow swept along the beach. For days past, those silver giants had been rising over the hills in an unending stream, and now he gave them little thought. All his life he had watched the great ships climbing through the skies of Earth on their way

to distant worlds. Often he had seen them return from those long journeys, dropping down through the clouds with cargoes beyond imagination.

He wondered sometimes why they came no more, those returning voyagers. All the ships he saw now were outward bound; never one drove down from the skies to berth at the great port beyond the hills. Why this should be, no one would tell him. He had learned not to speak of it now, having seen the sadness that his questions brought.

Across the sands the robot was calling to him softly. "Bran," came the words, echoing the tones of his mother's voice, "Bran—it's time to go."

The child looked up, his face full of indignant denial. He could not believe it. The sun was still high and the tide was far away. Yet along the shore his mother and father were already coming towards him.

They walked swiftly, as though the time were short. Now and again his father would glance for an instant at the sky, then turn his head quickly away as if he knew well that there was nothing he could hope to see. But a moment later he would look again.

Stubborn and angry, Bran stood at bay among his canals and lakes. His mother was strangely silent, but presently his father took him by the hand and said quietly, "You must come with us, Bran. It's time we went."

The child pointed sullenly at the beach. "But it's too early. I haven't finished."

His father's reply held no trace of anger, only a great sadness. "There are many things, Bran, that will not be finished now."

Still uncomprehending, the boy turned to his mother.

"Then can I come again, tomorrow?"

With a sense of desolating wonder, Bran saw his mother's eyes fill with sudden tears. And he knew at last that never again would he play upon the sands by the azure waters; never again would he feel the tug of the tiny waves about his feet. He had found the sea too late, and now must leave it forever. Out of the future, chilling his soul, came the first faint intimation of the long ages of exile that lay ahead.

He never looked back as they walked silently together across the clinging sand. This moment would be with him all his life, but he was still too stunned to do more than walk blindly into a future he could not understand.

The three figures dwindled into the dis-

tance and were gone. A long while later, a silver cloud seemed to lift above the hills and move slowly out to sea. In a shallow arc, as though reluctant to leave its world, the last of the great ships climbed towards the horizon and shrank to nothingness over the edge of the earth.

The tide was returning with the dying day. As though its makers still walked within its walls, the low metal building upon the hills had begun to blaze with light. Near the zenith, one star had not waited for the sun to set, but already burned with a fierce white glare against the darkling sky. Soon its companions, no longer in the scant thousands that man had once known, began to fill the heavens. The Earth was now near the centre of the Universe, and whole areas of the sky were an unbroken blaze of light.

But rising beyond the sea in two long curving arms, something black and monstrous eclipsed the stars and seemed to cast its shadow over all the world. The tentacles of the Dark Nebula were already brushing against the frontiers of the Solar System. . . .

In the east, a great yellow moon was climbing through the waves. Though Man had torn down its mountains and brought it air and water, its face was the one that had looked upon Earth since history began, and it was still the ruler of the tides. Across the sand the line of foam moved steadily onwards, overwhelming the little canals and planing down the tangled footprints.

On the skyline, the lights in the strange metal building suddenly died, and the spinning mirrors ceased their moonlight glittering. From far inland came the blinding flash of a great explosion, then another, and another fainter yet.

Presently the ground trembled a little, but no sound disturbed the solitude of the deserted shore.

Under the level light of the sagging moon, beneath the myriad stars, the beach lay waiting for the end. It was alone now, as it had been at the beginning. Only the waves would move, and but for a little while, upon its golden sands.

For Man had come and gone.



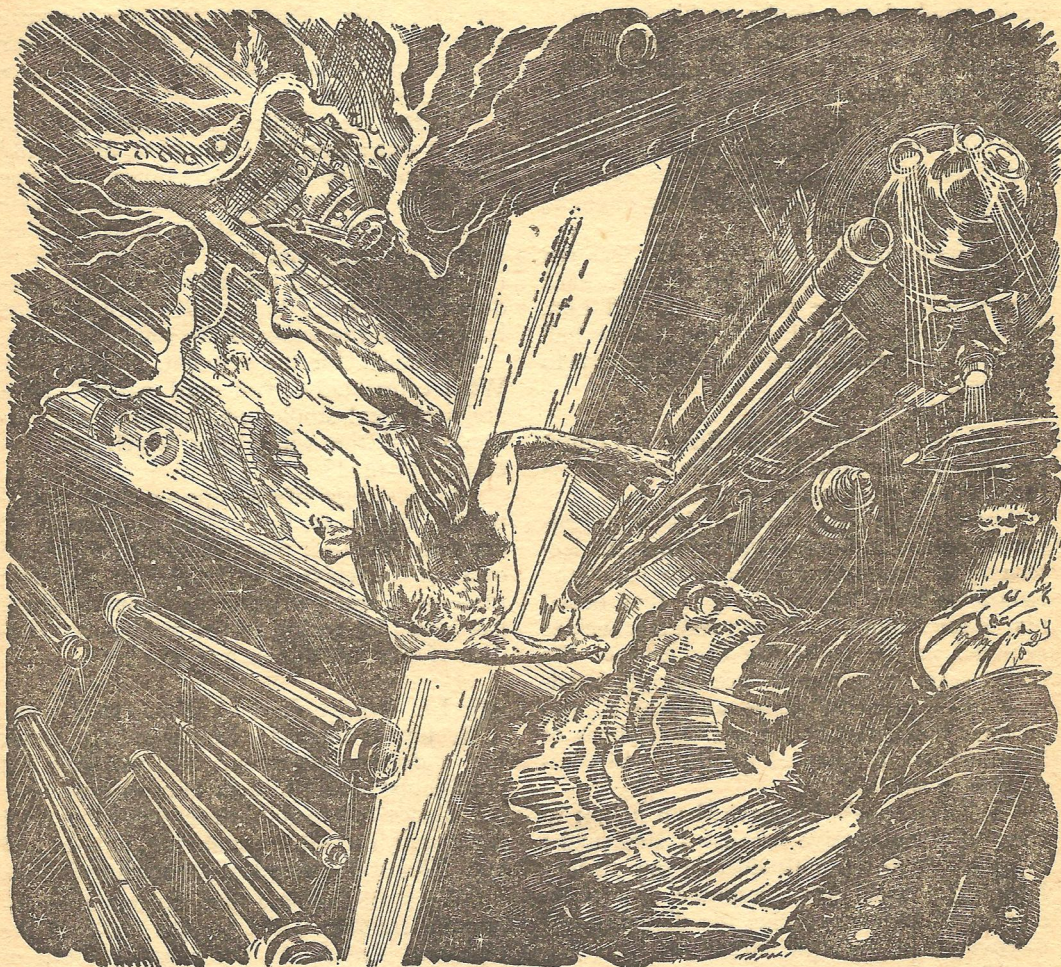
## *“A Is for Alchemy—”*

**A**ND B is for beauty, C for conjuring, D for disappearance—and one could go through the primer all the way to S for science, then to W for wonder, in order to name all the elements that go to make up that land of magic and mystery, Malesco. First torch-singer Lorna Maxwell, then actor Eddie Burton, go through the gate which leads to this strange world—and find themselves in a community where a priesthood, as in Egypt, holds all the keys to scientific progress.

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It took a torpedo portside, and its plumbing drifted through space

# THE ONLY THING WE LEARN

*By C. M. Kornbluth*

*If, like the Professor, we could see clearly, would we hate the enemy that tomorrow will overwhelm us?*

**T**HE professor, though he did not know the actor's phrase for it, was counting the house—peering through a spy-hole in the door through which he would in a moment appear before the class. He was pleased with what he saw. Tier after tier of

young people, ready with notebooks and styli, chattering tentatively, glancing at the door against which his nose was flattened, waiting for the pleasant interlude known as "Archaeo-Literature 203" to begin.

The professor stepped back, smoothed his

tunic, crooked four books on his left elbow and made his entrance. Four swift strides brought him to the lectern and, for the thousandth-odd time, he impassively swept the lecture hall with his gaze. Then he gave a wry little smile. Inside, for the thousandth-odd time, he was nagged by the irritable little thought that the lectern really ought to be a foot or so higher.

The irritation did not show. He was out to win the audience, and he did. A dead silence, the supreme tribute, gratified him. Imperceptibly, the lights of the lecture hall began to dim and the light on the lectern to brighten.

He spoke.

"Young gentlemen of the Empire, I ought to warn you that this and the succeeding lectures will be most subversive."

There was a little rustle of incomprehension from the audience—but by then the lectern light was strong enough to show the twinkling smile about his eyes that belied his stern mouth, and agreeable chuckles sounded in the gathering darkness of the tiered seats. Glow-lights grew bright gradually at the students' tables, and they adjusted their notebooks in the narrow ribbons of illumination. He waited for the small commotion to subside.

"Subversive—" He gave them a link to cling to. "Subversive because I shall make every effort to tell both sides of our ancient beginnings with every resource of archaeology and with every clue my diligence has discovered in our epic literature.

"There *were* two sides, you know—difficult though it may be to believe that if we judge by the Old Epic alone—such epics as the noble and tempestuous *Chant of Remd*, the remaining fragments of *Krall's Voyage*, or the gory and rather out-of-date *Battle For the Ten Suns*." He paused while styli scribbled across the notebook pages.

"The Middle Epic is marked, however, by what I might call the rediscovered ethos." From his voice, every student knew that that phrase, surer than death and taxes, would appear on an examination paper. The styli scribbled. "By this I mean an awakening of fellow-feeling with the Home Suns People, which had once been filial loyalty to them when our ancestors were few and pioneers, but which turned into contempt when their numbers grew.

"The Middle Epic writers did not despise the Home Suns People, as did the bards of

the Old Epic. Perhaps this was because they did not have to—since their long war against the Home Suns was drawing to a victorious close.

"Of the New Epic I shall have little to say. It was a literary fad, a pose, and a silly one. Written within historic times, the some two score pseudo-epics now moulder in their cylinders, where they belong. Our ripening civilization could not with integrity work in the epic form, and the artistic failures produced so indicate. Our genius turned to the lyric and to the unabashedly romantic novel.

"So much, for the moment, of literature. What contribution, you must wonder, have archaeological studies to make in an investigation of the wars from which our ancestry emerged?

"Archaeology offers—one—a check in historical matter in the epics—confirming or denying. Two—it provides evidence glossed over in the epics—for artistic or patriotic reasons. Three—it provides evidence which has been lost, owing to the fragmentary nature of some of the early epics."

**A**LL this he fired at them crisply, enjoying himself. Let them not think him a dreamy litterateur, nor, worse, a flat precisionist, but let them be always a little off-balance before him, never knowing what came next, and often wondering, in class and out. The styli paused after heading Three.

"We shall examine first, by our archaeological technique, the second book of the *Chant of Remd*. As the selected youth of the Empire, you know much about it, of course—much that is false, some that is true and a great deal that is irrelevant. You know that Book One hurls us into the middle of things, aboard ship with Algan and his great captain, Remd, on their way from the triumph over a Home Suns stronghold, the planet Telse. We watch Remd on his diversionary action that splits the Ten Suns Fleet into two halves. But before we see the destruction of those halves by the Horde of Algan, we are told in Book Two of the battle for Telse."

He opened one of his books on the lectern, swept the amphitheater again and read sonorously.

"Then battle broke  
And high the blinding blast  
Sight-searing leaped  
While folk in fear below  
Cowered in caverns

From the wrath of Remd—

“Or, in less sumptuous language, one fission bomb—or a stick of time-on-target bombs—was dropped. An unprepared and disorganized populace did not take the standard measure of dispersing, but huddled foolishly to await Algan’s gunfighters and the death they brought.

“One of the things you believe because you have seen them in notes to elementary-school editions of *Remd* is that Telse was the fourth planet of the star, Sol. Archaeology denies it by establishing that the fourth planet—actually called Marse, by the way—was in those days weather-roofed at least, and possibly atmosphere-roofed as well. As potential warriors, you know that one does not waste fissionable material on a roof, and there is no mention of chemical explosives being used to crack the roof. Marse, therefore, was not the locale of *Remd*, Book Two.

“Which planet was? The answer to that has been established by X-radar, differential decay analyses, video-coring and every other resource of those scientists still quaintly called ‘diggers.’ We know and can prove that Telse was the *third* planet of Sol. So much for the opening of the attack. Let us jump to Canto Three, the Storming of the Dynastic Palace.

“Imperial purple wore they  
Fresh from the feast  
Grossly gorged  
They sought to slay—

“And so on. Now, as I warned you, Remd is of the Old Epic, and makes no pretense at fairness. The unorganized huddling of Telse’s population was read as cowardice instead of poor A.R.P. The same is true of the Third Canto. Video-cores show on the site of the palace a hecatomb of dead in once-purple livery, but also shows impartially that they were not particularly gorged and that digestion of their last meals had been well advanced. They didn’t give such a bad accounting of themselves, either. I hesitate to guess, but perhaps they accounted for one of our ancestors apiece and were simply outnumbered. The study is not complete.

“That much we know.” The professor saw they were tiring of the terse scientist and shifted gears. “But if the veil of time were rent that shrouds the years between us and the Home Suns People, how much more would we learn? Would we despise the Home Suns People as our frontiersman ancestors did, or would we cry: ‘*This is our*

spiritual home—this world of rank and order, this world of formal verse and exquisitely patterned arts’?”

If the veil of time were rent—?

We can try to rend it . . .

**W**ING Commander Arris heard the clear jangle of the radar net alarm as he was dreaming about a fish. Struggling out of his too-deep, too-soft bed, he stepped into a purple singlet, buckled on his Sam Browne belt with its holstered .45 automatic and tried to read the radar screen. Whatever had set it off was either too small or too distant to register on the five-inch C.R.T.

He rang for his aide, and checked his appearance in a wall-mirror while waiting. His space tan was beginning to fade, he saw, and made a mental note to get it renewed at the parlor. He stepped into the corridor as Evan, his aide, trotted up—younger, browner, thinner, but the same officer type that made the Service what it was, Arris thought with satisfaction.

Evan gave him a bone-cracking salute, which he returned. They set off for the elevator that whisked them down to a large, chilly, dark underground room where faces were greenly lit by radar screens and the lights of plotting tables. Somebody yelled “Attention!” and the tecks snapped. He gave them “At ease” and took the brisk salute of the senior teck, who reported to him in flat, machine-gun delivery:

“Object - becoming - visible - on - primary screen-sir.”

He studied the sixty-inch disk for several seconds before he spotted the intercepted particle. It was coming in fast from zenith, growing while he watched.

“Assuming it’s now traveling at maximum, how long will it be before it’s within striking range?” he asked the teck.

“Seven hours, sir.”

“The interceptors at Idlewild alerted?”

“Yessir.”

Arris turned on a phone that connected with Interception. The boy at Interception knew the fact that appeared on its screen, and was already capped with a crash helmet. “Go ahead and take him, Efrid,” said the wing commander.

“Yessir!” and a punctilious salute, the boy’s pleasure plain at being known by name and a great deal more at being on the way to a fight that might be first-class.

Arris cut him off before the boy could detect a smile that was forming on his face. He turned from the pale lunar glow of the sixty-incher to enjoy it. Those kids—when every meteor was an invading dreadnaught, when every ragged scouting ship from the rebels was an armada!

He watched Efrid's squadron soar off on the screen and then he retreated to a darker corner. This was his post until the meteor or scout or whatever it was got taken care of. Evan joined him, and they silently studied the smooth, disciplined functioning of the plot room, Arris with satisfaction and Evan doubtless with the same. The aide broke silence, asking:

"Do you suppose it's a Frontier ship, sir?" He caught the wing commander's look and hastily corrected himself: "I mean rebel ship, sir, of course."

"Then you should have said so. 'Is that what the junior officers generally call those scoundrels?'"

Evan conscientiously cast his mind back over the last few junior messes and reported unhappily: "I'm afraid we do, sir. We seem to have got into the habit."

"I shall write a memorandum about it. How do you account for that very peculiar habit?"

"Well, sir, they do have something like a fleet, and they did take over the Regulus Cluster, didn't they?"

What had got into this incredible fellow, Arris wondered in amazement. Why, the thing was self-evident! They had a few ships—accounts differed as to how many—and they had, doubtless by raw sedition, taken over some systems temporarily.

He turned from his aide, who sensibly became interested in a screen and left with a murmured excuse to study it very closely.

The brigands had certainly knocked together some ramshackle league or other, but—The Wing commander wondered briefly if it could last, shut the horrid thought from his head, and set himself to composing mentally a stiff memorandum that would be posted in the junior officer's mess and put an end to this absurd talk.

His eyes wandered to the sixty-incher, where he saw the interceptor squadron climbing nicely toward the particle—which, he noticed, had become three particles. A low crooning distracted him. Was one of the tecks singing at work? It couldn't be!

IT WASN'T. An unsteady shape wanded up in the darkness, murmuring a song and exhaling alcohol. He recognized the Chief Archivist, Glen.

"This is Service country, mister," he told Glen.

"Hullo, Arris," the round little civilian said, peering at him. "I come down here regularly—regularly against regulations—to wear off my regular irregularities with the wine bottle. That's all right, isn't it?"

He was drunk and argumentative. Arris felt hemmed in. Glen couldn't be talked into leaving without loss of dignity to the wing commander, and he couldn't be chucked out because he was writing a biography of the chamberlain and could, for the time being, have any head in the palace for the asking. Arris sat down unhappily, and Glen plumped down beside him.

The little man asked him.

"Is that a fleet from the Frontier League?" He pointed to the big screen. Arris didn't look at his face, but felt that Glen was grinning maliciously.

"I know of no organization called the Frontier League," Arris said. "If you are referring to the brigands who have recently been operating in Galactic East, you could at least call them by their proper names." Really, he thought—civilians!

"So sorry. But the brigands should have the Regulus Cluster by now, shouldn't they?" he asked, insinuatingly.

This was serious—a grave breach of security. Arris turned to the little man.

"Mister, I have no authority to command you," he said measuredly. "Furthermore, I understand you are enjoying a temporary eminence in the non-service world which would make it very difficult for me to—ah—tangle with you. I shall therefore refer only to your altruism. How did you find out about the Regulus Cluster?"

"Eloquent!" murmured the little man, smiling happily. "I got it from Rome."

Arris searched his memory. "You mean Squadron Commander Romo broke security? I can't believe it!"

"No, commander. I mean Rome—a place—a time—a civilization. I got it also from Babylon, Assyria, the Mogul Raj—every one of them. You don't understand me, of course."

"I understand that you're trifling with Service security and that you're a fat little, malevolent, worthless drone and scribbler!"

"Oh, commander!" protested the archivist. "I'm not so little!" He wandered away, chuckling.

Arris wished he had the shooting of him, and tried to explore the chain of secrecy for a weak link. He was tired and bored by this harping on the Fron—on the brigands.

His aide tentatively approached him. "Interceptors in striking range, sir," he murmured.

"Thank you," said the wing commander, genuinely grateful to be back in the clean, etched-line world of the Service and out of that blurred, water-color, civilian land where long-dead Syrians apparently retailed classified matter to nasty little drunken warts who had no business with it. Arris confronted the sixty-incher. The particle that had become three particles was now—he counted—eighteen particles. Big ones. Getting bigger.

He did not allow himself emotion, but turned to the plot on the interceptor squadron.

"Set up Lunar relay," he ordered.

"Yessir."

Half the plot room crew bustled silently and efficiently about the delicate job of applied relativistic physics that was 'lunar relay.' He knew that the palace power plant could take it for a few minutes, and he wanted to *see*. If he could not believe radar pips, he might believe a video screen.

On the great, green circle, the eighteen—now twenty-four—particles neared the thirty-six smaller particles that were interceptors, led by the eager young Efrid.

"Testing Lunar relay, sir," said the chief teck.

The wing commander turned to a twelve-inch screen. Unobtrusively, behind him, tecks jockeyed for position. The picture on the screen was something to see. The chief let mercury fill a thick-walled, ceramic tank. There was a sputtering and contact was made.

"Well done," said Arris. "Perfect seeing."

He saw, upper left, a globe of ships—what ships! Some were Service jobs, with extra turrets plastered on them wherever there was room. Some were orthodox freighters, with the same porcupine-bristle of weapons. Some were obviously home-made crates, hideously ugly—and as heavily armed as the others.

Next to him, Arris heard his aide murmur, "It's all wrong, sir. They haven't got

any pick-up boats. They haven't got any hospital ships. What happens when one of them gets shot up?"

"Just what ought to happen, Evan," snapped the wing commander. "They float in space until they dessicate in their suits. Or if they get grappled inboard with a boat hook, they don't get any medical care. As I told you, they're brigands, without decency even to care of their own." He enlarged on the theme. "Their morale must be insignificant compared with our men's. When the Service goes into action, every rating and teck knows he'll be cared for if he's hurt. Why, if we didn't have pick-up boats and hospital ships the men wouldn't—" He almost finished it with "fight," but thought, and lamely ended,—"wouldn't like it."

**E**VAN NODDED, wonderingly, and crowded his chief a little as he craned his neck for a look at the screen.

"Get the hell away from here!" said the wing commander in a restrained yell, and Evan got.

The interceptor squadron swam into the field—a sleek, deadly needle of vessels in perfect alignment, with its little cloud of pickups trailing, and farther astern a white hospital ship with the ancient red cross.

The contact was immediate and shocking. One of the rebel ships lumbered into the path of the interceptors, spraying fire from what seemed to be as many points as a man has pores. The Service ships promptly riddled it and it should have drifted away—but it didn't. It kept on fighting. It rammed an interceptor with a crunch that must have killed every man before the first bulwark, but aft of the bulwark the ship kept fighting.

It took a torpedo portside and its plumb-ing drifted through space in a tangle. Still the starboard side kept squirting fire. Isolated weapon blisters fought on while they were obviously cut off from the rest of the ship. It was a pounded tangle of wreckage, and it had destroyed two interceptors, crippled two more, and kept fighting.

Finally, it drifted away, under feeble jets of power. Two more of the fantastic rebel fleet wandered into action, but the wing commander's horrified eyes were on the first pile of scrap. It was going *some-where*—

The ship neared the thin-skinned, unarmored, gleaming hospital vessel, rammed it amidships, square in one of the red crosses,

and then blew itself up, apparently with everything left in its powder magazine, taking the hospital ship with it.

The sickened wing commander would never have recognized what he had seen as it was told in a later version, thus:

"The crushing course they took  
And nobly knew  
Their death undaunted  
By heroic blast  
The hospital's host  
They dragged to doom  
Hail! Men without mercy  
From the far frontier!"

**L**UNAR relay flickered out as overloaded fuses flashed into vapor. Arris distractedly paced back to the dark corner and sank into a chair.

"I'm sorry," said the voice of Glen next to him, sounding quite sincere. "No doubt it was quite a shock to you."

"Not to you?" asked Arris bitterly.

"Not to me."

"Then how did they do it?" the wing commander asked the civilian in a low, desperate whisper. "They don't even wear .45's. Intelligence says their enlisted men have hit their officers and got away with it. They *elect* ship captains! Glen, what does it all mean?"

"It means," said the fat little man with a timbre of doom in his voice, "that they've returned. They always have. They always will. You see, commander, there is always somewhere a wealthy, powerful city, or nation, or world. In it are those whose blood is not right for a wealthy, powerful place. They must seek danger and overcome it. So they go out—on the marshes, in the desert, on the tundra, the planets, or the stars. Being strong, they grow stronger by fighting the tundra, the planets or the stars. They—they change. They sing new songs.

They know new heroes. And then, one day, they return to their old home.

"They return to the wealthy, powerful city, or nation or world. They fight its guardians as they fought the tundra, the planets or the stars—a way that strikes terror to the heart. Then they sack the city, nation or world and sing great, ringing sagas of their deeds. They always have. Doubtless they always will."

"But what shall we do?"

"We shall cower, I suppose, beneath the bombs they drop on us, and we shall die, some bravely, some not, defending the palace within a very few hours. But you will have your revenge."

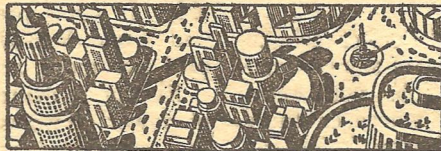
"How?" asked the wing commander, with haunted eyes.

The fat little man giggled and whispered in the officer's ear. Arris irritably shrugged it off as a bad joke. He didn't believe it. As he died, drilled through the chest a few hours later by one of Algan's gunfighters, he believed it even less.

**T**HE PROFESSOR'S lecture was drawing to a close. There was time for only one more joke to send his students away happy. He was about to spring it when a messenger handed him two slips of paper. He raged inwardly at his ruined exit and poisonously read from them:

"I have been asked to make two announcements. One, a bulletin from General Sleg's force. He reports that the so-called Outland Insurrection is being brought under control and that there is no cause for alarm. Two, the gentlemen who are members of the S.O.T.C. will please report to the armory at 1375 hours—whatever that may mean—for blaster inspection. The class is dismissed."

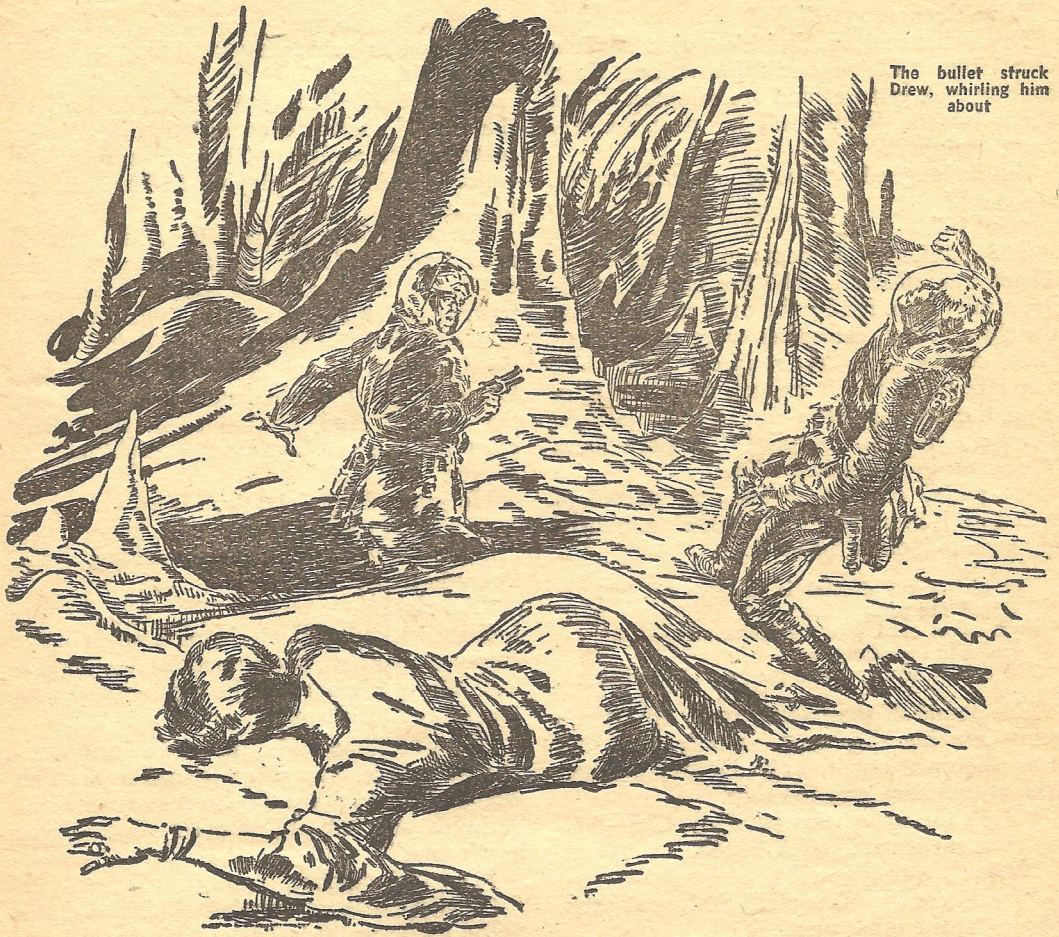
Petulantly, he swept from the lectern and through the door.



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The bullet struck Drew, whirling him about

# The Lonely Ones

By RAY BRADBURY

*A strange woman on a strange planet causes curious complications!*

**T**HEY ate six suppers in the open, talking back and forth over the small campfire. The light shone high on the silver rocket in which they had traveled across space. From a long way off in the blue hills, their campfire seemed like a star that had landed beside the long Martian canals under the clear and windless Martian sky.

On the sixth night the two men sat by the fire, looking tensely in all directions.

"Cold?" asked Drew, for the other was shivering.

"What?" Smith looked at his arms. "No." Drew looked at Smith's forehead. It was covered with sweat.

"Too warm?"

"No, not that either."

"Lonely?"

"Maybe." His hand jerked as he put another piece of wood on the fire.

"Game of cards?"

"Can't concentrate."

Drew listened to Smith's quick shallow breathing. "We've our information. Each day we took pictures and ore samples. We're about loaded. Why don't we start the trip home tonight?"

Smith laughed. "You're not *that* lonely, are you?"

"Cut it."

They shifted their boots in the cool sand. There was no wind. The fire burned steadily, straight up, fed by the oxygen hose from the ship. They themselves wore transparent glass masks over their faces, very thin, through which a soft oxygen film pulsed up from the oxygen vests under their jackets. Drew checked his wrist dial. Six more hours of oxygen in his jacket. Fine.

He pulled out his ukelele and started to strum on it carelessly, eyes half closed, leaning back to look at the stars.

The girl of my dreams is the sweetest girl

Of all the girls I know—

Each sweet coed, like a rainbow red

Fades in the afterglow.

The blue of her eyes and the gold of her hair....

The sound of the ukelele came up Drew's arms into his earphones. Smith could not hear the instrument, only Drew's singing. The atmosphere was too thin.

"She's the sweetheart of Sigma Chi—"

"Aw, cut it out!" cried Smith.

"What's eating you?"

"I said cut it out, is all!" Smith sat back, glaring at the other man.

"Okay, okay, don't get excited."

**D**REW put the ukelele down and lay back, thinking. He knew what it was. It was in him, too. The cold loneliness, the midnight loneliness, the loneliness of distance and time and space, of stars and travel and months and days.

Only too well he remembered Anna's face looking in at him through the space port of the rocket a minute before blast-off time. It was like a vivid, clear-cut blue cameo—the blue round glass and her lovely face, her hand uplifted to wave, her smiling lips and her bright eyes. She had kissed her hand to him. Then she had vanished.

He looked idly over at Smith. Smith's eyes were closed. He was turning over a thought of his own in his mind. Marguerite, of course. Wonderful Marguerite, the brown eyes and the soft brown hair. Sixty million miles away on some improbable world where

they had been born.

"I wonder what they're doing tonight?" Drew said.

Smith opened his eyes and looked across the fire. Without even questioning Drew's meaning, he replied, "Going to a television concert, swimming, playing badminton, lots of things."

Drew nodded. He withdrew into himself again and he felt the sweat starting to come out in his hands and his face. He began to tremble and there was a shrill whining emotion deep inside himself. He didn't want to sleep tonight. It would be like other nights. Out of nothing, the lips and the warmth and the dream. And, all too soon, the empty morning, the arising into the nightmare of reality.

He jumped up violently.

Smith fell back, staring.

"Let's take a walk, do something," said Drew heartily.

"All right."

They walked through the pink sands of the empty sea bottom, saying nothing, only walking. Drew felt part of the tightness vanish. He cleared his throat.

"Suppose," he said, "just to be be supposing, of course, you met up with a Martian woman? Now. Some time in the next hour?"

Smith snorted. "Don't be silly. There aren't any."

"But just suppose."

"I don't know," replied Smith, looking ahead as he walked. He put his head down and rubbed his hand along the thin warm glass mask over his face. "Marguerite's waiting for me in New York."

"And Anna's waiting for me. But let's be practical. Here we are, two very human men, a year away from earth, cold, lonely, isolated, in need of consolation, hand-holding. No wonder we're brooding over the women we left behind."

"It's plain silly to brood, and we ought to quit it. There's no women around anyway, drat it!"

They walked onward for a distance.

"Anyway," Smith continued at last, after a time of thinking, "If we did find a woman here, I'm sure Marguerite would be the first to comprehend the situation and forgive me."

"Are you sure?"

"Absolutely!"

"Or are you rationalizing?"

"No!"

"Let me show you something, then. Turn



back. Over there." Drew took Smith's arm and guided him back and to one side about fifty paces. "The reason I brought the whole subject up is this." He pointed.

Smith gasped.

A footprint lay like a tiny soft valley in the sand.

The two men bent, put their fingers eagerly down, brushing nervously to each side of it. Their breath hissed in their nostrils. Smith's eyes glittered.

They looked into each other's faces for a long time.

"A woman's footstep!" cried Smith.

"Perfect in every detail," said Drew, nodding solemnly. "I happen to know. I once worked in a shoe store. I'd know a woman's print anywhere. Perfect, perfect!"

**T**HEY swallowed the thickened knots in their dry throats. Their hearts began to beat wildly.

Smith opened and closed his hands into fists. "Glory, it's small! Look at the toes! Gosh, it's dainty!"

He stood up and looked ahead, eyes squinted. Then, crying out, he began to run. "Here's another, and another. More. They go on, that way!"

"Take it easy," Drew caught up with him. He took hold of Smith's arm. "Where you think you're going?"

"Let go, blast it!" Smith pointed. "I'm following them up, of course.

"What about Marguerite?"

"This is a devil of a time to talk of her. Let go before I crack you one!"

Musingly, Drew dropped his hand. "Okay. Go ahead."

They ran together. . . .

Fresh footsteps, fresh and deep and delicately defined. Footsteps that rushed, swirled, pelted on before them, coming and going, alone, across the dry sea bottom. Glance at the wrist watch. Five minutes, then. Hurry. Rush. Run. Drew panted, laughing. Ridiculous. Silly. Two men plunging forward. Really, if it weren't such a lonely, serious thing, he would sit down and laugh until he cried. Two supposedly intelligent men, two Robinson Crusoes racing after a feminine and as yet invisible girl Friday! Ha!

"What's funny?" shouted Smith, far ahead.

"Nothing. Watch the time. Oxygen gives out, you know."

"We've plenty."

"Watch it, though!"

Did she realize when she came by here, thought Drew amusedly, putting her footfalls so delicately into the earth, that by so doing, so innocently laying her gentle small feet, she would cause a crisis among men? No. Totally unaware. Totally.

He must run anyway and keep up with that insane Smith. Silly, silly. And yet—not so silly.

As Drew ran, a warmth filled his head. After all, it would be swell to sit by the fire tonight beside a beautiful woman, holding her hand, kissing her and touching her.

"What if her skin's blue?"

Smith turned as he ran. "What?"

"What if her skin's blue? Like the hills? What then?"

"Blast you, Drew!"

"Ha!" Drew shouted his laugh and they pelted into an old river draw and along a canal, both lying empty in the seasonless time.

The footprints moved delicately on and on to the foothills. They had to stop when they reached the climb.

"Dibs," said Drew, eyes sharp and yellow.

"What?"

"I said 'Dibs on her.' That means I get to speak to her first. Remember when we were kids? We said 'Dibs.' Okay. I just said 'Dibs.' That makes it official."

Smith was not smiling.

"What's wrong, Smith? 'Fraid of competition?" said Drew.

Smith did not speak.

"I've got quite a profile," Drew pointed out. "Also, I'm four inches taller."

Smith looked coldly at him. His eyes were still.

"Yes, sir, competition," Drew went on. "Tell you what, Drew—if she's got a friend, I'll let you have the friend."

"Shut up," said Smith glaring at him.

Drew stopped smiling and stood back. "Look here, Smith, you better take it slow. You're getting all het up. I don't like to see you this way. Everything's been fine until now."

"I'll act anyway I please. You just keep out of my business. After all, I found the footprints!"

"Say that again."

"Well, you found them, maybe, but it was my idea to follow them up!"

"Was it?" Drew said slowly.

"You know it was."

"Do I?"

"Holy Pete, a year in space, no company, nothing, traveling, and now when something like this happens, someone human—"

"Someone *feminine!*"

SMITH cocked his fist. Drew caught it, twisted it, slapped Smith's face.

"Wake up!" he shouted into the blank face. "Wake up!" He seized Smith's shirt front. He shook him like a kid. "Listen, listen, you fool! Maybe she's somebody else's woman. Think of that. Where there's a Martian woman, there's going to be a Martian man, you chump."

"Let go of me!"

"Think of it, you idiot, that's all." Drew gave Smith a shove. Smith toppled, almost fell, reached for his gun, thought better of it, shoved it back.

But Drew had seen the gesture. He looked at Smith. "So it's come to that, has it? You really are in a bad way, aren't you? The old cave man himself."

"Shut up!" Smith started to walk on, climbing. "You don't understand."

"No, I've been nowhere the last year. I've been home with Anna every night. I've been warm and safe in New York. You went on the trip all by your lonely little self!" Drew snorted violently and swore. "You sure are an egocentric little squirt!"

They climbed a hill of sand and were among other hills where the footprints led them. They found an abandoned fireplace, charred sticks of wood, a small metal tin which had once, from its arrangement, contained oxygen to feed the fire. They looked new.

"She can't be much further on." Smith was ready to drop, but still he ran. He slugged his feet into the sand and gasped.

I wonder what she's like, thought Drew, moving in his thoughts, freely, wonderingly. I wonder if she's tall and slender or small and very thin. I wonder what color eyes, what color hair she has? I wonder what her voice is like? Sweet, high? Or soft and very low?

I wonder a lot of things. So does Smith. Smith's wondering, too, now. Listen to him wonder and gasp and run and wonder some more. This isn't any good. It'll lead us to something bad, I know. Why do we go on? A silly question. We go on, of course, because we're only human, no more, no less.

I just hope, he thought, that she doesn't

have snakes for hair.

"A cave!"

They had come to the side of a small mountain, into which a cave went back through darkness. The footprints vanished within.

Smith snatched forth his electric torch and sent the beam inside, flashing it swiftly about, grinning with apprehension. He moved forward cautiously, his breath rasping in the earphones.

"It won't be long now," said Drew.

Smith didn't look at him.

They walked together, elbows bumping. Every time Drew tried to draw ahead, Smith grunted and increased his pace, his face angry with color.

The tunnel twisted, but the footprints still appeared as they flicked the torch beam down.

Suddenly they came out into an immense cave. Across it, by a campfire which had gone out, a figure lay.

"There she is!" shouted Smith. "There she is!"

"Dibs," whispered Drew quietly.

Smith turned, the gun was in his hand. "Get out," he said.

"What?" Drew blinked at the gun.

"You heard what I said, get out!"

"Now, wait a minute—"

"Get back to the ship, wait for me there!"

"If you think you're going to—"

"I'll count to ten, if you haven't moved by then, I'll burn you where you stand—"

"You're crazy!"

"One, two, three, better start moving."

"Listen to me, Smith, for Heaven's sake!"

"Four, five, six, I warned you—ah!"

The gun went off.

THE bullet struck Drew in the hip, whirling him about to fall face down, crying out with pain. He lay in darkness.

"I didn't mean it, Drew, I didn't!" Smith cried. "It went off; my finger, my hand, nervous; I didn't mean it!" A figure bent down in the blazing light, turned him over. "I'll fix you up, I'm sorry. I'll get her to help us. Just a second!"

The pain in his side, Drew lay watching as the torch turned and Smith rushed loudly across the long cave toward the sleeping figure by the black fire. He heard Smith call out once or twice, saw him approach and bend down to the figure, touch it.

For a long time, Drew waited.

Smith turned the figure over.

From a distance, Drew heard Smith say, "She's dead."

"What!" called Drew. With fumbling hands he was taking out a small kit of medicine. He broke open a vial of white powder which he swallowed. The pain in his side stopped instantly. Now he went about bandaging the wound. It was bad enough, but not too bad. In the middle distance he saw Smith standing all alone, his torch senselessly in his numb hand, looking down at the woman's figure.

Smith came back and sat down and looked at nothing.

"She's—she's been dead a long long time."

"But the footprints? What about them?"

"This world, of course, this world. We didn't stop to think. We just ran. I just ran. Like a fool. This world, I didn't think until now. Now I know."

"What is it?"

"There's no wind, nothing. No seasons, no rain, no storms, no nothing. Ten thousand years ago, in a dying world, that woman there walked across the sands, alone. Maybe the last one alive. With a few oxygen tins to keep her going. Something happened to the planet. The atmosphere drained off into space. No wind, no oxygen, no seasons. And her walking alone." Smith shaped it in his mind before telling it quietly to Drew, not looking at him. "And she came to this cave and lay down and died."

"Ten thousand years ago?"

"Ten thousand years. And she's been here ever since. Perfect. Lying here, waiting for us to come and make fools of ourselves. A cosmic joke. Ah, yes! Very funny."

"But the footprints?"

"No wind. No rain. The footprints look just as fresh as the day she made them, naturally. Everything looks new and fresh. Even her. Except there's something about her. Just by seeing her you know she's been dead a long long while. I don't know what it is."

His voice faded away.

Suddenly he remembered Drew. "My gun. You. Can I help?"

"I got it all dressed. It was an accident. Let's put it that way."

"Does it hurt?"

"No."

"You won't try and kill me for this?"

"Shut your mouth. Your finger slipped."

"It did—it really did! I'm sorry."

"I know it did. Shut up." Drew finished packing the wound. "Give me a hand now, we've got to get back to the ship." Smith helped him grunt to his feet and stand swaying. "Now walk me over so I can take a look at Miss Mars, ten thousand B. C. After all that running and this trouble I ought to get a look at her, anyway."

Smith helped him slowly over to stand above the sprawling form. "Looks like she's only sleeping," said Smith. "But she's dead, awful dead. Isn't she pretty?"

She looks just like Anna, thought Drew, with a sense of shock. Anna sleeping there, ready to wake and smile and say hello.

"She looks just like Marguerite," Smith said.

Drew's mouth twitched. "Marguerite?" He hesitated. "Yes. Y-yes, I guess she does." He shook his head. "All depends on how you look at it. I was just thinking myself—"

"What?"

"Never mind. Let her lie. Leave her there. Now, we've got to hurry. Back to the ship for us."

"I wonder who she was?"

"We'll never know. A princess maybe. A stenographer in some ancient city, a dancing maid? Come on, Smith."

They made it back to the rocket in half an hour, slowly and painfully.

"Aren't we fools, though? Really prime fools?"

The rocket door slammed.

The rocket fired up on fountains of red and blue flame.

Below, the sand was stirred and blasted and blown. The footprints, for the first time in ten thousands years were disturbed. They blew away in fine particles. When the fire wind died, the prints were gone.

Coming Soon—

## PAYMENT IN FULL

Another Fascinating Story by RAY BRADBURY

# THE ETHER VIBRATES

(Continued from page 7)

**PRESIDENT RICHARD ABBOTT**, Route #1, Box #57, Cuyahoga Falls, Ohio, or Calvin Thomas Beck, 271 Dartmouth Street, Boston 16, Mass.

**LOS ANGELES SCIENCE FANTASY SOCIETY**, 637½ South Bixel Street, Los Angeles, California. Oldest local fanclub in US. Meets weekly.

**MICHIGAN SCIENCE FANTASY SOCIETY**. Chapters in Detroit, Cadillac and Saginaw. Open to Michiganders and adjacents. Address Secretary Arthur H. Rapp, 2120 Bay Street, Saginaw, Michigan, or Welcome Chairman Ed Kuss, 7502 Grixdale, Detroit 12, Michigan.

**THE NATIONAL FANTASY FAN FEDERATION**. Address Secretary K. Martin Carlson, 1028 3rd Avenue South, Moorhead, Minnesota. A big outfit with 350 members in US and abroad.

**NEW ORLEANS SCIENCE FANTASY SOCIETY**. A new one. Write President Harry B. Moore, 1221 Orange Street, New Orleans (Tel. RAYmond 2584) or Secretary Emile E. Greenleaf Jr., 1303 Mystery Street, New Orleans (Tel. GALvez 7087).

**OUTLANDER SOCIETY**. Another new one for serious minded fans. Contact Rick Sneary, 2962 Santa Ana Street, South Gate, California (Tel. LA 7649).

**THE PHILADELPHIA SCIENCE FICTION SOCIETY**. The oldest stf club in existence is looking for interested members. Write Milton A. Rothman, 2113 North Franklin Street, Philadelphia 22, Pennsylvania.

**PORTLAND SCIENCE FANTASY SOCIETY**. An up and coming group. Write Dorothy de Courcy, Box #306, Lake Grove, Oregon, or telephone Don Day in Portland at TR 6816.

**QUEENS SCIENCE FICTION LEAGUE**, P. O. Box #4, Steinway Station, Long Island City 3, New York. Director, Will S. Sykora. A live and veteran group.

**SCIENCE FICTION INTERNATIONAL**. A small (25) outfit scattered on three continents. Contact Bob Farnham, Act sec, 1139 East 44th Street, Chicago 15, Illinois.

**THE STRANGER CLUB**. New England informal group. Contact Dave Thomas, 31 Linnaean Street, Cambridge 38, Massachusetts.

**TIFANTASY CLUB**, 69 Erie Street, Tiffin, Ohio. A new one for Ohioans.

**WASHINGTON SCIENCE FICTION ASSOCIATION**. New and enterprising. Meetings the first, third and fifth (if any) Sundays of each month in Room #1030, Transportation Building, 17th and H Street, NW, Washington, D.C. Write President Louis E. Garner, Jr., 310 East Mason Avenue, Alexandria, Virginia.

**YOUNG FANDOM**. For fans new to fandom. Sec-Treas, Rick Sneary, 2962 Santa Ana Street, South Gate, California. Dues 50¢ per annum.

Along with the above United States groups, Canada has come in with a phenomenal number of entries which we list below—

**CANADIAN SCIENCE FICTION ASSOCIATION**, A big outfit which embraces loosely a number of other Canadian fanorganizations. Address C. J. Bowie-Reed, National Organizer, Arts & Science Building, McGill University, Montreal 2, Quebec.

**DESERONTO SCIENCE FICTION SOCIETY**. A new organization. Address Secretary William J. Holden, PO Box #21, Deseronto, Ontario.

**FANTASTELLAR ASSOCIATION**. An organization designed to bring together non-group sfans. Address Secretary Alastair Cameron, Deep River, Ontario.

**HALIFAX SCIENCE FICTION SOCIETY**. Young and growing. Write President Bill Rosco, 9 Connaught, Halifax, Nova Scotia, or Sec Treas Alan Haris, 15 Watt Street, Halifax, Nova Scotia.

**LAKEHEAD SCIENCE FICTION SOCIETY**. Open to all fans of the area. Address Membership Secretary Paul Revey, 100 Arnold, Hamilton, Ontario.

**McGILL-MONTREAL SCIENCE FICTION SOCIETY**. President, Bert Joss, 5239 Park Avenue, Montreal 8, Quebec (Tel. CR-8671)—Vice, President, T. E. Buck, 3975 Claude Street, Montreal 19, Quebec—Secretary, M. Diner, 445 Mount Pleasant Avenue, Montreal 6, Quebec (Tel. FI 7556). For all fans in the Montreal area.

**NORTHERN FANTASY LEAGUE**. Another outfit designed for non-organized fans. Address Secretary Leslie A. Crutch, PO Box #121, Parry Sound, Ontario.

**PICTON SCIENCE FICTION SOCIETY**. Small but growing. President, Paul Walton, PO Box #515, Picton, Ontario (Tel. Picton 254), Membership Sec. Bill Gibson, 17 Queen Street West, Picton. Publicity Director, Bill Skitteral, 7 Washburn Street, Picton (Tel. 443J). For fans around and about Picton.

**THAMES SCIENCE FICTION SOCIETY**. President, Sam McCoy, 951 Harrison Avenue, London, Ontario (Tel. Metcalf 2472J), Sec. treas B. C. Stonehill, R.R. #6 (Tel. Fairmont 2332J). Interested in new local fanadditions.

**WINDSOR SCIENCE FICTION SOCIETY**. President, Stewart Metchette, 3551 King Street, Windsor, Ontario (Tel. Windsor 2-1467), Sec. treas, Ken Snookler, 1445 Victoria Avenue, Windsor,

Ontario (Tel, Windsor 3-2994). Belongs to both Canadian and Michigan fanorganizations.

All we can say is—thanks for the turnout. If it proves helpful and there are enough on hand by August fifteenth, we shall run a third fan listing in the December, 1949, issue of our companion magazine, THRILLING WONDER STORIES. It's up to you.

## OUR NEXT ISSUE

**H**ENRY KUTTNER moves once more into the STARTLING STORIES spotlight in the September issue with another of his brilliant science-fantasies, THE PORTAL IN THE PICTURE, a complete novel which recombines certain tried-and-true scientific elements into new and definitely startling patterns.

This time HK's hero is an actor whose chief current aim in life is to escape the unwanted and thoroughly unwanted attentions of an especially meretricious cabaret singer who believes that through him she can further her career.

She crashes his New York apartment and there vanishes—apparently through a very strange picture on the wall which was given our actor friend by an uncle who told him, as a child, half-remembered tales of a strange land with a strange language, the land of Malesco.

This disappearance is enough to put even a Barrymore on the spot—and our lad is no Barrymore either in talent or temperament. Her disappearance raises a hue-and-cry and she was last seen entering his rooms. If he tells the truth to officialdom the best he can hope for is a long stay in the Bellevue booby hatch.

All he can do is go after her through the picture—which he does to find himself in a land of Malesco that is far from mythical. It is a land of an earth which separated from our world tangentially at the time of Caligula, one in which magic is science and science magic.

It is a place of priests and wizards and vast science and even vaster enslavement—a place where his quarry has become a boss glamour girl and where his uncle's memory is as popular with officialdom as is that of Karl Marx at the Union League. It is a world where he must walk in greater danger than that of even the New York Homicide Squad.

It is a world of wonder and beauty and peril and wild enchantment.

In short, it's a wonderful world and THE PORTAL IN THE PICTURE is a wonderful story. We hope you like it one half as much as we did. That should be enough to rate it a classic.

The Hall of Fame for September is a truly memorable novelet—THE HOTHOUSE PLANET by Arthur K. Barnes. This is the story in which the immortal Gerry Carlyle, interplanetary Frank Buck extraordinary put in a first appearance—one of many which delighted THRILLING WONDER STORIES readers for many years in pre-Pearl Harbor days.

Or perhaps we should say Frances Buck extraordinary—for Gerry Carlyle was a woman who inspired wolf calls even from the sort of wolves she put in cages to take back to Terran zoos.

Furthermore, as Tommy Strike, cynical Venus stationmaster, was to find out, she had a way of going after what she wanted, red tape, custom and local planetary protocol notwithstanding. More important, she had the habit of getting what she went after and damn the torpedoes, rotifers, whips or even the elusive murris she was seeking.

HOTHOUSE PLANET is one of the real space epics of the past, one which for its excitement, descriptions and suspense and humor, fully deserves reprinting. And with it will be an assortment of top-flight science fiction short stories, feature material and departments, all as usual or a trifle better. Look well at SS in its September format—it will be worth the effort!

## ETHERGRAMS

**I**N THIS department of our March issue we included a letter by "Anonymous"—in this case a crippled young man who, confined to a wheelchair permanently because of a freak accident in childhood, wished for correspondents but could not, for family reasons, divulge his name.

We suggested that some of you might care to answer his plea via stamped envelopes enclosed for forwarding to ourselves.

All we can say, for Anonymous and ourselves, is thanks. The letters are still coming in a month later and are, of course, still being forwarded. We don't know how many

of you who wrote have heard from him but if all of you have it is our guess that Anonymous must be suffering from an added ailment—writer's cramp. Somehow, we don't think he is minding it at all.

It was a heart-warming response and to the names we are about to list below we wish to add the dozen or more who sent us letters to forward without revealing their own identity.

Those who did—without any sort of order—were:

James A. K. Richards, Natalia Beck, Louise Bergner, Joy Mitchel Blanchard, Jane Boudion, D. Chapman, Doris Duke, David Franklin Hape, Leslie Hudson, Peter Leyva, Tom James, Kenneth Leach, Jeanie Lee, Arthur W. Morgan, Rad Nelson, Marian M. Nielson, Chad Oliver, Frank R. Partridge, Lena B. Eagen, Mrs. Genevieve Hart, Richard F. Hollister, Bob Lindsey, L. Lucas, Jimmy Martin, Hugh Carl Miller III, Victor Pasquale, Prospector Bob, Sam Sackett, Mrs. Patricia C. Sherman, J. Monroe Sullivan, M. C. Taylor, Kathleen A. Thorp, V. J. Vignes, Jane Wheeler, C. P. King, J. Newman, Mrs. Ada Wilkins and Glenn Wright.

You see why we're worried about Anonymous getting writer's cramp—but we repeat, a heart-warming turnout. Thanks and thanks again.

## HALF DOLLAR ON YOUR TUMMY by Russell Harold Woodman MFS

Dear Editor: In the March, 1949, issue of SS, I turned to your review of fan publications and read with interest what you thought of THE PSYCHIC WORLD. "It," you stated, "belongs to the crackpot fringe of the occult." I know how you feel. Two copies of the same issue of that mag reached me and I threw both in the wastebasket, but not until I had first read a copy through to find whatever grain of intellect might lurk in it.

It contained an article on transporting yourself without the accepted vehicles. The idea was to put a half dollar on your tummy when you go to bed and lie there a-staring at it, concentrating on your various organs in a given order and also concentrating on your destination. (In this case, the nut house, I suppose). To those who are sneering at this psychic article already, let me say they don't know as much as they pretend.

A half dollar is a large object and would normally glisten. Staring at a bright object is one of the simplest means of hypnosis. It occurred to me that I had heard about concentrating on the bodily limbs in consecutive order before, and not in any occult mag either. I had read it in a scientific book at the Portland Library which told how psychiatrists handled nervous tension.

That idea was to think about your left leg, your left toes, etc. in turn as hard as you could and abruptly "let go". Many people suffering from amnesia could thus put themselves to sleep easily, efficiently and without the aid of drugs. This useful trick does not seem to deserve your deriding scorn.

Charles Fort recorded the well authenticated case of the schoolteacher who evidently could unconsciously create a duplicate of herself. On one occasion, she was out in the garden picking flowers and children were

horrified to find an exact duplicate of her standing at the blackboard at the same time.

Self hypnotism and genius and teleportation and telepathy and strange comas seem to be related. Mark Twain was noted for sleepwalking as a youth. Oysters, said a recent report, begin to feed when the moon crosses the meridian. Lunar lunatics and firebugs are more active during the full of the moon. *The underlying oneness.*

The layman's idea of Yoga is a man swallowing his tongue. But the rituals are described in FATE, which is a fairly enlightened magazine, and there is a reason for swallowing the tongue. And the explanation of the weird postures Yogis get into is that they are seeking a comfortable position of the body so they may forget about the body and consider the depths of their person. Have you ever noticed the frequent changes of posture people go through at the movies or in bed? I do not deem it insane to think that if we can manage to get away from awareness of our body for a spell we may acquire extraordinary powers of mind.

Is tongue swallowing any madder than the mechanical shaking of dice, I ask? I mention Duke University. The Portland Evening Express ran an editorial on journeying to the moon. It stated that the Palomar lens had brought the moon "to within 24 miles distance of the earth". I understood from Time magazine that the Palomar lens was full of flaws and could not possibly be made to work until next year.

I also understood that it was not a telescope, but merely a giant lens designed for accumulating more light rays. It would therefore be useless, to a great degree, for the investigation of planets or anything so near. It is a camera lens and collects light. To my knowledge it has not been turned upon the moon.

The experts assert the lens, if it was any good in the first place, couldn't be used more than four or five days a year due to perfect weather conditions needed. Whatever remark I may make, cannot be more stupid than that editorial I mentioned.

I will therefore make a few remarks:

1. The man-made satellite, Forrestal recently spoke of as being experimentally developed, operates on the principles that it falls to earth at a slightly slower speed than the earth recedes, and therefore will stay in the sky, always falling, and never hitting. I predict that any such satellite will result in the murder of whoever boards it, since it is my acceptance that the earth is not a planet and is not revolving.

2. The New Dominant, as Fort called it, will come into general acceptance by 1960 after the most hectic era of America's existence. We will, by 1960, be aware that the Law of Gravity is a fraud, for instance. It attempts to explain in terms of attraction only. That Darwin is a fraud—as Fort said, he never explained what he meant by the word "species". That there are other worlds much closer than would the astronomers' cult prefer us to think. That the suns are not what astronomers have been trying to convince us.

3. The newspapers, which first created Science with that capital S, will begin to generally poke fun of scientists, because of the important disclosures to be forthcoming. You recall how the newspapers ribbed Gallup and Roper et al after the Truman revival? Though the real fault was in the newspapers which accepted as gospel and spread around the results of polls. Just so, will they cast scorn on the men of science for not being the heroes they thought them to be.

4. World War III is inevitable if man has only his own restraint to rely on. But if the Flying Typewriter Spools are real, as I suspect they are, then we are safe from atomic destruction. I call them Typewriter Spools because I am more intelligent than the reporters who dubbed them saucers.

Nearly all reports said these objects had what appeared to be a hole in the middle. I have never known a saucer to have such a hole. Even if you drop one, it will break into many bits and no definite hole will appear. But the spools do have holes in the center. I will call them by my term, if you don't mind.

5. That either we people or this earth or both are the Property of something or a whole series of some-things, and that therefore atomic destruction on such a wide scale as the next war would be will not be permitted. We are safe from stupid excesses.

6. The Universe won't have total peace overnight. The other worlds amassed by Charles Fort are not sissified utopias, from what can be learned of them; but rather blood 'n' thunderous places for adventurers. I not only read every ish of TWS and SS, but I pur-

chase two copies of each and send one to an Australian friend who is, sadly, in a country that bans prozines. In SS I enjoyed Bradbury's MARIONETTES, INC. the best, although I knew the gimmick from the second page.

You will excuse the letters after my name, but they signify that I am more aware of my ignorance, and hence more intelligent, than would such conventional letters as an Ph.D. or an Sc.D. They mean I am a member of the Fortean Society. 505 Washington Avenue, Apt. 7, Portland, Maine.

You certainly cover ground, Russell—Lordy! We have no argument with your theory of hypnosis but we *have* read Charles Fort (all of his works) and reached the conclusion that he would be the first to turn upon as idiots anyone who professed any sort of blind belief in the bizarre theories he set forth in his effort to promote skepticism in more generally accepted theories of the cosmos. Fort, of course, had a gusty sense of humor to match his bottomless agnosticism. So we shall leave Fortean belief—along with Newtonian and Aristotelian beliefs—to others like yourself.

When you suggest that tongue swallowing is no madder than dice in a mixmaster, however, we are forced to count ten and think it over. We never cared for tongue at picnics or anywhere else. But a lot of people get more fun out of the galloping dominoes than they do out of the exercise you prescribe.

As for the man-made satellite, we'll have to wait until it murders someone before we reach a decision on that. We'll skip point 2 as a matter of your opinion (to which you are, we suppose, entitled) and go on to your "Flying Typewriter Spools". Apparently you never saw a flat flowerpot with hole in middle. We have. And there are unbreakable plates.

Earth may well be alien property but we suspect our "owners", if any, could very well be tired of their toy and let it wreak whatever destruction it can conceive upon itself. Thanks for writing us and thanks for sending us to Australia. There seems to be a small but very-active and growing fan organization down there.

## HALL OF SHAME

by Frank P. Foster

Dear Ed: Were I gifted enough with pen or pencil to put a blast of vitriolic invective to those poor unenlightened souls who dare deface the name of Hall of Fame—Shame—for who knows, some day therein may appear the name of Stanley G. Weinbaum. It may be that his Black Flame will once more see the light of print and shut up those blithering idiots who rave that this or that is epic.

I have been reading (and pretty steadily too) s-f for some 18 odd years and consider myself a tyro at judg-

ment; not an expert. But if I could presume for a moment (and only a moment) that I were a judge of what is the elite and definitely top drawer; I would nominate three stories and only three. In what magazines they appeared and when I know not nor care. The memory of their thought and beauty have far outlived that small thing of where they were read. And they are: The Black Flame, by Weinbaum; The Green Man; and Microcosmic God; the latter two by writers now forgotten, yes, but the stories—never!

As to the past few editions I thought Against The Fall of Night very good; the Magnus Ridolph stories likewise. Vance has here a very interesting character and I do mean "character". If only he doesn't let him stumble and fall the way so many authors do. Tell Jack not to work him too hard but to save him for only those very special occasions. That way he may be able to preserve his dignity and integrity. "The Black Galaxy" good but "The Sound of Bugles" better. "The Sound of Bugles" better only in that it was more intense and real. The rest very good reading.

When I consider the snags, pitfalls, headaches and the likes you eds sometimes face I think how often times your soul is sore beset with troubles matching those of mine. How nice to meet in some cool spot and drink a toast in sparkling wine to some good day with troubles gone we may pause refreshed to look back on those awful days we became emeshed in tangled threads of Bem's and writers since gosh knows when—if we had it to do all over—we'd do it all over again.

But seriously and in all sincerity you and the other editors in the s-f field have performed your task admirably and we are grateful to you for the entertaining and thought-provoking stories presented. For as man can dream so can he do.—420 W. Moulton St., Pontiac, Illinois.

How nice indeed to meet in some cool spot and drink a toast in sparkling wine. We fear we prefer infinitely viewing through a glass of such lightly to staring at a mint half dollar chicketed upright in our navel and concentrating upon our several corns and calluses.

For your information THE BLACK FLAME, which is too long for HoF reprinting, was published in book form, along with its predecessor, DAWN OF FLAME, last year by Fantasy Press of Reading, Pennsylvania. A brilliant job, we agree. As to the other two works you mention, we can find neither in available files unless THE GREEN MAN OF KILSONA by Festus Pragnell is one. It was so published in book form in London by P. Allan in 1936. Perhaps we can get some reader help on it.

And thanks, thanks, for printing your letter in printer's galley form.

## CONTAGIOUS!

by Myra Williams

Dear Editor: I am in trouble. You see, I caught the very contagious disease of science fiction about six months ago and my family all thinks I should stop exposing myself to such a potent virus.

I have been holding out against them so far but I was wondering if the readers of your two magazines couldn't help me out with some arguments and pointers I haven't thought of.

It all began the day a new friend of mine gave me a "special" story in the November issue of STARTLING STORIES. I can't say I was very impressed by the cover and general appearance of the magazine but, because I was new in school and eager to get along

with my new acquaintances, I settled down to read the story.

At first I didn't particularly care for the setting on "Mars." It reminded me too much of all the corny funny books I had seen about different planets, rocketships, monsters and so on. For while I liked the pictures of strange monsters and curious scenery, the muscular heroes and shapely maids immensely, the plots themselves were sheer corn. I got over even trying to read them.

I suppose I had some of these objections in mind when I sat down to read the designated story, "The Visitor." But, as you can guess, I didn't keep them long. The sheer realism, the nostalgia of this story, swept Earth a million miles away. I was there, in Mars, suffering with Saul Williams. I knew his mood and met Leonard Marks with his strange ability and saw the incredible made credible.

I cried at the end of the story and knew I was crying for mankind somehow. At first I couldn't have told *why*. But as the story grew clearer in my mind, I found myself knowing "the mahogany hall"—"the marble conference table"—"the hunger for earth"—"the bloodrust!"

That story wasn't set on Mars. It is *here*. A contrast between the selfish world that is and the wonderful world that could be if men would cooperate and share fairly. No wonder I cried and have been buying science fiction ever since.

The trouble is that there aren't many stories like this. A lot of them are worse than the funny books if possible. But here I am, stuck with reading them all in hopes I'll find something that good again. And I can't help liking some of the stories at that, especially novels like "The Time Axis" and "The Black Galaxy" though they rate purely as adventure.

So, while my parents admit that Ray Bradbury's stories are literature in every sense of the word, they still don't approve of my reading "fantastic" nonsense. This doesn't mean I'm not free to read it if I choose, but I have always dreamed of being a writer myself someday and they have encouraged me by helping me choose reading material which will help me along.

I know this letter is quite different from those humorous ones you usually print but I was hoping it might provoke some serious discussions on the merits and possible future standing of science fiction as good reading.

Any points anyone would care to present in answer to this letter might help me in upholding the worth of this type of reading. I believe it has a wonderful future myself but am too new to the field to argue well for it. I would also like very much to see some of the high quality of Bradbury's "The Visitor" and "The Listings of stories from other issues that come up to Concrete Mixer" in the April issue of your companion magazine, **THRILLING WONDER STORIES**.

Can anyone help me?—*General Delivery, El Cajon, California.*

Quite seriously and commencing with ourselves, you may well have invited the deluge, Myra. You are right about Bradbury's merit—also about rarity of stories of best Bradbury quality in science fiction. Actually, there are few Bradburys operating anywhere in any sort of fiction—as his having stories selected for the **O. HENRY MEMORIAL AWARDS PRIZE STORIES OF 1947** ("Homecoming"), the **O. HENRY MEMORIAL AWARDS PRIZE STORIES OF 1948** ("Powerhouse"—3rd prize winner), the **BEST AMERICAN SHORT STORIES OF 1948** ("I See You Never") and the **BEST ONE ACT PLAYS OF 1947-48** ("The Meadow") proves. We doubt if any other American writer of short stories can match this record.

In the June, 1948, issue of TWS he had a

story—a novelet, rather—entitled "And the Moon Be Still as Bright," which many of us feel is his best science fiction work to date. You might try to get hold of it.

Apparently your introduction to science fiction was so timed that you just missed Fredric Brown's brilliant featured novel, **WHAT MAD UNIVERSE**, in last September's SS, a very fine piece of work in lighter mood. And Henry Kuttner's magnificent **CALL HIM DEMON**, which appeared under his Keith Hammond pseudonym in TWS some years back, has since been anthologized. And there was HK's **THE DARK WORLD**, an SS lead novel of some years back. And Robert Heinlein's **JERRY IS A MAN** in the October TWS of 1947. The list is barely scratched.

Virtually every lending library across the land is currently well stocked with science fiction and fantasy anthologies, almost all of which contain at least a few stories of some merit. So why not get in and dig? You won't be the loser thereby.

Let no one, however well meaning, steer you away from any type of reading which stirs your imagination. If you intend to be a writer (and we speak both as and for the tribe) you must be forever exercising your imaginative faculties. There is absolutely no compulsion that says literature can only be approached through realism.

Fine writing consists chiefly in putting the reader into the mood you wish to create, whatever that may be. And realistic objectives have, as long as there has been a written word, been approached frequently through the most seemingly circuitous routes.

All too often the reader must be divorced from the world around him before he can see it as it is. That is the entire purpose of allegory and fantasy, both of which range far back in time before man first began to hammer out cuneiform symbols on stones or pieces of baked clay.

A quick glimpse through "The Checklist of Fantastic Literature" reveals such names as Gertrude Atherton, F. Britten Austin, Sir Francis Bacon, Honore de Balzac, Sir J. M. Barrie, Max Beerbohm, Hilaire Belloc, Stephen Vincent Benet, Ambrose Bierce, John Buchan, Bulwer Lytton, Gelett Burgess, Thomas Burke, James Branch Cabell, Karel Capek, Lewis Carroll, G. K. Chesterton, Padraic Colum, Marc Connelly, Clemence Dane, Thomas de Quincey, Charles Dickens,



Conan Doyle, Dumas, Lord Dunsany, John Erskine, Anatole Gautier, Ellen Glasgow, Nathaniel Hawthorne, Lafcadio Hearn, William Dean Howells, Ford Madox Hueffer, Victor Hugo, Aldous Huxley, Huysmans, W. W. Jacobs, Kipling, Andrew Lang, Jack London, Arthur Machen, Don Marquis, John Masefield, A. E. W. Mason, de Maupassant, Andre Maurois, Thomas More, Christopher Morley, Robert Nathan, John Cowper Powys, George Bernard Shaw, Percy B. Shelley, May Sinclair, Thorne Smith, Dr. Olaf Stapledon, James Stephens, Robert Louis Stevenson, Frank R. Stockton, James Thurber, Mark Twain, Jules Verne, Hugh Walpole, H. G. Wells, Edith Wharton, Edward Lucas White, Oscar Wilde, and Philip Wylie.

All of them and thousands of others of high artistic and professional standing have written more or less deeply into fantasy, some into science fiction and been published in book form with their usual bylines on the covers, unabashed. We hope this list is a help, Myra, to you and others in your case.

## IT'S QUITE ALL RIGHT

by George D. Mills

Dear Ed: Pardon the following. I really couldn't help it. A comment on Frances Keysor's verse.

Frances—  
advances.

Her letter  
is better

with verse.  
Not worse.

Thanks for reading it.—*Ridgeway, Illinois.*

*Okay, 'tis read  
go soak your head—  
this from Ye Edde.*

## NOT HOW LONG BUT WHO'S LONG

by James C. Tibbetts

Dear Editor: Remembering the fan who couldn't identify Frank Belknap Long and recalling your query as to the snows of yesteryear, I wonder how many of the fans of today can identify Richard Vaughn and his great "Exile of the Skies"?

Here is an interplanetary epic richly deserving of hard-cover immortality. Welcomed enthusiastically by the readers of its day, it has remained in a limbo of Stif. for too darned many years, in my estimation.

I have written several letters to the fan publishers, but to no avail. There must be a hoodoo in operation somewhere, because if "Exile" isn't a better novel than any of the "Legions" or "Skylarks" I'll emulate one of those well-known hungry critics and eat the paper this is typed on.

"Exile of the Skies" was published serially in *Wonder Stories* back around 1934, in case newcomers would like to read it. I wish those oldtimers who remember it would join me in a crusade to get some fan publisher to see the light.

Speaking of fan publishers, I'd like to toss orchids in the direction of Reading, Pa., the home of Fantasy Press. Eshbach and Company are the "Heritage Club of Fantasy Publishing," in my estimation. Furthermore, they are reasonably accurate in their publication announcements—department in which some other fan publishers are found woefully wanting.

More orchids to the increasingly good quality of the startling lead novels. "Valley of Creation," "What Mad Universe", "Against the Fall of Night" and "The Time Axis" were very, very good.—304 Main St., Parkville, Mo.

We recently received a query about Richard Vaughn and *EXILE OF THE SKIES* from a fantasy publisher—so perhaps your period of waiting is drawing to a close. We hope so and agree with you about the work in question.

## SWEET (?) THIRTEEN

by Douglas Menville

Dear Editor: I am 13 years old and I have been reading stf mags for three years, but this is the first time I have gotten up enough courage to write to you. (Who cares?)

SS and TWS are still in my humble opinion the two best stf mags on the newsstands, but the last issue of SS slipped at bit. I am referring to *The Black Galaxy* by Murray Leinster. It was okay in spots, but as a whole it was very boring. I was very much disappointed in this story after *The Laws of Chance* and *The Man in the Iron Cap*.

The only other good stories in the Mar. ish were *The Sound of Bugles* by Robert Moore Williams and *The Howling Bounders* by Jack Vance. I love Magnus Ridolph! Keep up the good work, Jack!

Gtyuhfklkzzydvwqnxlpioaedzqz to all the other stories in the ish except *The Loot of Time* by Clifford D. Simak. It was fair. I am definitely in favor of the HOF.

I like Bergey's covers, but for ghudness sakes, whatever happened to the BEMs? Bring 'em back, pleeceez! I love Finlay's pics and *The Ether Vibrates*, so this about winds up my wittle wetter. (A sigh of relief is heard.)—2003 Cloverdale Avenue, Baton Rouge, Louisiana.

Okay, wittle wetter. And a couple of leeks to you for disliking the Leinster.

## READER'S PROGRESS

by Mrs. Dorothea M. Faulkner

Dear Editor: The other day I was in our local drug store, loading up with my quota of stf magazines and I noticed a number of kids sprawled on the floor, reading the comics. Says I to the clerk, "Those are wonderful textbooks for anyone who is studying to be a moron. Wonder how those kids will turn out."

Clerk to me—"They will grow up to read that stuff you are buying." As Archie said—touché.

My point is that the guy was judging the magazines from the covers. Why, so lurid? Who would look for Willy Ley behind a cover by Bergey?

My idea of good artwork for an stf magazine is Bonesstell's astronomical drawings for the "Green Hills of Earth" in the *Satevpost*. *That* was artwork!

Some of the stf writers have really grown up. My choice of the whole bunch is Robert Heinlein. He is by far the most factual. You seem to feel that he is remembering things from the past instead of anticipating the future. Also, he indulges in no fantasy—no BEMs—no bad-tempered but luscious princesses etc., etc.—no he-and-she stuff either. He is as realistic as O. Henry.

Next, in my estimation, comes Ray Bradbury. Some of his stories are little gems of color, philosophy and heart-breaking apprehension for the future.

I don't care for Smith—he is a galactic nightmare.

And Shaver—he stinks. Murray Leinster I like—remember “Power Planet?”—funny that idea of a satellite planet coming up in the newspaper about now.

I have been reading science fiction for years and years. My grandfather used to take the old Stand—that London magazine—and I read Wells’ fantastic novels in serial form when I was nine or ten years old. Also I found some paperbacks hidden behind the other books in our own library—one called “A Woman from Mars” and another “Caesar’s Column”—a story of the future—1949 to be exact—in which the US was governed by a brutal labor oligarchy. Prophetic? I hope not, God knows!

Then I worked my way through Jules Verne and Rider Haggard, of course. There were several years off while I raised my family on a small budget that didn’t run to books. Now I am an old lady—sixty next months—with ten grandchildren and I really have gone for stf. Living in the day after tomorrow takes my mind off being old and nearly broke today.

I’m extremely interested in rocket planes and, anticipating space travel, have taken a student membership in the American Rocket Society and have access to a technical library of the Aerojet Corp. near here through a young friend, so I have plenty to feed my mind on. My other aim is to get stf stories on the radio—I’ve badgered every station in Los Angeles to do this.

I wouldn’t miss either SS or TWS for anything although I don’t like all the stories. What I consider boring other readers praise highly, so what the dickens! I think you do a wonderful all-around job. I live all alone, so my books are my real companions and I do appreciate the Book Review you publish—I’ve ordered the new Heinlein—through the Book of the Month Club by the way. I had them send me a whole list of all the available stf books and have bought several of the better ones.

I don’t expect you to print this letter—it might not be interesting to the kids who seem to run that department. But I just wanted you to know some of us older folk like you too.—164 Geneva Place, Covina, California.

What can we say to a letter like that?—except thanks, Mrs. Faulkner, thanks a lot. And please write us another soon.

## PAX VOBISCUM

by Rick Sneary

Dear Ed:—Well the time has come. Yes it has. Sneary, the mastermind of the miss-spelled word and all assorted names is rasing his tent and like a Martion sand hound, slipping off into the dark. I follow such emortals as Kennedy, Perry, Clements, Shaw, and others. I return this once only to wave fairwell and give you the adds for the clubs I’m interested in.

I leave with a lump in my thought. Sad is the day, but it must be. I’m simply over worked. Tomany letters to answer. No time for anything else. I can’t read or go out or improve my mind. And SS and TWS are to blame. They have brought me letters from so many interesting people, that they have sealed there own doom. For not only must I stop writing you to keep from gaining other frinds, but I must drope about thirty of thos I do have. Oh I weep. It is like pulling out teeth.

But as President of F.A.P.A., Chairman of the Board of Directors of the N.F.F.F., and Sec-Tres. of Young Fandom, not to mention unofficial Welcomer of the Outlander Society, I just haven’t the time for anyone more.

So Editor old friend, no more will you and your type-setters weep over my spelling, or your readers like Ranyun have to wade through them.

I’ll come back, some day. Maybe at the end of the year I’ll write “well done” on your editorial desk again. Farwell old friend. Parting is such sweet sorry, let us nearly say as our Southeran neighbors A Dios amigo.—2962 Santa Ana st., South Gate, Calif.

We’ll miss you, Rick, but it certainly looks as if you were going to be a busy little bee. Ave et vale and luck to you in your multifarious scientificfictional activities.

## STRAIGHT CRITIQUE

by Chad Oliver

Dear Editor: I think that stfantasy is a dire disease of sorts. I know that I should neither read *Startling Stories* nor write letters to the editor during the weeks of final exams and here I am doing both. What’s to become of me? Is there no way out? Alas—and likewise alack! The fates are cruel.

The March SS contained some good stuff, per usual, although the average was not, it seemed to me, as high as it has been of late. The best yarn was *The Magnificent Failure* by “Rene LaFayette”—why the pen-name, I wonder? Ah well—tis of no consequence. Under any name, the man spins a good yarn. Ray Bradbury, my personal idol, for once will have to be content with second place. *Marionettes, Inc.*, was quite enjoyable but a long, long way from what Bradbury is capable of, methinks. The story did not seem to be well developed. Still—hokay.

Simak’s *The Loot of Time* was a good choice for the reprint tale and Williams’ *The Sound of Bugles* had some nice ideas in it, though they were not handled as well as in the same author’s memorable *The Seekers* back in May. *Turnover Time*, by Loomis, was acceptable, and Vance’s *The Howling Bounders* was interesting and by far the best of the Magnus Ridolph things—a dubious compliment. Leinster’s novel was smooth and readable and utterly trivial.

I find myself in complete agreement with the editorial in TEV. I think that Huxley’s *Brave New World* should be required reading of all science fiction authors. A perfectly regulated, emotionless, “scientific” Utopia would, I believe, be a lot closer to hell than to heaven. This is not to ridicule the progress made by true scientists, or to suggest that we should not look at ourselves objectively occasionally. By no means.

I suppose that a really great scientist, one who understood a bit about laughter and love and dreams as well as chemistry, could map out as good a future as anyone, aside from the fact that the future can never be made to conform to an exact plan, thank Ghu. But to put ourselves in the hands of those grubby individuals who run two-legged rats through mazes and draw sweeping conclusions from that about human behavior—no thanks, in spades.

The cover was by... what’s his name, now? Oh yes—Bergey. Earle Bergey. Is he a new man? Perhaps that explains it. Interior pix remain as competent as ever. Is there any chance of snaring Hannes Bok for the art staff? His work lends a touch of the unusual to any magazine.

I enjoyed the book reviews and Ley’s article is informative though not so well written as some of his works. His recent book, *The Lungfish, the Dodo and the Unicorn* is really superb. The letter department remains quite fascinating and I hope that “Anonymous” gets deluged with mail. He deserves it. I fear that Mrs. Eddy’s stary-eyed remarks about Lovecraft are beginning to verge on the hilarious, much as I admire HPL. Really, now. Runyan gave me a few unintended chuckles, too. Chad Oliver is doubtless insane, so perhaps we had best be lenient towards him.—2400 Tower Drive, Austin, Texas.

Perhaps, Chad, by this time you have learned that there is small profit in cramming for exams. You either know the stuff or you don’t and there’s no use cluttering up the fevered cerebrum with a lot of last-minute data. This in mild reproof lest you allow studies to interfere with your stfactivities.

When cometh another MOON PUDDLE?

## FIRST LETTER

by Evelyn Catoe

Dear Editor: I’ve been reading SS for over two years now and this is the first letter I’ve ever written you (or anyone) about anything. I am not going to offer criticism of your mag because I don’t think I could pass around snappy enough chatter. All I want

to say is—please, couldn't you make **SS** a little bigger, say around 150 pages more. That I *would* like.—323 Powers Street, New Brunswick, New Jersey.

You mightn't be able to lift it, Evelyn.

## GEORGIA, GEORGIA by Georgia Barthelomew

Dear Ed: I opened **SS** to the good old **TEV** and, sure enough, there was my letter. So here I am, back again. You brought it on yourself.

The March ish was very good. **THE BLACK GALAXY** by Murray Leinster took first honors, of course. I couldn't lay it down until I had finished it. In the No. 2 position is **THE SOUND OF BUGLES** by Robert Moore Williams. It has a good twist to an old idea. In No. 3 place is **MARIONETTES, INC.**, by Bradbury. This is much better than his last effort. Keep up the good work, Ray.

No. 4 is **THE HOWLING BOUNDERS** by Jack Vance. This was good but not up to the rating of **THE SUB-STANDARD SARDINES**. No. 5 is **THE MAGNIFICENT FAILURE** by Rene LaFayette. Just fair. No. 6, **THE LOOT OF TIME** by Clifford D. Simak. I hate to put the **HoF** down so low but this just didn't seem to strike the bell. No. 7, **TURNOVER TIME** by Noel Loomis, alas and alack,—doesn't Loomis like us anymore?

All of the inside pics were good. Taking everything into consideration it was a superb ish.—745 Haight Street #9, San Francisco, California.

We think you're cute too, Georgia.

## WE'RE IMPOSSIBLE by Aubrey Carruth Jr.

Dear Editor: To pick up one issue of **SS** today and say it's better than the last one, is impossible. Lately I find that to be true everytime I purchase the mag. It certainly has improved within the past year or so.

All your advance rave notices about the March '49 **SS** and **The Black Galaxy** were justified. Leinster has done good work in the past but this is one of his best. Too much implied science, possibly, it nevertheless proved to be an interesting and very exciting novel. Leinster really knows how to handle this alien civilization and culture theme.

I have recently noticed your policy of including non-fiction features in the format. Although it has come in for some criticism I believe it is good procedure for **SS** and **T.W.S.** Why not have non-fiction articles to supplement our other stories? This is true especially since such articles are of the quality of "The Road to Space Travel" written by no less than a recognized authority in the field—Willy Ley. More Please!

The **HoF** this month, "The Loot of Time" by Simak is the average **HoF**er. When it was written it was great, the best of its time. Now it can only be rated average to good **SF**. This proves one thing. The quality of **SF** has increased. The smooth clean style of writing for which our recent magazine is noted is missing in the Simak tale and in a majority of the other **HoF** stories. This improvement might be termed an omen.

It seems that **SF** has taken the same course as the history of detective fiction. It (detective fiction) progressed slowly from its crude beginnings until now where it is truly in the popular fiction field. **SF** seems to be headed in the same direction. Well we can all hope anyway. However all this does not mean that I personally am against your printing the **HoF**. It means just the opposite. It can regularly show us the improvement we have made during the years...and also the improvements we have not made.

The **TEV** as usual was good, especially the Palmer, Oliver and Sneary missives. This remains the most interesting section of the mag. I don't know what new fans (or old) would do without it. The truth is I became interested in **SF** by reading the **TEV**.

Well, well another Bradbury short. Tell me Ed—does he have a phobia against novels and novelets? Marionettes, Inc., was a quaint little idea packed with surprise after surprise to say the least. However the

"Howling Bounders" was the best of the shorts. I'm kinda partial to Vance's **Ridolph** series.

All in all the mag was only slightly terrific. You're not giving us fans much to squawk about lately. Even the snickering Sneary is purring like a kitten.—307 East 89th St., New York 28, N. Y.

You bring up a point about the Hall of Fame that we have all along felt to be true. Regardless of the merit of the reprint story, it does provide a checking point for modern readers to judge **stf** progress. You should see the general run of stuff we have to wade through to come up with even such good yarns as we do. It is to be appalled!

## COME AND GET IT by Dwight Augustine

Dear Co-ordinator of Brain-Waves: This is the first time I have written to you, I believe. I love—not like—your magazine. I am a naif (I believe that is your word for it) creature who is a bit out of place in the atmosphere of witty sarcasm which dominates **TEV**. The boys and girls throw intellectual paperwads at each other and have a grand time, and I enjoy it too—but as for getting in the arena myself, I don't know. My heart wouldn't be in a genuine socko... They call each other dopes and drips, and you call it right back at 'em, but I have never read a real moron's letter in **SS**. If they were morons they wouldn't read it in the first place.

I think all the fuss and potheer about what constitutes fantasy and **stf**, and which is better, Merritt or Kuttner, a harmless hobby which helps the darlings let off steam which otherwise might be used in being really mean to people and themselves.

Deep in their hearts they know they like Bergey's purty bright covers. Personally, I get pleasure out of seeing my **SS**'s gleaming vibrantly among the more subdued periodicals. At the twilight hour, between the dark and the daylight, they save on electricity by lighting up the room with a mysterious glow. And how oft are the jaundiced eyes of my insurance-collector gladdened by a glimpse of pulsating, startling life depicted on said covers.

I especially like your editorials. But your snappy replies to **TEV** writers fills me with sweet dread lest I, perchance, may become the recipient of a like retort should I, too, drift into the habit of writing to you.

I thoroughly agree with you that an "aseptic" civilization would be a nightmare; stories picturing such a desexualized, controlled existence are to me horrible. Life in a good old present-day penitentiary would be preferable. Before such a state of things comes to pass, may the last trace of consciousness be wiped from my soul, and may I never reincarnate!

But I don't think life will ever get too sterile, man being what he is, as you pointed out. He is by nature a rebel. Squeeze him in one area and he busts out in another. For which I, too, face the east with you and bump my forehead vigorously.

The biggest killer is not heart disease or cancer—it's monotony. When life gets too boring to a sentient creature it dies. I may not know it is planning to end it all and unconsciously working toward its own death, but that's it. Actually, it is not a wish for annihilation, but for freedom.

That is why Nature has fixed it so that we can sleep part of our lifetime, so as to be free periodically of at least some of the outer compulsions and restrictions. Sleep, the imitator of death—that which unlocks the cage of the individual will! But man will find a way to live fully rather than die. This I firmly believe.

But, I submit, before such a de-personalizing of humanity could take place, as envisioned by our most rabid test-tube Utopian writers, there would be one of two alternatives—either there would be no humanity left, except the tag-ends, the extremely docile, who would be partly in a trance, anyway—the bulk of humanity having escaped via the one exit left, death, faster than the scientific overlords could pump life-span increasing stuff into its veins.

Or—and this is more likely; dictators and dictating

would be put in their places—out. Law would reign, but law giving scope to the lovable differences in men. There have been numerous instances of animal mass suicide, but I don't believe man is that unstable and helpless, in the main.

I liked THE SOUND OF BUGLES and THE LOOT OF TIME, also THE MAGNIFICENT FAILURE. Jack Vance's Magnus Ridolph tales are good and Leinster was successful with THE BLACK GALAXY. TURNOVER TIME was good stf.

Publish as many of Bradbury's stories as you can. As far as I'm concerned, he's at the top. His MARIONETTES, INC., had his usual original, uncanny twist.

Also publish as many of Rick Sneary's letters as possible. The guy is an Intelligence, and his spelling, whether calculated or not, is a work of art.—P.O. Box 545, Lima, Ohio.

Well, you already know the worst about Sneary, Dwight. But perhaps your ululations will bring him back to the land of the living from within whatever unearthly carapace he has curled up to dream his dreams.

So you don't like boredom. Neither do we and therefore we shall cut this response to your tender missive short as of now. Salud!

## ONE WOODEN NICKEL

by Peter Leyva

Dear Editor: Bravo! Huzzah! and give a good substantial cheer for composing such an excellent editorial as the one with which you drum majored the ensuing parade of "T.E.V." epistles in the STARTLING, March, 1949, issue! Why, time was when I used to conform to the naive policy of actually reading the stories first!

And then—as others before me have admitted—I found the letter departments of both S.S. and T.W.S. so interesting that I turned to and drooled over those singular sections first. But once again the old order hath changed! It is thy clever and well thought out editorials that occupy my first attention and close scrutiny now.

Your editorial condemnation of any futureword "aseptic civilization" (to quote your own words) was truly a gem of careful thought and justified logic. (Before any one jumps on me, "justified logic" is but word coinage of my own.)

I am with you, sir, against a one hundred percent efficiency world of the future, completely controlled by slide rule scientists and dedicated to the proposition that all men are born equine, and—like the horse—must needs be brushed, curried and groomed, bred and crossbred if they would attain the perfection or near perfection of a human Citation.

Fortunately, however, at least 99 and 44/100 percent of the scientists themselves would be against the inevitable mental and physical barrenness of genus Homo, which would certainly be Homo's sad lot should such a "perfect" ant world prevailed. No indeed, the scientists would be the last to subscribe to such a foolish and unattainable pseudo-Utopian concept. Rather is it those fanatical "scientific" short cut artists who would make a religion out of materialistic perfection, reduce man to a mathematical equation and pour Clorox on his emotions.

And—as you so admirably pointed out in the editorial—they would waste nothing and they would see to it that nothing would be wasted. No indeed, they would waste nothing—except the whole human race!

I chuckled delightedly at your tabbing of these so foolish messieurs' world of non-wastefulness as a "dream-world for garbage men," to again quote from your editorial. Yak! Most elegantly put, sir. I salaam thrice before thy witty erudition. Quite an "homme d'esprit," aintcha?

Ha! I note your statement that these misguided ones would even do away with sex!!! And replace it with trisection! Hmmm...I never saw or heard of a trisection yet that could fry an egg, murmur sweet nothings in one's ear or slide into Void base!

Don't these El Stupidos know that sex like death, taxes and Bergey's covers (coises) are here to stay? Methinks a "civilization" of robots would be an ironic ultimate destiny for man, indeed. Why, I can hear

the ants clicking their mandibles together in glee right now.

It seems that some of the lads and authors are taking old King Solomon's advice to "go to the ant" too seriously. True, the ant's busy industry is worthy of one's admiration (if it is "industry"—for of late, scientists seem to think that it is not industry at all, but merely an inherent and unthinking instinct) but his form of government, his way of life—phooey!!!—who wants to live in a fornicarium?

But I guess we have little to fear in the possibility of such a drab future coming to pass (although I admit that the subject is of import enough to editorialize upon)—eh, amigos? Thank the Lord, there are too many swashbuckling and freethinking rebels among the tribe to swallow the ersatz pills of such perfectionist medicine men. There is more to perfection than perfection itself. Happiness, contentment, peace of mind, and living harmoniously with one's neighbors (though always carrying a big stick, mind you) are what we humans, with the aid of our more broad minded scientists, must continually seek for if we really wish to accomplish anything.

Before I am accused of sermonizing I had better drop the subject—but not without one last, "Vival!" for your splendid editorial—and one last challenging battle cry to the Opposition, "Down with the Trisectionists and the Ersatz Artists!!!"

There, I've said it and I'm glad! If any one wants to debate the point further in epistolary combat (either pro or con) I shall be most happy to do so. If this letter sees print, the address is below.

And now on to other subjects: Honorable redactor and noble friends, I regret to say that I have not as yet read the March issue's complement of interesting looking stories, so I obviously can offer no profound pro or con criticisms. Yeah, I know. Who cares?

Mighty pleased and glad to see that Ray Bradbury man in again. Unlike a certain oatmeal product, Ray may not be the "giant of the serials," but he certainly is on the shorts. I like the good, solid articles you've been featuring in both mags lately. I hope you intend to keep 'em.

Comments on the art work: The cover? Hmmm... Typical Bergey. The gal's space suit? Lots of space. Little of suit. The hero? Know just how he feels. Burned toast can be a pesky proposition... Inside art work: Okay, especially Napoli's scientific diagram on page 125. I never majored in biology but I am a keen and appreciative student of the subject. Men, I am now converted into a pro-Napoli fan, whereas before Finlay, Lawrence, and Bok were my favorites. Lay off Napoli, youse guys!

As for T.E.V., 'twas entertaining, educational, and wit-sparkling as per usual for which thank Ugh! (Chu took an overdose of Serutan lately.)—210 Pacific Avenue, Atlantic City, New Jersey.

Careful, Peter, or you'll wind up by believing what you write! Cave uncannem

## NO EDITOR!

by Joseph R. Rhoden Jr.

Dear ??????: This month I have come to the conclusion that SS is Startling indeed; NO EDITOR!

Wadda' I mean? Well, it says in the March issue that there is no editor...if there is no editor who puts the mag to bed? 'Course I could guess... Probably those BEMs on the covers, tho at times I'm inclined to think that maybe you hired Dracula and don't want your readers to know about it.

HoF usually would make even Dracula blanch. Why in (censored) don't you let the readers decide what should go into it? LOOT OF TIME wasn't as bad as HoF usually is, but I think that you *could* have picked a better one.

THE HOWLING BOUNDERS was pretty good, much better than that fishy incounter with the quasi-intelligent sardines. M. Ridolph is usually good, but dead sardines smell just as bad as any other kind of fish in a similar condition.

MARIONETTES, INC., was the best story of the issue. Why can't you get every issue filled with this type of story, instead of the trash you usually print? I'll admit, however, that your stories *are* better than those I get in certain other magazines.

THE BLACK GALAXY, was fair. Ditto the others, tho THE SOUND OF BUGLES and TURNOVER TIME are slightly above the rest.

NOW, on to the vibrations!

Some of your readers don't seem to like Bergey... I don't blame them, but in fairness to Bergey, I'll have to admit that HE has done some pretty good covers. However this last one is really terrible... I have no objections to "un-draped" gals (in fact prefer 'em that way), but why such homely ones? Incidentally, I LIKED that multi-eyed BEM that you had so many kicks about, tell Bergey that if he wants my praises EVERY issue all he has to do is do some more BEMs like that one.

Also where did Barbara Ann Lahn get a BESM from? I always thought that it was BEM. Or was it a typographical error?

So, Startling...  
Startling does not rhyme;  
Unless I have,  
Quite a bit more time.

I have none...  
My time has sped;  
And I should be  
Getting ready for bed.

Guess I'll sign off for now...—1244 North Dearborn Street, Chicago, Illinois.

So, Joseph...  
If it's all the same  
To you, the ed  
Still has no name.

So off to bed  
And sleep upon  
The fact ye ed  
Remains anon.

Guess we'll sign off too on this one at any rate.

## WESTPHALIAN, NO DOUBT

by Marion Hamm

Dear Editor: I have been reading your magazine for a long time—about six years. My father reads it, then passes it on to my sister and me. We all enjoy it very much. I have just finished reading the March issue. All but one of the stories were good—I thought. And that was okay except for the ending. The story in question was THE MAGNIFICENT FAILURE.

Of course, I don't pretend to be an expert on fiction—or anything else for that matter.—White Hall, Maryland.

You may have a few arguments on your hands about FAILURE. A lot of others seemed to go for it. But *chacun a son gout* or Around the World in Eighty Days, we always say.

## AH—A BERGEY LOVER!

by Lorin C. Cross

Dear Editor: Having just finished reading "The Sound of Bugles," by Robert Moore Williams, I thought that it might be well and appropriate that I add a good word to a good magazine. It is a story that I call very good. I don't go higher. Occasionally a story will stick with me through the years and I think that this is one. There are others, quite numerous, that I'll never forget.

I like your word "epexegesis" and while on the subject of women, I'd like to pick at a sore spot. Although I do like gu-u-rr-ris, y'know, there is a time

and place for everything. And I don't buy the book for the flashy, flamboyant, and, ah, yes, voluptuous, cover-adorning Bergey females. I like Bergey, but—!

I have read Startling for many years. I like the escape angle to StF. My feet itch and I have wanderlust. I like your book, but I liked the pre-war (circa '38) much better. Today it's mostly pure adventure, but then they gave you something to sink your teeth in.

AND, then again, today some goofs (or gooves) buy your magazine for T.E.V. TEV is good, but all some people are worried about is whether or not they got into print this month. Do you *have* to have goons like that kid Wigodski, and that dreary Sneary clutter up your book every month? Or are they just space fillers? Occasionally is fine, but after all, you can ride a good horse to death.—Coffeyville, Kansas.

Ah—those covers! And those gooves!

## BETTER BREEDING SOC.

by R. C. Young

Dear Sir: Your article in the March issue on human breeding interests me. You are of course right, when you say that it is virtually impossible to breed any strain good or bad but of the race. And when you say that there is no proof that Citation is any faster than some ancient wild horse. These facts I can not dispute. However, I would be interested to know what kind of logic you use to infer from these facts that therefore all breeding can accomplish no purpose.

As an illustration of where this kind of logic will lead you, let me ask you, "Do you advocate we abolish all criminal laws simply because they do not stop crime entirely?"

But to return to the subject of breeding, while there will be of course always a possibility that a child will be born in the moron classification, don't you think that the human race as a whole will benefit if there is a very small possibility, instead of a very large possibility? Let me ask you also, don't you think the world would be a better place to live if the population were composed of 90% persons with an I.Q. of 140, and 10% with 80, than the converse?

I am also curious to know whether or not you exist? I find editorials signed "The Editor," yet on the same page, in the statement of ownership, your magazine states there is no editor?—2644 Dwight Way, Berkeley, California.

You may address us as the Flying Dutchman if you wish, Mr. Young—or do your more intimate friends call you R. C.? Seriously, the editors of this magazine prefer to remain anonymous.

As for your queries—we gave up all thinking on the subject shortly after the editorial which bothered you went to press. It was then that we read a magazine article which proved conclusively that morons get along better and make far better citizens than those with a higher I.Q. Blame us?

## WASTE SPACE

by Louis King

Dear Ed: For a dozen years, more or less, I have been happily ingesting SF in all its diverse forms, from Flash Gordon to van Vogt's semantic supermen. Your two publications, TWS and SS, are among the top three mags on my list, and lately SS has printed some of the best stuff to be found anywhere in the field. YOY did you have to spoil it all with the March issue?

To begin with, the highly damned covers of Bergey usually please me, if only because of the shapely blondes ordinarily found thereon. This time, however, I found no such solace. The fireman's daughter with the brassy brassiere and knobby knees can't seem to

decide whether to laugh at the silly way that Rod is roaring his elbow or cry at the high bill running up on that gas pump in the corner. Don't be surprised, Ed, if all the fans in fandom vent their spleen (or is it bile?) on you for that one.

The space you wasted on *Black Galaxy* could have been used for that promised Bradbury novel—or is the guy too happy with his short stories? Anyway, BG left me with a bad taste in my mouth and I'm surprised that the author of *First Contact* could turn out such a dull lemon.

For a change, the HOF selection was enjoyable; maybe because of the good old two-gun action. And Vance scored a hit with the *Howling Bounders*, but it was a little cold blooded, *n'est-ce pas?* Since Bradbury is my favorite author, I'll spare him this time, but please, no more like *Marionettes, Inc.*, huh, Ray?

*Magnificent Failure* was aptly titled. Pure corn from start to finish. I don't like to be mean (not much), but how about dropping the series?

Willy Ley is always interesting and I'm looking forward to his next article. Did he ever write any fiction? With his background, he should be able to do a darn good space yarn.

Don't be frightened by all the criticism, Ed. I'll still buy the May issue, especially if you print this letter (or is it the July issue?); in that case I'll buy two copies—one to send to all of my friends and one to hold and cherish forever.—1608 Jenny Lind Street, McKeesport, Pennsylvania.

You must have as many friends as a defaulting bookie if one copy takes care of all of them, Lou. Give him (or her) our very best.

## BEAUTY-SEEKER

by Jack Marsh

Dear Mr. Vibrates: I am a fan. Just a fan. That's all. But I think that I have some opinions of science-fiction that other fans do not.

First, I read science-fiction for the beauty in it. I can forget the endless chain of worries around me when I read stf. I have lived a hundred and more adventures with the characters in stf stories. I have traveled to all corners of this vast gulf called the Universe and thrilled to a million dangers. I have seen the glories and the infinity through the eyes of magically spun words.

At night, after all is dark, then am I free to answer the call of the void. I have dreamed of floating upward and into breathtaking splendor. I have felt an ancient war song boil up inside of my pounding heart and scream to be let free to flow and roll and echo over countless light years of space. To be heard by the ears of those who live full lives of beauty, danger, and adventure.

And there is always an awful, crushing sorrow that is nearly pain in my mind after I have returned to this ugly, scarred, mean reality.

Ray Bradbury is a master. Also are Edmond Hamilton, Henry Kuttner, Hannes Bok, and Murray Leinster. The artists...oh, how puny are the marks of pen and ink. A single artist has the thing that creates more beauty for the stories. Only one. He is Virgil Finlay.

Lovecraft had a way of expressing the tragic emotions I feel while away from thing called science-fiction. Fiction the tales may be, but to me they are the only realities in existence.

I hope you wont say that I am mad.

But forgetting the serious side of it for a few moments, I will raise a fuss:

Why are you afraid to reveal your name? I called you Mr. Vibrates because you don't let us fans know your handle.—505 Vine St., Jonesboro, Ark.

*What editor can hold a candle  
To one who won't reveal his handle?  
So stf sends you to space  
Where mundane cares you can outrace.  
It seems a pity, when all's said,  
That you return to pain in head.*

*The single flaw in science fiction  
Is voids, voids, voids with spurious diction.*

## BLAH AND PHOOEY!

by Adele Worthen

Dear Sir: How to begin? Blah and phooey to W. P. Meyer. He got me all flustered. Now I'll never be able to write a fan letter without at least nine of his sixteen points coming to mind. Or should I flatter him by admitting it? Quite obviously this letter is just the sort he's anticipating. But then, I always like to do the obvious thing. It fools people sometimes. Still, in all fairness, those points had a lot more truth in them than is strictly necessary. Lots of people are going to squirm, mentally and otherwise.

You can lay the blame for this letter at Mr. "Woof" Temple's door. He dood the dirty deed. I mean, his remarks about a warped Bradbury. I don't disagree with him, assuredly not. From my first Bradbury story—I've had a feeling that he entertained certain animosity against the feminine gender. Glad to find someone who shares my opinion.

But just you guess what stories I read first on opening your magazine—right, Bradbury's stories! They fascinate me, whether morbidly or otherwise. I'm not sure. I think if you'll read back issues, you'll find that the femmes seem to accept Bradbury's stories with open arms and without much criticism, while the fans (male) are more inclined to question and analyse, not only his stories but his psychological viewpoint. There's a pretty phenomenon for your amateur psychologists!

Bradbury's stories are aimed and not too pleasantly at us females, yet we cry for more—masochists? Or have we a sneaking feeling that he might be right and don't mind his barbs because we can tell ourselves it's fiction and fantasy and laugh it off as such. Pretty, pretty problem!

Oh, dear editor, did I laugh! In the February TWS on page 73, in Bradbury's story, did you see the error, typographical, I'm sure. Quote—"When the rackets landed they almost crashed." Crashing rackets? Himmmm—sounds like a bunch of frustrated tennis players. As forsooth the toothless soothsayer said, "Too long."—1063 Porter Road, Grand Blanc, Michigan.

Pick on somebody your size—but there is something intriguing in the idea of a racquetship at that, Adele. As for Bradbury's views on women—he just became a more or less proud husband.

## RAY FOR RAY!

by Sylvester Brown Jr.

Dear Editor: I was gratified to see my letter in print, but I hadn't realized it was so long! Don't know whether the word scholarly is applicable to the letter or not, but least my college profs say it should be applicable to me by now. Hope to graduate this spring and will then be on my way to Los Angeles and a chemist's job—I hope! Know of any out there?

Well, enough of soap opera. The March issue wasn't sensational, but it was good solid stuff all the way through and well worth the 25¢. Of course, some exquisite illustrations by that Master of Muses, Stevens, were almost totally ruined by the paper used in the front 2/3 of the magazine. It just won't take solid black. If you can use a better grade of paper throughout TWS that does take black, there seems to me no reason why this paper can't also be used throughout in SS. Again, I suppose it is nothing you can control.

One must give Ray Bradbury top honors in this issue, even though his story is the shortest. The kick was slightly watered down by the illustration—the second kick wasn't, however! How is that man able to come up with more variants than all the rest of the current crop of writers put together? A novel by him, I imagine, would be just about out of this world!

*Magnificent Failure* takes second place: nothing startling but very fine writing. Leinster's novel is thus relegated to third place. After its predecessor in the January issue, I expected it to place last. For-

tunately this story is very good, although Cantrell remains somewhat of a supercilious jerk right up to the end.

The basic idea of an unfinished and ill-equipped spaceship defeating a millenia old culture is somewhat far-fetched, but I'll let that go in deference to the general overall development of the premise, which was very adequate. Nevertheless, I could do with less stories having a 'little tin god' as the central character. Leinster is an old hand in the writing trade; he can give us a more convincing hero than that.

The other four stories all rated B+—very good. Each one had something to recommend it. As I said, nothing really exceptional, but everything much more than satisfactory. Can't ask for too much more than that.

Willy Ley is my favorite non-fiction writer and can be depended upon to make even the oldest facts interesting...TEV was fine as usual. I should like to ask Chad Oliver if he can go through the enlarged SS from cover to cover—including TEV—in four hours. I was surprised at your comment to Mr. Sackett's suggestions for Popular Library titles when you omitted Leinster's *De Profundis* which I understood to be one of your favorites.

The issue was marred by one thing. I imagine you know what it is. After several good covers, Bergey is again backsliding.

By the way, inclusion of epexegetis was to see how you'd throw it around. You threw it allright!—65 Gordon Street, Allston, Massachusetts.

Or maybe it threw us—the issue is still in doubt. Paper is virtually beyond anyone's control (or is it Cantrell?) these days. We omitted *DE PROFUNDIS* because we were thinking of Leinster's longer titles for anthropological purposes. Hope you find that chemist's job okay. Let us know.

## COLES IN OUR HEAD

by Les & Es Cole

Dear Sir: We are decidedly discouraged. Our respective mouths, eye-crinkles, etc., are definitely negatively arcuate. And why? Well, we turned out a neat little statement so full of holes we blushed while writing it. At the time we thought we had definitely started a controversy—any small controversy would do—and all we got was a polite little note from Ken Slater. Why so polite, Ken? In the old days a fan would start, "Now, you hydrocephalic *Archeornis*—", and the feud would be on.

We would like to point out to you, Sir Editor, that we feel that the TEV is most surely on the downgrade. Most of the printed letters have a nauseatingly milquetoast cast which is beginning to pall. We wonder about the Editor who has to read the coprolitic effects of the Eddys, Connors, Zimmers *et al*, and, because of his economic position, then he has to comment on and print the aforementioned. Oh, Carl H. Anderson, *wo bist du?*

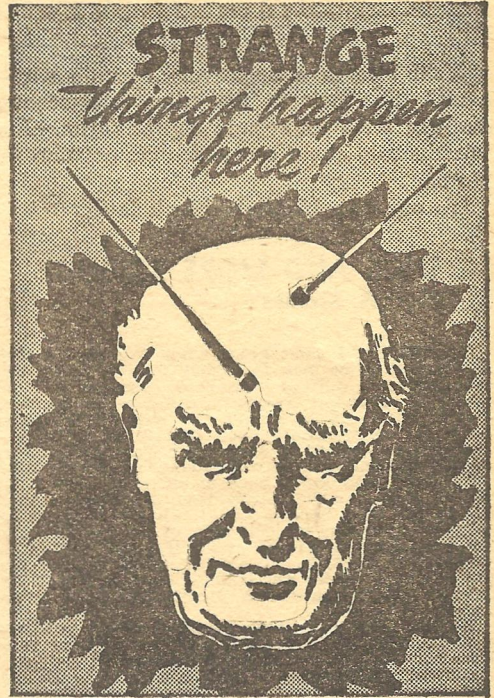
Course, we may be misunderstanding the purpose of the TEV. Maybe there has been a change in the race which we don't know about. Perhaps TEV is now dedicated to a new species, *Homo bovinensis*—COWS which look like men.

Now that's off our chests, so may we comment on this month's stories?

Rene LaFayette, always good, really has something in his discovery series. "Magnificent Failure" was easily the best in the issue. It is probably a tendency of all of us to look upon historic figures as being god (or satan) like. In pointing up their humanic characters, LaFayette has appealed to our cynical senses.

Ley, too, is always good. We're pleased with the promise of more to come.

Leinster had a good idea in "The Black Galaxy". Unfortunately, he misused it. The characters were, to say the least, awful. Rarely have we read a story where the people it depicts have been so stilted and stuffy—and that includes K. Kinnison, his wife and his family. Which brings up that old point, to wit—What good is a strong story idea when the story doesn't live?



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## The ROSICRUCIANS

San Jose

(AMORC)

California

[Turn page]

So on that happy note, we leave you to your violet-scented mailbag!—2901 Grove St., Berkeley 3, California.

We'll bite in a negatively arcuate way—what? So back to the ultraviolet-scented mailbag with its cosmic coproliticism. And the less said about our economic position the better.

It's our own blankety-blank fault.

## SCIENCE AND MORE SCIENCE

by Robert A. Rivenes

Dear Editor: I don't know when I've read a story that moved faster than *The Black Galaxy*. If Leinster ever considers putting it in book form, he sure has plenty of room for expansion. Stfiction has taken on a new form. No love stuff and new stf inventions (new to me anyhow). That pressor jet drive is a brainstorm. The whole story was packed with science. In fact the entire issue was science except for RB.

The only criticism I have to make on TEB is the choice of illos which natively isn't the author's fault. Of all the stuff Stevens had to choose from he has to pick as subjects for half his pics the five girls. All are good looking and all wear, if you'll pardon the expression, playsuits. If all the babes in that time are like that, where can I find a t-m. And that "My sainted aunt" business. A direct steal from Reggie Fortune.

The Williams novelet was marked with a good plot and dialogue, bad title, and poor illo. Finlay could have done better. In fact, the sentence with the phrase "coruscating pin-points of light" sounded like a Finlay drawing.

*The Loot of Time* did stand the test of time. The HoF hasn't missed yet. How can an anthology (via Popular Library) work when everyone seems opposed to the HoF and reprints in general? Back-number SS and TWS aren't too hard to obtain. One copy of a story is enough for me.

LaFayette's new series not entirely new. He uses old plots and the style Roy Vickers employs in his 'tec fiction. However, when put together in stfiction, wonderful stories are the result. Another author is now giving the little man his do besides RB. Is Stevens picturing the bowling ball of the future in his heading?

The Vance series is getting better by leaps and bounds (or should I say bounders). But from what you say I gather this is the last tale for a while. That's probably for the best.

As I said, *Marionettes, Inc.*, by RB is the only story without science, which is usual with him. The idea is old but it still horrifies under the young master's touch. I thought Ray was working on a novel in '46. What does he do besides turn out two masterpieces a month? The heading for this story was the worst I have ever had the misfortune to glimpse. On the other hand, what kind of a pic could you use for a tale of this type?

*Turnover Time* with the Paulish heading introduces another new type of space navigation. The basis for the plot is a very typical militaristic decision. Fear because of lack of knowledge.

Your little essay sure hit a new high in five-dollar words. Only nine words *no comprendo*.

Just thought of an interesting game to play. Determine the number of variations and contractions of "scientific fiction". This includes abbreviations in capitals, italics, and lower case letters.

That reminds me. How do you prefer that we write the titles of the stories? Italics, caps, etc?—157 N. Euclid Ave., Oak Park, Illinois.

Actually, we think it gives this peristyle a certain heterogenous charm to let the readers dress up the titles they quote in their own ideas of how it should be done. So you takes your choice. That *was* quite a bowling ball, wasn't it? As for your "interesting"

game—if game it be—you play it. We don't wanna.

## ROUGH GOING

by Rodney Palmer

Dear Editor: It's time to write again but it's getting to be a tougher and tougher job putting these things together. One seeks in vain for something to kick about, that essence of a truly interesting letter. One's eyes flit with grim futility from page to page but bad art work is conspicuously elusive. Mediocrity in some cases is easily uncovered. This issue the trend so marked to now assumes certain manifestations of a static condition—but as the boys and girls have been inquiring of late—how good can you get?

I have a hunch most fans follow about the same procedure when delving into ye Startling. Those who've written examine TEV on the watch for black print spelling their name, the more timid watch for relatives and friends, the deadly serious but disinclined literally pray that someone this month has given them a wee bit of proxy representation...

Then come the articles, the features, the ads and, happy day, at last the lead novel which is invariably interesting save when written by Henry Kuttner or Murray Leinster. If you have to put Ray Bradbury on the rack to write that proposed lead novel, by the way, do it. It's for the sake of art. Why, if he's even hinted he might, get behind him, Satan, and push. Get the staff to push too. Call me. I'll help push.

Somebody hypoted the letter column to life this month. It's not its usual uproarious, ridiculous self but it has something to say. There's a slight leaning toward the obsequious, tending to just plain dull, and dullness, you admitted, was the price of sanity.

I see that *Thrilling Wonder Stories* features A. E. Van Vogt—who at present seems to occupy some sort of unclassifiable position in our royal lineup of writers. His work seems similar to that of Theodore Dreiser, but he may be better than Dreiser. How about turning now to Robert Moore Williams for some long material—he's at his most excellent best with plenty of elbow room. Certainly *THE BRIDGE TO EARTH* and *WORLD BEYOND THE SKY* cannot soon be forgotten.

I'd like to say a lot more about a lot more things, but good ideas flee me this night. Mayhap that shot of rum has fogged my consciousness, but it was left over from the holiday season and one wouldn't want to see it willfully and weefully wasted, would one? Or would one? Jamaica, 97 proof.

Suggestions: More poetry, good, bad and indifferent poetry. More squawking—there's always something to groan about and maybe we've got out of the habit of looking for it. I love the old 'plaints: *Trimmed edges!* Isn't Bergey through yet? *STRONGER STAPLES, MAN!* *Monthly editions, monthly editions!* Who drew that mess on page 62? "I say old boy, the ads are lacking something lately—do anything about it?"—226 West 60th Street, Chicago 21, Illinois.

All right, how good can we get? We wouldn't know since it depends entirely upon our contributors. May they prosper and continue to grow in all directions.

## OMEGA

by George Verschelden Jr.

Dear Editor: Up to several years ago I had never had the opportunity to read any science fiction magazines. This sad situation may be attributed to the fact that I was unaware that such literary gems existed. The first stf mag that I read happened to be another publication, and after reading the first couple of stories I began to realize what I had been missing out on all these years. From that moment on I scanned every newstand for miles around in search of stf magazines in their many horrible forms.

When I happened to find a copy or two I would dash home and lock myself in my room. Food was forgotten in my pursuit of knowledge (?) and sometimes I would munch a vitamin pill while the hero, Lightning Speedbound, aimed his distrenagator at the



hulking brute who was slowly pulling out his one and only's eyebrows.

But soon even I, who had seen every system of destruction devised in the galaxy and all the BEMs, used-car dealers, monsters and other imps of Satan who employed them, grew tired of each and every stf story. I began to get choosy and the floor of my room grew deep in novels which I had ripped into tiny bits. When the postman delivered the March issue of SS I tossed caution aside and read each and every tale of adventure, searching for something to incriminate at least one author. But search as I would, every story was beyond fault, practically forcing me to write and congratulate you. The March issue is the first one in which every story is potential Hall of Fame material. And now the latest racing results straight from Station PAN.

Murray Leinster on Black Galaxy came in first by two lengths in the Stf handicap, followed by Clifford D. Simak riding Loot of Time. Magnificent Failure, jockeyed by Rene LaPayette, came in to snare third money with Marionettes, Inc., mounted by the veteran jockey, Roy Bradbury, trailing by half a length. Coming in fifth was R. M. Williams riding Sound of Bugles, trailed by Turnover Time carrying Noel Loomis and Jack Vance on Howling Bounders, nose to nose.

I enjoyed the article "The Road to Space Travel" by Willy Ley but pu-leez don't convert this mag into a scientific text book by too many articles.

The fillos were decidedly average but a few healthy BEMs should pep things up a bit on the cover, don't cha think so, Bergy, old bean???

Frances Keyser takes first place in the letter department, with James R. Gray copping second honors.

With that I leave you to your thoughts!—8th and Maple Street, St. Marys, Kansas.

Sorry, George, but you're too late. At this point we're fresh out of thoughts. Glad you thought the race was well-run, however.

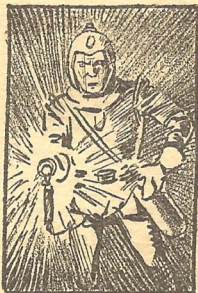
We now note with alarm a recent decline in contributions in verse to this department and its companion, THE READER SPEAKS, in TWS. Please, leddies and gentlemen, let not this verseless condition continue. If we're asking for it—well, we're asking for it.

With which, so long and happy STF.

—THE EDITOR.

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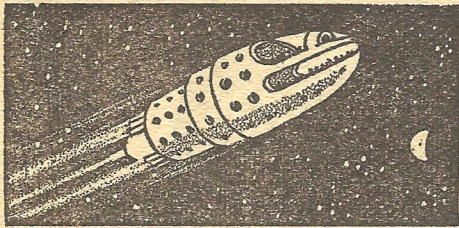
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## REVIEW OF THE SCIENCE FICTION FAN PUBLICATIONS

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**T**HE PHILCON MEMORY BOOK, covering the stf convention of 1947, is finally at hand and it is a colossal compilation assembled under the seal of the National Fantasy Fan Federation. While not all of its stapled fanzines and excerpts from same are pertinent to the Philcon, all—despite their unevenness, particularly where artwork is concerned—should be of absorbing fan interest.

All in all and without a thought to the fact that its appearance comes long after the event it endeavours to memorialize, the MEMORY BOOK is a grand job and we felicitate all of those earnest and persevering fans who put it together.

While on the subject of convention literature, the CINCONVENTION COMMITTEE, in charge of the Cincinnati World Science Fiction Convention to be held over the Labor Day weekend has come up with a bulletin announcing that committee membership has passed the hundred mark (as of January, 1949) and listing those fans who have joined it.

We hope the list has increased considerably by this time and suggest that any interested fans who wish to join the committee send their applications along with a dollar apiece to The Convention Committee, 129 Maple Avenue, Sharonville, Ohio.

Frederick Fell, Inc., has forwarded an announcement of a new anthology in the process of preparation. It is entitled SCIENCE-FICTION: The Best of '48 and will have a foreword by Everett F. Bleiler. Bleiler and T. E. Dikty are the editors. They hope to make it an annual deal.

Also worthy of note is THE SCIENCE-FICTION BOOKMAN, a comprehensive listing of fantasy volumes available, forthcoming or out of print, a neat and informative job put out for the Washington (D.C.) Science Fiction Association and edited by Roy W. Loan Jr.

The Devil's Foot Book Shop, P.O. Box No. 103, Providence 6, Rhode Island, has for-

warded us a new list of stf available, including the Merritt-Bok collaborations, THE BLUE PAGODA and THE BLACK WHEEL, about availability of which we have received many inquiries. Both are expensive, however.

Well, the SPECTATOR AMATEUR PRESS ASSOCIATION is in again with its ubiquitous and inevitable flock of SAPzines. We aren't going to review them this time as past experience has shown them to be chiefly of interest only to other members of the association.

However, they do rate listing in their own quaint bracket, so—

THE SPECTATOR, Vol. 1, No. 6, key sheet of the entire mailing. Lloyd Alpaugh, Somerville, New Jersey.

DIMENSIONAL LOOP-HOLE, Walter A. Coslet, P.O. Box No. 6, Helena, Montana.

FANDEMONIUM, Andy Lyons, 200 Williamsboro Street, Oxford, North Carolina.

FLUB, Wallace Shore, P.O. Box No. 1565, Billings, Montana.

FROZINE, Phil Froeder, 448 Demarest Avenue, Closter, New Jersey.

IT! Lester Fried, 2050 Midland, Louisville 4, Kentucky.

MAINE-IAC, Ed Cox, No. 4 Spring Street, Lubec, Maine.

MATTER OF HONOR, Telis Streiff, 548 North Dellrose, Wichita 6, Kansas.

MOON BLURPS, Charles Henderson, 2146 East 13th South, Salt Lake City 5, Utah.

NAMLEPS, Henry M. Spelman III, 75 Sparks Street, Cambridge 38, Massachusetts.

FLOOR, Walter A. Coslet, P.O. Box No. 6, Helena, Montana.

PROCYON II, Wallace Shore, Box No. 1565, Billings, Montana.

QUEER, Norman Storer, 1724 Mississippi Street, Lawrence, Kansas.

RESONANCE—NO. 2, Paul D. Cox, 3401 6th Avenue, Columbus, Georgia.

SAPIAN, Ray C. Higgs, 813 Eastern Avenue, Connersville, Indiana.

SNARL, Con Pederson, 705 West Kelso, Inglewood, California.

SPACEHOUND'S GAZETTE, Joe Kennedy, 84 Baker Avenue, Dover, New Jersey.

SUN SHINE, Lloyd Alpaugh Jr., Route No. 4, Somerville, New Jersey.

Of the above the Kennedy opus, SPACEHOUND'S GAZETTE, seemed to be the most rewarding in a general fanzine sense. Otherwise, we see that Alpaugh is both alpha and omega of the listing. So be it.

And now for the A-listing of fanzines. It promises considerable interest this time out although no real high spots seem to have been attained. But let's at it without further preamble (those SAPzines! And yet we love 'em in a way)—

ALIEN CULTER, 4718 Forest Hills Road, Rock-  
[Turn page]

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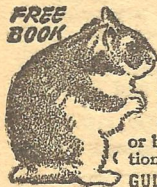
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Cluthe Sons, Dept. 33, Bloomfield, New Jersey

ford, Illinois. Editor, Jim Leary. Published irregularly 15¢ per copy, 4 copies 50¢.

One Eldred Smith beats the drum for namesake Clark Ashton ditto in the lead article, deploring his literary obscurity and wanting to know how come. A good piece about an author who rates more attention than he has received. Other article contributors include Walter Coslet, J. C. May and Even H. Appel- man (with an excellent fact yarn about the Turboen- calculator, a secret weapon for which the war ended too soon) and R. L. Farnsworth, who deplores the shortage of competent pro-authors (so do we). The verse department is strong with Editor Leary provid- ing two poems and Genevieve K. Stephens, Dale Hart and others helping out ably. Letters are good, artwork fair. All in all a very good job.

BLOOMINGTON NEWS LETTER, P.O. Box No. 260, Bloomington, Illinois. Editor, Bob Tucker. Published bi-monthly. No price listed.

Tucker's little gossipzine is no longer so little and contains such ungossipy items as book reviews and a short essay on James Branch Cabell. Primarily for pros and dealers and the like, it is a thoroughly enter- taining and well-printed job. Deserves its A-listing.

CATALYST, Apartado No. 11, Tecate, B. C., Mexico. Editors, Thomas Riley Fowler & Clifton Bennett. Published irregularly. No price listed.

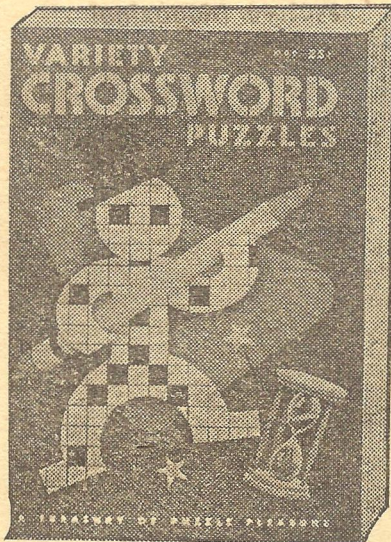
Amusing newcomer with a bit of everything. Especially noteworthy an unbylined bit of fantasy en- titled Leprechauns Have Eyebrows and an anti-urban piece of futuristic satire, Was Manhattan Necessary? Like others, we have pondered this last question our- selves.

DAWN, 2050 Midland Avenue, Louisville 4, Ken- tucky. Editors, Lester Fried, Russell Watkins & Bill Wentworth. Published bi-monthly. 10¢ per copy, 3 copies 25¢ etc.

Second issue of what looks like a red-hot letterzine.

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**FANTASY ADVERTISER**, 1503 1/4 12th Avenue, Los Angeles 6, California. Editor, Gus Willmorth. Published bi-monthly. 10¢ per copy, 50¢ per annum.

The best of the swap-and-sell-and-what's-for-sale-in-stf jobs currently appearing by a very long shot. Liebscher's book reviews are good and Tom Carter and George Gordon Dewey contribute interesting pieces of Merrittiana. Plenty of boosting for the Cinconvention as well. An excellent job.

**FANTASY COMMENTATOR**, 7 East 235th Street, New York 66, New York. Editor, A. Langley Searles. Published quarterly, 25¢ per copy, 5 copies \$1.00.

Most scholarly and erudite of fanzines. In this issue Dr. Keller engages in a study of diabolism, George Ebey plunges into the sociology of L. Ron Hubbard and Sam Moskowitz continues his unending history of fandom, The Immortal Storm. Book reviews and editorials are up to snuff and Genevieve Stephens, contributes a brief bit of verse. It scans.

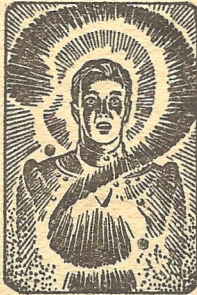
**FANTASY-TIMES**, 137-03 32nd Avenue, Flushing, New York. Editor, James V. Taurasi. Published monthly. 10¢ per copy.

Best newszine in the business for some time now and getting better.

IF! 705 West Kelso, Inglewood, California. Editor, Conrad Pederson. Final issue.

[Turn page]

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'Tis a pity Editor Pederson decided not to continue this one as it is a very good job. Harry Warner Jr's study of Arthur Machen is excellent and such notables as Dr. Keller, Morrie Ackerman and Joe Kennedy are also present and in good fettle. The one illustration is an ambitious and effective color job.

**KOOLINDA**, Australian Library Amateur Journalism. Editor, Leon Stone. Published irregularly. No price listed.

An able little booklet which stresses Amateur Journalism in general more than stf—but a brief article on Lovcraftiana makes up for it. A swell piece of printing.

**THE ROCKET NEWS LETTER**, 5747 University Avenue, Chicago, Illinois. Editor, Vincent Story. Published monthly. 15¢ per copy, \$1.50 per annum.  
If you're a hot rocketman, this is your dish.

**SHANGRI-LAS**, 637½ South Bixel Street, Los Angeles 14, California. Editor, Walt Daugherty. 15¢ per copy.

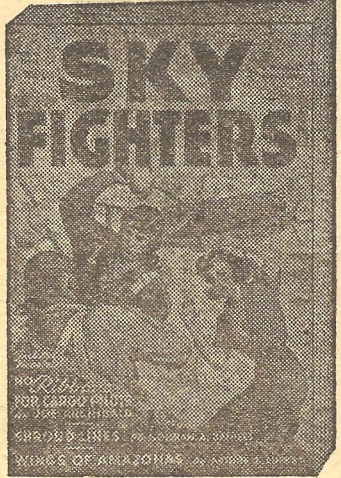
In its present form the official publication of the Los Angeles Science Fantasy Society is more ambitious than ever before. It contains pages of offset reproductions of photographs of LASF'S hi-jinks and a memory piece by Editor Daugherty to go with them. Bryce Walton wonders about pro-fan relationships and the highlight of the issue is an article by Alan Hershey, Mad-Hattan Project, describing his A-bomb experiences during the late unpleasantness. Nice stuff.

**SOUTHERN FANDOM**, Route No. 1, Ripley, Tennessee. Editor, Lionel Inman. Published irregularly. 10¢ per copy, 3 copies 25¢.

Despite a JoKennedy cover that can only be described as a candidate for a blotch test, this unassuming little magazine, with contributions by Stanley Miller, JoKe, Cockroft and the editor, is a worthy A-job. We hope they do something about the cover, though, in the future.

**TIMEWARP**, 2120 Bay Street, Saginaw, Michigan. Editors, Arthur H. Rapp & George Young.

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Ye Gods! A SAPzine that got into the regular listings. Enough said, though how it got mixed with the A's we'll probably never know.

THE SYDNEY FUTURIAN, 160 Beach Street, Coogee, Sydney, Australia. Editor, Vol Molesworth. Published monthly. Price 3d.

Final issue of a pioneer that has accomplished its purpose. From now on the Sydney group will publish a small newsletter strictly for home consumption and a larger fanzine for distribution both at home and abroad. We wish Mr. Molesworth and his colleagues many years of uninterrupted A-listing.

TRITON, 4 Spring Street, Lubec, Maine. Editor, Edmund Cox. Published quarterly. No price listed.

A riotous article by John Van Couvering, What To Do Till Dale Carnegie Comes, and a Fortean study of ball lightning by Vol Molesworth of the Australian Molesworth's highlights an extremely good issue. We hope this can be kept up.

So, we have a dozen A-zines and one strayed SAP on the list. Most of the material was of high caliber if, as said before, unspectacular. Wonder what the next couple of months will bring. We never know...

And now for a trip to that underworld known as the B-list. After surveying the current crop at hand, we are tempted to drop them further down the alphabet. But to what avail? So, let's get it over with, to wit and as follows—

AMTORIAN, 1565 Billings, Montana. Editor, Wallace Shore. Published irregularly. No price listed. Thin little item, mostly about Edgar Rice Burroughs.

ASTEROID X, 427 East 8th Street, Mount Carmel, Illinois. Editor, Jim Harmon. Published irregularly. [Turn page]

## COMING NEXT ISSUE



## THE HOTOUSE PLANET

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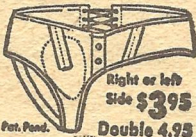
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THE BOLAN ACADEMY, INC. EMPIRE STATE BLDG. NEW YORK, N. Y.

10¢ per copy, 3 copies 25¢. A sloppy try at a pocket-sized 'zine with stuff by Shaver & Bob Farnham. Best item, however, is a brief "correction" by Ray Bradbury which Editor Harmon lists on contents page.

THE MUTANT, 3551 King Street, Windsor, Ontario, Editor, Stewart Metchette. Published bi-monthly. 10¢ per copy, 3 copies 25¢. Answer to outraged comment ament previous criticism by this reviewer. We done read it, boys. Put a better cover on it and you'll rate an A-listing. But try to make your Treasurer's Report funnier. R. Benchley did wonders with this sort of thing.

PEON, 2116 Edsell Court, Alameda, California. Editor, Charles Lee Riddle, PNI, USD. Published monthly. 25¢ per annum. Nice unpretentious job.

POLARIS, 4170 Utah Street, St. Louis, Missouri. Editor, Dan Mulcahy. Published bi-monthly. 5¢ per copy, 50¢ per annum. Amusing stuff by JoKennedy and Art Rapp, chiefly by the latter. Not so amusing comment by Ye Edde. Could stand enlargement.

THE SCIENCE FANTASY NEWS, 16 Wendover Way, Welling, Kent, England. Editor, A. Vincent Clarke. Published bi-monthly. No price listed. Official organ of the British Science Fantasy Society. First issue is mostly given over to society affairs.

SPATIUM, 66 Bassett Street, New Haven 11, Connecticut. Editor, H. Cheney. Published monthly. 10¢ per copy. Official Organ of the Central New York Science Fantasy Society—so how did it get to New Haven? Answer, please. Current emphasis, as exemplified in A.K. Hammer Jr's lead article, is on H. P. Lovecraft.

WONDER, 8 Burfield Avenue, Loughborough, Leicestershire, England. Editor, Michael Tealby. Published bi-monthly. No price listed. Mostly a Peter Russell fantasy short story. Let's hope conditions overseas enable strans to put out better looking jobs. They rate it on their enthusiasm and toil.

And that, as someone once said, is that. Here's looking to something a bit more colorful than the above in the near future. How about it, fans?

—THE EDITOR.



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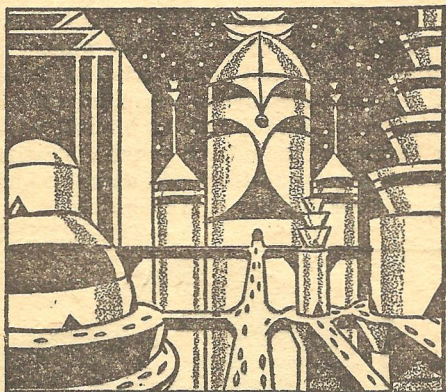


# SCIENCE FICTION BOOKSHELF

REVIEWS OF NEW BOOKS

**THE WHEELS OF IF** by L. Sprague de Camp, Shasta Publishers, Chicago (\$3.00).

The title story, a short novel, is here accompanied by a half dozen other de Campfire stories to make an entertaining bundle of satiric fantasy in the author's best sardonic vein. *The Wheels of If* itself tells of the dilemma of unscrupulous Assistant District Attorney for New York County, Allister Park, who becomes involved in various parallel lives on tangential worlds when one



Noggle, of a totally different cosmos, gives his wheel of life a spin.

Ultimately Park finds himself trapped in the corpus of the Bishop Scoglund of a New York whose colonization dated back to the Irish monks in an America where Indian nations still survive in highly bizarre forms and the internal combustion engine has yet to be invented.

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As might be expected in a Gaelic culture, politics run rampant and Park quickly puts his own hard-boiled experience as an assistant D. A. to use. He finds the alien culture around him a perfect environment for unscrupulous opportunism and proceeds to show the comparative yokels among whom he must move how a big-time operator operates.

From the first page to its surprising but very logical denouement, *The Wheels of If* is one long bout with hilarity.

Of the other stories in the volume, all of which were excellent entertainment, we found ourselves liking best "Hyperpelosity," the story of a strange plague which caused all humanity to assume the likeness of a hair mattress and "The Gnarly Man," tale of a forever-living Neanderthal who found living on through the ages a perplexing problem.

All in all, "The Wheels of If" is a very good book indeed.

**HOW TO LIVE LONGER** by Justus J. Schifferes, E.P. Dutton & Co., Inc. (\$3.00).

While not exactly science fiction, this very definitely scientific if non-fiction volume deals with the problem of individual adjustment to the present-day world for the purpose of living a longer and more useful life—

and as such rates the critical attention of this department.

Mr. Schifferes, a former Yale Phi Beta Kappa, associate in Hygiene at Columbia and Instructor in Health Education at Teachers College, Columbia, knows whereof he speaks, having spent his adult life in study of mental and physical health.

He feels that the progress toward longevity already made in modern society has completely upset the tables of human affliction so that more and more people are having to face ailments that were once the property of the few who survived beyond the age of fifty.

More than that, he tackles suicidal impulses, their causes and how to overcome them, accident proneness and other fairly recent developments in medicine and psychiatry. The book is well tabulated, is easy to read and, if studied as the author intended, can do much toward enabling the individual to attain peace of mind—that almost forgotten concomitant of constructive living.

A good bet for anyone who thinks the time has come to take a look at himself without the flattery of the mirror or the distortion of his own hopes and fears. As a matter of fact, a good book for any and everyone.

—THE EDITOR.

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