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The **MAN WHO
RULED THE
WORLD**

**ROBERT
MOORE
WILLIAMS**

**MASTER OF
GOLDEN CITY**

**DOLTON
CROSS**

**SUMMONS
FROM MARS**

**JOHN
RUSSELL
FEARN**

**SPACE
PIRATE**

**EANDO
BINDER**

EVERY STORY SCIENTIFICALLY ACCURATE



It's funny how a man will go through life ignoring little hints that he really ought to take.



I used to be invited everywhere. Then gradually people quit asking me. It had me puzzled.



My girl (do you like her?) began to act distant, too. Once she showed me a Listerine ad and asked me if I had read it. I snuffed that one.



The boss got tough, too. "You're not getting in to see the big shots the way you used to," he said, "what's the trouble?"



That jolted me. I tried to explain but that wasn't any explanation. What he said was true.



Then on Valentine's Day I got one of those ridiculous comics we kids used to send.



—and boy, did I get a laugh! This is what it said: "You might be welcome every day if you would keep your breath okay."



"Some wisecracker has been reading the ads and is trying to get my goat," I told myself —then I turned it over.



"You may think this is a joke," was written in a bold hand, "but it is far from it. Take this hint for your own good." It was signed—"A Friend."



I tried to laugh it off, but I couldn't—that note was in earnest. I hated to think that such a hint was necessary—but, mister, I took it.



Evelyn and I are engaged. Things are getting better at the office, too. What a thump a fellow is not to take precautions against halitosis.



I'm off to the theatre with Evelyn and then to a party afterward. It's certainly great to be going places again!

DON'T BE A SUCKER, STRANGER!

You may take it for granted that your breath is agreeable, *but is it?* How do you know at this moment that it is not offensive to others? The insidious thing about halitosis (unpleasant breath) is that you yourself never know when you have it. And even your best friend won't tell you.

Everyone is likely to have halitosis at some time or other. Ninety per cent of cases, says one dental authority, are due to fermentation of bits of food particles skipped by the tooth brush and left clinging to mouth surfaces.

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Volume XII,
Number 1

SHUNNED AT SCHOOL BECAUSE OF PIMPLES?

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Meet the Authors

ROBERT MOORE WILLIAMS

Author of

The Man Who Ruled the World
(Page 10)

I READ my first science-fiction yarn about fifteen years ago. The story started me reading this type of fiction. Still do it. Read all the science-fiction magazines from cover to cover. As an amateur, I read all the factual science I can find, from bugs to brass. Like to know why things happen.

Was graduated from the University of Missouri, School of Journalism, in 1931. Carried all the science I could work into my course, from meteorology to anthropology. Wish I had carried more.

Spent the past year writing fiction on a full-time basis. Expect to spend the next thirty years doing the same thing. Now thirty years of age.
—Robert Moore Williams.



ROSS ROCKLYNNE

Author of

Escapes Through Space
(Page 30)

I WAS born twenty-five years ago in Cincinnati. I am six feet two, weigh 170 lbs.

I lived in a boarding school from twelve to seventeen, after which time I lived with my family, finishing the last year of high-school, walking two miles up and down a hill a rocket ship couldn't navigate. After four years of spasmotic writing, I sold my first story. I write pretty rapidly when an idea is red hot. I wrote *ESCAPES THROUGH SPACE* during an afternoon, but preparing the final draft always proves arduous. When people ask me where I get my ideas, I place their dismembered bodies in a cavern excavated for the purpose.

The adventurous side of my life includes working in a department store, hitch-hiking, and walking seven blocks for a gallon of rusty water during the Great Flood of '37.

I read my first science-fiction story when I was eight; my father wrote it. I am fond of A. Merritt; Dr. Smith's first three stories are my favorites; next comes all of Weinbaum's—it was a shock to me when he died. I enjoyed Campbell's stories. I think Dr. Keller was the only consistent literateur in the pseudo-scientific field.

At present I am doing nothing, just writing. I am keenly interested in science-fiction, poker, travel, football, tennis, the outdoors, the indoors, the company of other people.—Ross Rocklynne.

POLTON CROSS

Author of

The Master of Golden City
(Page 44)

I WAS born near London some twenty-eight years ago, and after a rather hectic youth, during which I batted around and about London in all directions, I finished school, and became a working man. That is, until the depression came along. I rapidly went through a dozen odd attempts at jobs of various sorts, all with the same result.

Perhaps it was the depression, or the urge to do something that started my writing. Anyway, I'd always had the urge to write, and had scribbled various things on the backs of memo sheets, or any sort of scrap paper, and eventually consigned them all to the flames.

Even with that excellent start, I did send the editors a few unquestionably bad manuscripts, and thus kept up my record for failures with a dark cloud of rejection slips.

However, I finally clicked, and after several appearances, began to stem the tide of rejections.

THE MASTER OF GOLDEN CITY was written with half an eye cocked at the work of A. Hyatt Verrill, whose work I had always liked. Apparently the editors liked it too, and I hope the readers do also. Because if they do, I'll certainly be back with more.

And that's no threat, it's a promise.—Polton Cross, London, England.



CHARLES R. TANNER

Author of

The Vanishing Diamonds
(Page 72)

I AM 42 years old physically, and about half that mentally. I smoke a pipe, wear glasses, can't keep my hair straight, and talk too loud when I get interested in anything.

Most of my friends are under thirty, and when I get among people of my own age, I feel uncomfortable. I can remember, in 1909, reading H. G. Wells' story, "The First Men on the Moon." That was my introduction to science-fiction, and I've been a sucker for that type of literature ever since.

By the time I was 22, I believe I could have written such stories myself, but there was no medium such as there is now, and therefore, no incentive. I first broke into print in a Gernsback's publication, winning first prize for a short short science fiction story.

Then came the depression. I lost my job, lost a daughter, one of two children, and saw my wife

placed in a sanatorium with tuberculosis.

Slowly I worked back to normalcy, saw my wife returned to me, healed, and then came "The Vanishing Diamonds." I believe I am definitely back on the science fiction road.—*Charles R. Tanner.*

JOHN RUSSELL FEARN

Author of

A Summons from Mars (Page 82)

JOHN RUSSELL FEARN was born on June 5th, 1908. At the age of ten, his writing ambitions were born, but it was not until his novel, "The Intelligence Gigantic" was published, that he began to realize those ambitions. That was in 1933. Rapidly following came "Liners of Time" and the more recent "Zagribut." Later, he sold many stories to American and British magazines.

He likes broiling sunlight and heated rooms. Smokes incessantly as he writes—always cigarettes, because he can't keep a pipe going. Cultivates plant sunflowers and marrow plants. Haunts the movies between spasms of writing, mainly to see Claude Rains, or Ann Southern, his two favorites.

He lives in a little villa in the heart of Sussex, 50 miles from London, the sea before him, and behind, a garden lush with flowers.

But in his own words: "I am not yet satisfied. I've a long way to go before I gain the place I want—a seat on top of the earth!"

EANDO BINDER

Author of

The Space Pirate (Page 108)

ARDENT science fiction fans since the first issue of AMAZING STORIES in 1926, Earl A. and Otto O. Binder broke into print in the October, 1932, issue, using the pen-name Eando, which is a combination of their first name initials with the word "and" between.

Their collaboration has been productive in that Earl, with his wide range of experience in the school of life, and Otto, with his technical background from Crane College (Chicago), were able to combine both in the writing of their stories.

Earl, residing in Chicago, is married, employed as mechanical parts inspector for a large industrial concern. Otto is unmarried and lives in New York. He was once an amateur chemist with a home laboratory. He now devotes full time to his writing. He hopes to see some form of atomic

power and perhaps a try at space travel before the turn of the century. Both believe the next war will be short, terribly destructive, and will result in the attempt of the world's fraternity of scientists to ban further wars.

LIEUT. JOHN PEASE

Author of

The Invisible Bomber (Page 130)

LIEUT. JOHN PEASE, the author of "The Invisible Bomber," is an Artillery officer of the United States Army, assigned to the Technical Staff. He was formerly on the Editorial Board of "The Journal of the U. S. Artillery," and did some very valuable experimental work at Aberdeen Proving Ground (where his story is located) in astronomy, ballistics, and the detection of airplanes invisible because of fog.

He is a descendant of that Lieut. John Pease, who was one of the four original settlers of Martha's Vineyard Island, off Cape Cod, Massachusetts, in 1642.

The plot of his story was suggested to him by a narrow escape which he had when a flyer from Phillips Field dropped a 400-pound bomb on his battery, scarcely a minute after he had knocked off for lunch.

His literary efforts thus far have consisted in gangster stories, with a slight science fiction touch.

On his theory that the universe is laminated, he writes us: "One thing which the relativists seem to me to overlook, when they talk about the four-dimensional space-time continuum, is that we never experience any time except the present. Therefore may not our space, after all, be Euclidean and three dimensional, infinitely thin in the time direction, a lamina as it were, moving through time?"

"This theory would render Euclid's conception of space perfectly consistent with Relativity's conception of the space-time continuum: $ds^2 = dx^2 + dy^2 + dz^2 - dt^2$.

"Unless existence is infinitesimally thin in the time direction, as I postulate it to be (i.e., unless $dt = 0$), then for any motionless object, ds becomes imaginary. This indicates the truth of my theory.

"A popular explanation of my theory is put into the mouth of my character Philip Winters, upon the specific request to do so by the editors of AMAZING STORIES."

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The Observatory

By THE Editor



OLD READERS of AMAZING STORIES will be interested in the fact that this magazine has moved its headquarters to Chicago, where it is being published by the Ziff-Davis Publishing Company. It is now the little sister (or brother) of *Popular Aviation*, *Popular Photography* and *Radio News*.

In this first issue several notable changes have been made and it is the purpose of the publishers to constantly improve the magazine and to increase its scope with tales based upon true scientific facts. Insofar as the basic subject matter is founded upon scientific research, it will be essentially a true story magazine although thrilling tenseness of adventure and romance will still form a part of the many features yet to come.

FOR THE first time in the history of a pulp magazine, **AMAZING STORIES** has gone to direct color photography on its cover, replacing the usual art illustration.

The direct color photograph was made with a custom-built "one-shot" color camera valued at \$2,000. Horace Hime was the photographer, associated with Frank Lewis, Inc., of Chicago, one of the three largest studios in the midwest. The two models were Fred Johnson and lovely Naomi Anderson.

As in all one-shot cameras, three color-separation negatives are made simultaneously. The reflected light from the image enters the camera, where it is broken down or "separated" by an arrangement of mirrors which direct certain portions through filters and onto each of three films. The films record portions which are later to be printed in red, yellow, and blue, and which, when combined, result in a natural color print identical to the original subject.

One film, covered with a blue filter, records that portion of the picture that will later be the yellow printer. Another film, covered with a green filter, records the portion that constitutes the red printer, while a third film, in conjunction with a red filter, records the blue portion.

This operation is all automatic and simultaneous. The three separation negatives are developed and then coordinated by a printing process into a natural color picture which provides all the various shadings and color combinations offered by the original subject.

This record-breaking achievement was frankly encouraged and made possible only through the complete cooperation of our sister publication, *Popular Photography*.

FUTURE ADVENTURES in the stratosphere promise to be as exciting and amazing as the wildest author can imagine. Up in the region where air nearly ceases and where the adventurer is bombarded with strange unknown rays from the sun, almost anything can take place—and probably will—without any assistance from fiction. Up where the sky is a dark navy blue and the stars shine as brilliantly as suns, gives us a fine chance for weird adventure.

BUT, the stratosphere is only the starting point for interplanetary adventures. It is a mere ten miles above the sea whereas the planets are distant by millions of miles, but as we say, we have made the beginning of a feeble attempt to go places and see strange things.

Present rocket experiments indicate that we are approaching the point where the rocket velocity will be sufficient to toss it out beyond the control of the earth's gravity—and then almost anything will be possible for our space ship. However, your editor is not so much concerned with being shot to the planet Mars as he is in getting back home safely. To his mind, the latter is the real part of the adventure.

TO TRAVEL on a robot plane through clouds and mist, and to glide to a definitely prepared landing spot without human guidance or assistance, was the recent experience of a test pilot. This experiment may pave the way to safer passenger flights from coast to coast with only an Iron Pilot at the controls, as forecasted in a weird tale by one Zach Burton in his "Master of the Universe," written in Boston, in 1901. Again, science fiction becomes fact.

ALL of this war talk, both at home and abroad, has developed into fantastic stories of a new "death ray" said to have been developed by a European country. If this is true, which we hope it is not, then we will have an amazing story that is more amazing than all of the imaginative stories combined.

(Continued on page 142)

JUNE
1938

VOLUME 12
NUMBER 3

AMAZING STORIES

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Illustration by
Jay Jackson.

The Man Who Ruled The World

By ROBERT MOORE WILLIAMS

A new Genghis Khan comes out of Tibet, crushing the nations beneath his iron dictatorship—until Richard Moulton braves the horrors of the robot drug in a daring attempt to liberate the enslaved world

CHAPTER I

A Secret Meeting

“REMEMBER this, it is better to have your tongue ripped out by the roots than to talk of our mission. We have made a vow, and death shall not deter us in the keeping of it. Good luck—and if we fail, may we meet again in a better land than this.”

Silently the five young men wrung hands. Their calm, poised faces showed no trace of what was going on behind those high foreheads, their eyes showed no glint as a key to the mind behind. Resolution was in the set of their jaws,

emotionless resolution that no fate could sway.

“Dick, we’re with you to whatever the end may be. We’ll carry on as long as one of us is left.”

The first speaker, tall, red-headed Richard Moulton, replied.

“Thanks, George. I know that I can rely on all of you, and that we can rely on each other. Now it is time to leave . . . let us go.”

One by one, furtively, by different exits, they left the apartment house in San Francisco. Men were here, and a few women, workers hurrying to the hutches where they lived. About these people, in their blank faces, in their studiously careless pose, in the way they



"Obey or I destroy!" shrieked the voice of Genghis Khan II

darted glances out of the corners of their eyes, could be detected a feeling of fear. Nowhere tangibly expressed yet everywhere subtly implied was horror, a terror of something that was with them by day and never left them by night.

One by one, the five who had been together in the apartment house arrived at what had been the water front in the days of long ago when ships had plied these waters.

On a steel platform that rose wide and spacious from the edge of the bay, nestled in its cradles one of the ships of the year 2038. It tapered from a blunt nose through six hundred feet of length to a thin, pointed rear, where a rudder projected. Set at regular intervals along the side, encircled by a band of metal were small, multi-bladed propellers, with motor housings behind them. Ports in the side of the liner from which dangled swinging ladders, were open. Up an inclined ramp leading to the platform, men were guiding loaded electric trucks.

A small and curiously silent crowd was watching the ship. These people kept their distance both from the liner and from the guards that constantly patrolled around it.

As Dick Moulton descended from a gyro-car and moved forward to accost one of the guards, a half-shudder, half-sigh passed through the watching ranks. The words came clearly to them.

"Richard Moulton, reporting as per order from the committee on allotments."

The face of the guard was blank, utterly blank. No trace or hint of an emotion was visible anywhere. "Follow me," was the curt order, and the guard turned and walked toward the ship. The two entered it, were swallowed up. A tremor ran through the

watchers.

An old, white haired, stooped man sighed. He spoke to an equally aged individual beside him.

"Good looking fellow."

"Yes. Strong, too. As strong as I was when I was young. Looked to be intelligent, too."

The sentences were clipped, short, as with suppressed emotion.

"Look!" cried the first speaker.

"There's another."

"Arthur Jergsbane" . . . came another clear, unafraid voice.

Silently the two watched this second man disappear into the ship. Later other men came, and women. Two individuals were brought down in chains, escorted by men in uniform, and delivered into the custody of the guards. Not every person took with equanimity the decision of the committee on allotments.

A scream came from the slowly advancing line, and a young girl broke and ran . . . straight into the waiting arms of a guard who clutched her impassively. Sobbing hysterically, beating frantically at him with helpless hands, she was dragged back. With no sign of brutality, just that blank, emotionless efficiency of motion, the guard lifted her in one strong arm and strode purposefully up the ramp. Reaching the ladder, he climbed inexorably aloft, bearing her struggling, fighting form up to the port. She held a moment at his muscular shoulders and breast, then subsided in limp despair.

The count stood at eighteen, fourteen men and four women, before the ports of the ship were closed, signifying that she had gathered not only her material freight but her human cargo as well.

The last port clanged shut, a hum rose from inside the vessel, and she rose straight up into the air. Her speed con-

stantly increasing, she shot away into the gathering night, out toward the broad Pacific.

The onlookers followed her as far as their eyes could go into the darkness. When she had vanished the old man spoke again.

"Curse him! Curse him! Curse him!"

His companion added, viciously, though his old voice creaked. "Ten thousand times ten thousand curses on his head. Some of those men were as clean cut as any you ever saw . . . May the evil that Genghis Khan II has done come home to him!"

"Robots!" the first old man snarled through clenched gums. "Robots! Inhuman monsters made from men and women . . . heartless, soulless brutes . . . Curse Genghis Khan II forever and forever!"

As the cracked voice rose in a strident scream, a hand was clapped over his mouth, and a cautioning voice said: "Take it easy. His spies are everywhere."

The old man slapped the hand away. "I don't care if they are!" he shouted. "Let them take me, if they want to. They took my son and my grandson, and made them into robots that wouldn't recognize their own father. God only knows what has happened to them. With the last breath in my body, I'll curse his rotten soul."

"And so will the rest of us, all that's left of the human race. But take it easy. No good comes of mouthing curses. Maybe our time will come. . . ." The fist of the old man's companion stiffened was shaken at the sky.

CHAPTER II

A Dictator Rises

UNQUESTIONABLY Genghis Khan II looked back at the past when he formed his empire. He took a page out of the Twentieth Century when he set up his dictatorship, but he went farther than any man had ever gone and extended his sway over the entire world. He could do it. He had the power.*

The earth at that time was just emerging from the dim ages of barbarism. It was split into a number of nations ruled by monarchs or by the people themselves. Gradually these national groups were dominated by dictators made up either of one man or a group of men. Under such leadership nationalism was fostered and bitter wars were frequent, of several of which we have records, involving the entire globe with a tremendous resultant loss of life and destruction of property.

This intolerable condition continued until 1980 when the down-trodden people of the world revolted and set up a form of international government, with headquarters and courts of arbitration in Geneva, a city in the Alps. A more or less free exchange of goods and information was possible under this system and the race of man, freed from its terrible wars for the first time in history, prospered amazingly.

The essentials of life were easily obtained, for the soil was still fertile and its productivity was increased by nitrogen wrenched from the air in vast hydro-electric establishments. Race riv-

* In the first part of the Twentieth Century the trend toward dictatorships was clearly seen. It was in 1940 that China, then one of the most densely populated countries in the world, fell beneath the iron heel of the Japanese, and became subjugated as never before in her history. That

was the first of the real dictatorships, one founded on savage war and bloodshed. Dictators became the trend, first in other countries, then in America, who seemed just to drift into it. Those last presidents, Roosevelt, Lewis and others, held powers that grew more important as the years passed.—Ed.

alries were things of the past, war was outlawed, the unfit were retired, the insane and the mentally deficient were sterilized or painlessly put to death, religious fanaticism was practically non-existent, and science had a free hand and unlimited resources with which to work.

Tel-vision and world-wide radio communication in an international language brought the peoples of the world into immediate contact with each other, forever removing the causes so prolific of disagreement before this time. But this new order of things used power in immense quantities, and while every available drop of waterfall was harnessed and the winds and the tides put to use, including solar radiation and the utilization of the difference between surface and sub-surface sea water, and while the few remaining coal and oil supplies were rigidly conserved, it seemed science could not produce the amount of power the world needed.

The temperature regulators of the temperate zones, that exercised such a remarkable influence on the weather, ate up billions of watts of power alone. But they were worth it. And the people of the world accepted the situation, confident that some day their science would find a method of tapping intra-atomic energy or of utilizing interspatial energy that was known to exist in unlimited quantities.

It was never a question of finding energy—space and matter were full of it—but of getting it in a usable form. The men and women of the world were willing to accept the rigid economies imposed by the Bureau of Power and to waste no energy that might be conserved. They saw what was happening and were willing to do their part toward averting a power famine. And they knew that sooner or later some scientist

would discover a method of loosing the energy known to exist and that they would get the benefit of it. So they honored their scientists and gave them free rein and allowed them to use what they needed of the meager power supply. It was a socialistic, humanitarian world that existed then, one that the peoples of today look back upon with sighs of regret.

For the faith of the people in their scientists was justified. The limitless field of intra-atomic energy was tapped. And therein is the story.

Genghis Khan II did it. Up, high up in the highland of Tibet, in a section of the world far removed from the center of civilization, he and a group of companions had been working for years. The group, an outgrowth of a religious order, had existed for centuries, no one knows exactly how long. A few pedants knew of its existence, but paid it no attention, for thousands of similar groups, devoted to the future of science, were in existence all over the globe.

Nor did the world know anything about them for a full decade after Genghis Khan II saw the first hint of the secret of atomic power in the heating of a cathode that should have remained cold. When he had completed the process, brought it to perfection, a handful of sand provided him with enough power to lift his first duro-vane—that light metal the tensile strength of which has not been accurately ascertained even yet—ship into the air.

The first hint of its existence came when the captain of a freight Zeppelin swore that he had seen a huge ship high in the air over the Himalayas. His estimate of its size and height made him the Baron Munchausen of his day. People inquired what he had been drinking. Later they had cause to remember their laughter.

In the dawn of a bright May morning in 2032, the city of Geneva, wherein the supreme council of the federated races of the globe was sitting, awoke to find it had acquired a visitor overnight. A keen-eyed youngster, up early, discerned in the blue heavens overhead a majestic ship floating at ease. The populace was soon made aware of this interesting phenomenon. An enterprising news company put it on the tel-visors, and a plane was sent up to find out what it was all about.

The plane reached its ceiling and dropped back to earth to report that the liner was at least 70,000 feet in the air and that it was tremendously large. Officials, determined to ascertain the meaning of this visit, flashed worried messages to other cities. Nobody knew anything about the matter. There was a great surplus of curiosity but an utter dearth of information.

At this point all the news companies took up the tale. Ships carried tel-visors as high as they could and the population of the world that was awake got a glimpse of the silver globule that hung so innocently in the air over the seat of their government.

What did it mean? Amazed conjectures popped from startled scientists to the equally amazed and incredulous millions. A theory instantly suggested, gaining immense popularity, was that the earth was being visited by creatures from somewhere out in space. Mars and Venus were suggested as possible homes for this ship. Man had long believed that some of the planets were inhabited and numerous attempts had been made to construct space ships, all of which had failed for lack of power. Perhaps the Martians had succeeded in traversing the void that lay between their planet and the earth.

Following this line of reasoning, at-

tempts were made to communicate with the globule suspended over Geneva. But it stayed at its post and answered nothing. For three days it remained at the 70,000 foot level and during these days the population of the world nearly went crazy. This was unquestionably the epoch-marking event of all time and nobody knew anything about it.

But there was no hint of animosity. The earth would gladly welcome visitors from out in space. Peace had reigned for so long that thoughts of hatred had almost disappeared. And even if some one had suggested destroying the ship, there was no weapon capable of propelling a missile to its height. Very few weapons of any kind existed. The world had grown away from the use of instruments of war.

For three days the ship hung motionless while the earth went into one frenzy after another. But as the dawn of the fourth day came racing westward over the globe, information was forthcoming. The radio systems, carrying news and entertainment were blotted out by a powerful signal that paralyzed all receiving sets. Then came a voice, harsh, strident, a voice that gloated with a sure knowledge of its own power.

"People of the world, hear my voice. I am Genghis Khan II. I am master over all things upon the earth and you will live or die as you obey my commands and do my bidding. You are required to furnish me with the raw materials I demand and the man power I order. Three days are given in which to accede to my commands. An attempt to defy me will result disastrously.

"People of the world, render unto your ruler the homage that is his due."

The voice cut off.

One can well imagine the consternation that message left behind it. Master! It was a word new to that period.

Rather it was an old word out of the barbaric past of the previous century. But Genghis Khan II, ego-maniacal throw-back, revived it.

Supreme authority over the entire globe was vested in the council sitting in Geneva, with subsidiary councils sitting in the various geographical areas. It was in no sense a representative government, nor did it pretend to be. Members of the supreme council held their posts for life; there was no honor higher than that, nor any work more arduous. Each member devoted his life to solving the ills of man.

The supreme council, composed of philanthropic-minded humanitarians, simply could not believe that Genghis Khan II meant what he said. Nor could they definitely connect the voice coming in over their radio systems with the silver ship that hung over Geneva. They suspected that some crank, with a powerful but illegal radio installation, was taking advantage of this opportunity to work a scare for his own devious ends. Especially were they inclined to believe this when the ship over the city failed to answer radio messages flung at it.

But when the three day period ended, there came a repetition of the demand and the council was left in no doubt that the voice came from the ship over the city. For now Genghis Khan II listened to their agonized cries for a parley, and gave them twenty-four hours to accede to his demands. During this time he proposed to give them a demonstration of his power. Within the next hour, came the message, he would blow the Rock of Gibraltar out of its strait. And the ship disappeared from Geneva, travelling at incredible speed.

Exactly forty-nine minutes later, the news came flashing from a startled

Spain that an air-ship had appeared over Gibraltar and that the historic rock had been blown into fragments! This once mighty fortress had been dismantled decades before, its guns removed and its garrisons taken away. It was only a spot of interest to sightseers and fortunately only two such parties were on it at the time. Thirty-one men, women, and children died instantly. Nearby Spanish and African towns suffered heavily from the shock, houses being thrown down and much glass broken.

Before two hours had elapsed, the ship was back over Geneva and the assembled government was again listening to the strident tones of Genghis Khan II, that mysterious personage who had suddenly sprung into such prominence. He was telling them that if they still doubted his power, if they suspected that he had planted mines in Gibraltar with an eye to making this demonstration, he would be glad to give his attention to any object they cared to select. He suggested they name the Matterhorn, or, if they preferred, he would be glad to fly over to London and blow to bits the ancient capital of the Britons. It was all one to him, he explained. Either the peoples of the world acceded to his demands or he would regard them as targets for his atomic bombs. He even went so far as to tell the horrified world, which had been switched into the circuit, that these atomic bombs, one of which had demolished Gibraltar, were only a mild weapon compared to some he had in stock.

Many geographic groups, including all of Europe and South America, with the evidence of the destruction of Gibraltar before their eyes, gave in. Probably they thought that in time they could find a way to circumvent Genghis Khan II. At any rate, they saw

no reason for committing suicide. But Australia and North America, still the home of the world-girdling dominant white races, blew up in indignant fury. They had never taken orders from anyone and they were determined not to start now. The rest of the world could capitulate. They proposed to hold aloft the flag of freedom, and die if necessary, but die as free men, not as slaves.

Thus they died. The message announcing their refusal to accept the new ruler was hardly off the air, when the gleaming ship left Geneva, headed west and traveling fast. Genghis Khan II dropped three atomic bombs on New York City. "Ohey or I destroy," shrieked the voice of Genghis Khan II as his ship flew over the ghastly scene of destruction.

Coming westward, he then loosed one over Chicago and one over Los Angeles. Then he pointed the nose of his ship out over the Pacific, toward Australia, leaving behind him a dazed and suffering nation, with millions of its population that had been concentrated in these areas, dead and dying. The power of those atomic bombs was terrific. The old-time nitric acid base explosives were harmless in comparison.

Not only was there a tremendous shocking power in these bombs, but they released an electric potential of millions of volts backed by a heavy current flow that literally burned to a cinder everything within a half mile radius of where they landed. The intricate maze of current carrying wires took up part of the charge and distributed it over a wider area, resulting in additional loss of life and destructive fires.

Australia met a similar fate. Melbourne was literally blown off the map.

North America and Australia officially capitulated then. They agreed to furnish out of their remaining re-

sources such raw materials and manpower as Genghis Khan II demanded for the construction of that tremendous city and sky dome he was planning in Central Tibet.

But their capitulation was only official. Every man, woman and child in these broad lands hated the new dictator with an undying hatred. Like a miasmic fog the cloud of hate rose over the land. It was concealed, for his spies were everywhere—he gave men the choice of dying or doing his bidding—but it existed as hatred had never before existed in the history of the world. Millions of Americans would cheerfully have died a death of torture if they could have taken the World Ruler with them. For ten minutes, five minutes, one minute alone with Genghis Khan II, unnumbered men would have shed their heart's blood.

But the years went by and he still lived. Moreover his grip on the suffering world became stronger with each passing year. Up over the City of Genghis Khan II in a large sky dome constructed of duro-vane and suspended by the same secret method he used in keeping his mighty ships aloft, the Dictator lived, denying admittance to anyone who might threaten his presence. He knew he was hated and he was taking no unnecessary chances. The sky dome was impregnable and he never left it. But he never felt really safe until he discovered the damnable drug which, injected into the blood stream, caused men to become robots, with no mind of their own, but forever subservient to the commands of their master. Thousands of these robots then swarmed the City of Genghis Khan II; they attended to the machines in the sky dome and were the only creatures admitted there. They formed the crews of his air liners and obeyed his commands without question.

Only then, did the Ruler feel safe.

He declared himself a god and ordered human sacrifices made to him at regular intervals. Men were forced to abase themselves before his statue, before his image placed in every town and city on the globe. They knew that if they did not abase themselves, they would die. And they preferred to live, not because there was any pleasure in life, but because they hoped that some day they would have the opportunity of sating their hate.

Grass grew where the streets of cities had been and wild weeds were springing up in the once fertile fields. The jungle was creeping back to reclaim what man had wrenched from it. Science, culture, and learning were becoming practically non-existent.

For all who opposed him, Genghis Khan II had one reward: annihilation. After a few years he was not openly opposed.

But the people of the world had a common bond, and when men have a common bond, they unite automatically. In this case their bond was hatred of their master. Around this unanimous hatred an organization had been perfected. Through his spies the World Ruler had hints of the existence of this organization, but no definite knowledge. His emissaries had captured several men and women suspected of belonging to this organization but even the keenest torture that his diseased mind could invent wrung no confession from their dying lips.

The first definite sign of organized resistance came one night in June, in the year 2039. A great ship had dropped down at dusk at a city in Mexico to take on tropical fruits, ores, oils, and a few unhappy men and women chosen by lot and destined to make the trip to Tibet to become robots after an injection of

the serum that robbed them of their minds.

The soft tropical night had fallen by the time this ship finished loading. It rose majestically into the air, its robot crew laid it on its course for its Tibetan home, and then it vanished. It simply disappeared into the night. There was no storm, and even if there had been, it could have weathered the strongest gale. None of these ships had ever crashed. Their performance had been perfection plus. But this one was gone, and its robot crew with it. Genghis Khan II raged when the news was brought to him. Perhaps he saw the first letter of the writing on the wall. He ordered a world-wide search and his spies pried into every nook and cranny on the globe. But the liner had vanished.

CHAPTER III

A Daring Theft

AS the ship rose high over Mexico its robot captain fixed the course it was to follow. It carried a crew of some eighty men, but as its operation was almost purely automatic, the greater part of the crew were sent to their quarters as soon as the course was laid. The captain, his lieutenant, the radio operator, the lookouts posted fore and aft, two men watching the G-rays and three more in charge of the atomic power pulsators were all that remained awake. No hint of expression showed on the faces of these men. They were robots. And yet in the eyes of the captain occasionally showed a steel-gray glitter incompatible with the emotionless robot. And as the ship hummed softly through the star-sprinkled night, its crew asleep in their bunks, the second in command voiced a question:

"Is this the hour?"

The captain stole a glance at the robot lookout gazing calmly into the night.

"This is the hour," he answered. His jaw tightened.

Casually the lieutenant moved toward the lookout, whose back was turned to him. Swiftly he picked up a short steel bar lying on top of the control panel. And with this he struck the lookout, who died without a sound, without ever knowing what hit him.

The captain made no comment. Together they stowed the lookout in a bunker.

"Lock the doors of the sleeping quarters," the captain said. His subordinate moved off, to return shortly. He nodded. Not a word was spoken, except a pungent, "Good," from the leader. And an equally terse, "Come on."

The controls locked, the ship moving automatically, they walked down the long central runway to the lookout posted aft. Apparently it was a routine inspection and the man merely glanced up when they entered. Again the bar leaped out and a man died. They left him there, locking the door behind him.

In the radio room, the operator gave

them no opportunity to get behind him.

"You have reported on schedule?" asked the captain.

"Yes, sir. Position, course, and speed. Just a few minutes ago, sir."

Their eyes met. "This is the hour," the captain said.

The operator leaped from his seat as if he had been shot out of a gun. No robot, this. Nor any weakling either. "Is everything ready?" he snapped. "What do I do?"

"Everything is ready. You don't do anything except stay here at your instruments. If any queries come through, report that all is well. If the guard at headquarters demands that you snap on the tel-visor screens in other parts of the ship, tell him you burned a tube and blew a transformer and haven't had time to repair the damage."

A protest formed on the lips of the operator, but the words died before they were uttered. He stiffened to attention. "Yes, sir," he said.

They left him. Three men were in the room where the atomic power pulsators were housed. The captain held in his hand an odd-shaped device made of metal. Operated by a powerful spring,

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it threw a tiny disruptive pellet. The captain fired three times. Flesh was splattered all over the room. Blood was everywhere. Three men were non-existent.

But the noise attracted the attention of the two men in the adjoining G-ray room. One of them flung open the door and entered, the other following. The first robot did not clearly understand what had happened, but he knew that whatever it was, it was wrong, and with a startled squeal he turned to flee. The man behind him took in the situation at a glance and swung a heavy fist to the jaw. The robot went down. The man who had swung the fist looked with questioning eyes at the other two.

"This is the hour," said the captain. "Stand aside."

There was a soft pthut and an explosion. The head of the stunned man on the floor disappeared. The other two looked at the officer.

"That was necessary," he said. "We're taking no chances. Men must die that men may live. These fellows in their normal condition would have died gladly to aid us in our task. That is all." He nodded to the man who had been in the G-ray room. "You take charge of the power pulsators as well as the G-ray machines. If you run into difficulties, signal the control room."

The subordinate saluted. Certainly these men were bound by an iron discipline.

The captain spoke to his second in command. "You stand guard in the corridor outside the sleeping quarters of the crew. If anything happens, you die there, but before you die, see that no robot is left alive."

The lieutenant saluted.

The ship swung from her course and pointed her blunt nose northwest by north, toward Colorado, moving at a

speed near the five hundred mile an hour mark, as her powerful propellers cut the air.*

CHAPTER IV

A Mountain Cave

THE stolen ship paused high in the air over a peak in western Colorado. All lights had been dimmed when it left Mexico but now it showed a single light in a series of intermittent flashes. Strangely enough, from the western side of a peak below, after an interval came answering flashes. The ship dropped down until the precipitous wall of the peak rose up above it, a sheer barrier of weatherbeaten granite.

Slowly in the side of this cliff yawned a dark blotch as though large doors were opening. A single light flashed for a second, the ship nosed softly forward into the darkness, moved into a large cavern, and behind it the lights of the stars were blotted out as the heavy doors swung slowly shut. The ship dropped to rest on the floor of stone, and when the outer doors were closed, floodlights illuminated the cavern. From everywhere people came hurrying toward the liner, led by a statuesque figure with waving white hair. As they drew near, a port opened, and the robot captain stepped out. He spoke to the white haired man, a single syllable:

"Dad."

Thaddeus Moulton clasped the hand of his son in a fierce grip and squeezed until the bones popped. But the young man did not notice. The next day he

* Colorado was largely waste land now in 2039. Once it was a rich ranching and mining district but it had the misfortune to fall under the displeasure of Genghis Khan II, who laid waste its cities and countryside. Only bandits and hunted men skulked through the hills where once a powerful people trod.—Ed.

would idly wonder how he had hurt his hand, but he would never remember the incident. He wrung the hand of his father, motioned toward the ship, and said:

"Here she is."

Chokingly, haltingly, came the answer. "You have done splendidly, my son. Men will remember your name with gratitude. But of yourself!"

"Your preinoculations did the work," Richard Moulton answered. "The robot forming drug didn't take. It played havoc with my nervous system for a few days but after that I was all right. But many times the things I saw in that cursed city made me wish the drug had taken effect. . . ." The gray eyes flashed fire.

"And the others?" the old man questioned gently.

"They're in there at their posts. All except Preston." The mouth became a straight hard line. "He . . . well, the Ruler had him eliminated. He didn't like his look . . ."

Not a sound was uttered for a second. Then from the back of the growing group a growled curse arose. Other voices took it up until the cavern resounded to this hymn of hate.

Hate had inspired the construction of this cavern. Into it Thaddues Moulton, premier expert in electro-chemistry of the old world, had gathered the most able remaining scientists of the earth and had formed the first organized opposition to the dictatorship of Genghis Khan II. Out of an old abandoned working, where formerly men had dug for silver, working in secret, they had enlarged this tremendous cavern and had set up their laboratories to search for a method of ridding the earth of the domination of its cruel master. They had sunk turbines in the narrow gorge of a nearby river and from this

concealed source they drew their current.

Their immediate aim had been to discover the source of Genghis Khan II's amazing power, but in this quest they had been baffled. They were forced to admit that although the Dictator was a madman, he was a genius as well. Then Thaddeus Moulton had conceived the idea of stealing the secret and had deserted his field of electro-chemistry to search for a drug that would offset the injection use by Genghis Khan II to make robots out of men. He had succeeded, and his son and four others had gone as ostensible robots to steal one of the air liners if they could obtain the secret in no other way.

Thaddeus Moulton could scarcely restrain himself from plunging immediately into the machinery room of the liner, but when informed of the robot crew and human cargo, he gave orders for the release of the latter, with the stipulation that they were not to leave the cavern. The robots he ordered released one by one, to undergo treatment to restore the normal functioning of their minds, and after seeing that his orders were being executed, he followed his son to the compartment in the center of the ship where the atomic power pulsators were housed. Richard pointed toward the shields.

"The power pulsators are within those housings but I've never seen them and have no idea of how they operate. The Dictator doesn't trust even his robots too far. These housings are opened in the shops by robots who have charge of the pulsators. I was only a navigator and didn't get a look-in at how they worked."

"What does he use as a source of power?" asked the elder Moulton, peering abstractedly at the bulky power plant.

"Stone or metal or anything, so long as it's powdered. I found that out, but that was about all. It wouldn't do for a robot to appear curious, not if he wanted to retain his head."

"Powdered stone! Hah! Open up this thing, Dick. Here's a lock and you as captain should have a key."

"I *should* have, but I haven't. Gen-ghis Khan II is not exactly a trusting soul. I'm afraid you'll have your troubles getting inside these. The shielding is duro-vane and I know of nothing that will cut it. It's the toughest metal known."

Moulton smiled grimly. "We haven't been exactly idle while you were away. Thornton discovered a tool that will cut duro-vane like a knife going through cheese. He discovered it accidentally, but it counts as much as if he had intended to do it."

It was the younger man's turn to stare. "Tell me about it," he urged.

"It's fairly simple, once you know how it works. Duro-vane owes its toughness to a molecular interlocking that somehow increases the field of force that holds the molecules together. I know it's impossible. That is probably why it happens. Thornton accidentally focused an extremely high frequency directional radio beam—its length was down in millimeters so you know how high the frequency was—on a sheet of duro-vane and the metal crumbled like dirt. He almost had a fit when it happened.

"This beam not only disrupts the interlocking effect, but it breaks down the normal force that holds them together, the molecules, I mean. Thornton experimented and discovered that only one frequency has this power. We made extensive experiments in determining how effective this beam is at a distance and if it could be controlled,

and the results indicated that we might use it to blow some of the Dictator's ships out of the air. It has a distinct greenish tinge. But we'll go into that later.

"I'll have Thornton here in no time and we'll have a look at the secret of atomic power." Here Moulton issued a crisp order to a young man who had followed closely behind him and who served as combination aide and errand boy to the elderly scientist.

"Tell me more about this ship," Moulton continued to his son. "What method is used in lifting it? I've torn my hair many a night trying to understand how these tons of metal are raised into the air so easily."

"It's as much a mystery to me as it is to you, even if I do have a good groundwork in science. I explained why I couldn't be curious. About all I know is that several tanks of some kind of gas are arranged along the top side. They're sealed and have no connection with the operation of the ship . . ."

Moulton stared at his son in ill-concealed disgust. "You're not trying to tell me that a gas lifts these tons of metal! Gas can only be employed as a lifting agent to the degree that its weight is less than the weight of volume of air it displaces. Then the air forces the gas to rise and if the container is not too heavy, the gas will carry it up too. But this liner weighs hundreds of tons and no gas will lift it."

"I know," doggedly persisted the younger man. "But gas lifts this ship. Let me explain how the controls operate: when we are on the ground and wish to rise, we merely move a lever in the control room. Seemingly this actuates relays, for these atomic pulsators immediately start developing a heavy load. As the power comes on, everything in the ship gets light, and when

we start rising our normal weight comes back. I think Genghis Khan II has discovered a method of doing something to gravity, reducing it to nothing. Then the small gas tanks will lift the ship because there is practically nothing to lift. When the gravity goes off, a magnetic field is set up in the floors of the ship. The fact that we are required to wear shoes shod with iron indicates that this is probably true. I think the ship rises because it and its contents weigh practically nothing when the current is turned into the G-rays."

"By the nine gods!" exclaimed the older Moulton. "Can it be possible that he discovered some method of shielding gravity?"

A brisk little man came bounding into the room now, followed by four other men who were carefully carrying several bulky instruments. A fifth man entered, trailing a cable leading to some source of current.

Thornton glanced curiously around the room, his eyes running over the meter panels and the bulky housings of the power pulsators. "Hah!" he said. "I never thought I'd live to see the day when I could get inside one of these power plants. Dick, you have done a marvelous job. The world can be proud of you. I was busy when you brought the ship in or I would have been on hand to welcome you." He turned to Thaddeus. "What did you want me for? Your aide said I was to come and bring my chisel. Have you got something you want opened?"

"Yes," Thaddeus answered. He explained to Thornton what needed to be done. The little man nodded vigorously, examined the lock, and gave orders for the placing of his apparatus. The cable was plugged in and a switch was snapped. A powerful transformer hum broke out, a series of tubes flamed

a brilliant purple. A faint greenish glow came from the end of a metal cone. Thornton carefully adjusted the power output so the rays would be restricted in range and focused the green glow on the gray metal around the lock. The younger Moulton was greatly amazed to see the tough metal crumble out and the entire lock break away.

"That gadget really works!" he exclaimed.

Thornton glowed with satisfaction as he snapped off the power. "It does the job. Probably that ego-centered father of yours told you I discovered it by accident, and if he did, he's one of the biggest liars living today."

Dick laughed, the first time in years. For the first time in years the world seemed normal and a laugh in order. Then he remembered the shadow that hung over the earth. And the laugh died.

Thaddeus Moulton paid no attention to the remark. He had rolled back the shielding, and with exclamations of surprise, was peering at the power pulsators. All gathered around him, attempting to peer over his shoulders. He twisted his head to bark a question.

"Dick, is this machine running?"

"Yes, it's supplying current to meet the needs of the ship when she is at rest. The output is very small, however."

"Turn on more power. I want to see what happens."

Cautioning his father and the others to be careful, for tremendous currents were generated in the pulsator, Dick stepped to the auxiliary control switch set in the meter panel. He moved it slightly. Instantly the faint but noticeable hum coming from the pulsator leaped in pitch. He moved the lever and the hum became louder, also rising in pitch. Thaddeus stared intently at

the apparatus revealed by the removal of the duro-vane shielding. Finally he waved his hand and his son shut off the power.

The old man stood up and turned to face the expectant group, a look of mystification and awe on his face. He chose his words carefully.

"As we suspected, but were unable to discover for ourselves, Genghis Khan II has discovered a method of releasing atomic power. I, of course, cannot be certain without making a detailed investigation, but it looks to me as if the apparatus is simplicity itself.

"A grayish powder is forced under pressure from a minute jet directly into a beam from a cathode of a vacuum tube containing at least six elements. Evidently the tube is a part of a high frequency alternator of some sort. At any rate the cathode emits a beam of reddish light through a little window in the side of the tube. As the powder strikes this beam of light it disappears, and as it vanishes a blue glow comes into existence. I suspect that this blue glow is pure energy, power divorced from any form whatsoever. Closely surrounding this glow is a coil of extremely heavy wire. I think this coil receives a charge from the energy existing inside it; in fact, this coil seems to be an absorbing device for transforming the energy into a useful flow."

For a second there was silence. Then Thornton protested. "But Thad, if that blue glow is pure energy, why should the coil be necessary? Why should it be in there at all?"

Moulton snorted. "Your remark proves that your discovery of a method of cutting duro-vane was accidental. How in thunder could you use pure energy if you had a bucketful? The energy that is created, transformed, set free, charges that coil, resulting in a

flow of current. And until you have a flow of current you cannot transform energy into mechanical action."

Thornton sniffed but gave in. Dick had come over and was peering at the apparatus. "Where does all that energy come from? Is it present in the powder ejected from that jet?"

"It is," was the answer.

"But the power developed in these pulsators is almost beyond belief. Is it all contained in that grayish powder?"

"I know of no other source. I think this is what happens there: the powdered material strikes the light beam—or disruptive beam, whatever it is—and the electrons revolving around the nuclei of the atoms are forced to jump from their regular orbits and to jump inward toward the nucleus. As these electrons jump, they emit a definite amount of energy, which the old-time scientists called, for lack of a better term, a quantum. And since this dust contains practically an infinite number of atoms and consequently almost an infinite number of electrons, the quanta emitted are almost infinite; at any rate, they are sufficient in number to build up a large amount of free energy, which, when absorbed by the encircling coil, is turned into a current thus realizing the aim of the whole process.

"As to the exact action of the light, of its power to force the electrons to jump inward, I can scarcely bazaar a guess. It may be that it acts only as a catalyst. At any rate it has the special property of releasing the forces that normally hold the electrons in their orbits.*

* There is nothing preposterous in light having this quality. We know of several instances where special elements or groups of elements possess special powers. The carbon atom, for instance, alone of all the elements, possesses the power to build up into complex molecules. This property is the fundamental basis underlying the existence of all life

During the days that followed, while the Ruler's agents were ransacking the globe for the mysteriously missing ship, the group of scientists hidden away in the bowels of a mountain in Colorado calmly disassembled and inspected the mechanism of the missing liner.

Four atomic pulsators were in the power room. One of these they tore down and subjected to the most careful scrutiny. Jergsbane, who had occupied the head of the chemistry department at the University of Minnesota, set to work analyzing the powder that was converted into energy. His report was terse, "Ordinary limestone, powdered." But when the electrical experts tore down the vacuum tube and took to him for analysis the cathode that emitted the reddish light, he ran test after test and shook his head after each one. "That cathode is platinum, but probably it would work as well if it were made of tin. It's the coating that contains the secret. And until that is analyzed, we'll have trouble in building an atomic pulsator. I'll carry on, but I won't promise success. The cathode is probably coated with one of the rare earth-metals, perhaps with an element that we haven't discovered as yet. Perhaps it's a compound. The analysis presents difficulties, to say the least."

Meanwhile Moulton and Thornton had been working with the G-rays. To their consternation they were slowly but surely being forced to the conclusion arrived at by the younger Moulton, that

on earth. If the carbon atom had not possessed this power, life, as we know it, would not have developed. Iron, with twenty-seven electrons, and the adjoining elements, made up of twenty-six and twenty-eight electrons, possess the power of permanent magnetism. The eighty-two to ninety-one electron group is the seat of all radio-activity. Thus it is easy to postulate that certain elements, under certain conditions, are capable of emitting light or a system of waves and corpuscles similar to light, which will loosen the force that holds the electrons in their orbits.—Ed.

the G-ray machines made possible the lifting of the ship, an end accomplished through bending the gravitational forces.*

Outside a voice was heard bellowing loudly for Moulton, who roared an answer. Jergsbane came hurrying in.

"What's happened?" Thaddeus snapped. "Have the Dictator's spies nosed us out?" He voiced the universal fear of the men and women who lived in this cavern.

"I've got it!" Jergsbane shouted.

"Got what, you excitable Swede?"

"The coating on that cathode!"

This was really exciting news. Upon the analysis of that coating depended the construction of atomic pulsators and upon the construction of the pulsators depended the revolt against Genghis Khan II. The eyes of the two scientists glowed with eagerness.

"What is it?" Moulton asked.

"I don't know."

Thaddeus stared at Jergsbane as if he contemplated jerking his head off. Thornton looked like he would gladly assist in the operation. Each was preparing to word a thunderous rebuke when the chemist continued.

"I don't know what it is, but I know where we can get all of it we need. A year or so ago there was brought to me for analysis a sample of earth from a mining pit in western Colorado. It contained, among other things, a small amount of material exactly similar to the coating on that cathode. I couldn't analyze the stuff and I filed it away and forgot all about it. When I was work-

* As was later brought out, the apparatus examined by Moulton and Thornton was connected to the outer hull of the ship, and insulated from the inner. Thus, the G-rays set the outer hull to vibrating in frequency, and this, combined with the fact that the outer hull was also strongly magnetized, resulted in gravity being bent around the ship.—Ed.

ing on that cathode, I suddenly remembered the sample. What do we care if we don't know what it is? We can use it anyhow!"

Then, in the G-ray room of the stolen liner three scientists indulged in an abandoned dance. A war dance. For at that moment war was unofficially declared.

CHAPTER V

Revolt at Last

IN the months that followed, the tortured earth continued groaning under the dictatorship of Genghis Khan II. His suspicions had been greatly aroused by the loss of an air liner and he shrewdly guessed that somewhere on the globe its secrets were being pried into. As to the use that would probably be made of the stolen knowledge, he did not have to guess. He knew he was hated, he saw the conflict impending, and he got ready.

His robots constructed many of the gigantic liners, armored and deadly. Robot battalions guarded the land approaches to his City on Tihet. By day and by night a succession of ships constantly circled the sky-dome that hung over the city. He himself sat in this dome and stared out at his defenses and felt almost safe. Robots were not allowed to approach his person. His orders were delivered by radio.

Tel-visor screens kept him informed on what was happening over the earth. When he desired to speak to one of his commanders, and wished that conversation to be especially secretive, the man was brought up to the dome. He entered one room while the Dictator stayed in another. Tel-vision and loud speakers were the only connections between the two. Only the robots who

served as his personal attendants were allowed near his person and these never left the dome. The slightest suspicious move and they were killed. He took few chances. But ever and anon his instruments recorded strange vibrations coming from different spots on the surface of the earth. Genghis Khan II suspected what these portended and daily he got more irascible and nightly he planned added defenses.

The attack came as the dawn broke over the City of the Dictator one December day. From out of the sun, a slender ship came knifing down at incredible speed. It flashed over one of the lumbering guard ships circling the sky-dome, a greenish ray flicked out like a finger of doom, the nose of the guard ship crumpled where the beam struck, and the liner crashed to earth.

The diminutive hornet, that had attacked it, leaped away and was gone. It was the leap of the wolf attacking the lumbering bison. The liners were fast, very fast, but the attacking ship was flying so fast that the speed of the liner seemed inconsequential. Behind the diminutive ship leaped a streak of roaring flame, pushing the blunt nose through the air.

The news was instantly flashed to Genghis Khan II. He saw his smashed liner on the tel-visor screens. It lay a twisted mass of duro-vane with the nose sheared off where the beam had struck.

Then out of the sun came another ship, and another, and another. Each leaped down and away and as each scuttled off, an air liner fell crumpling to earth behind it. The heat rays with which these guard ships were armored, the rapid firing guns hurling atomic missiles, chased vainly after these lashing fighters.

The Dictator, frantic at the sight of his guard being cut to flinders, radioed

orders calling to his protection his ships from all parts of the earth. From every quarter his air liners came bravely flying, manned by their robot crews.

There was something magnificent in the way these unthinking, unreasoning, human beings went down to death. A mighty ship would come hurrying up, there would be a thundering whine of rockets, a streak of metal, a green ray, and the liner would go crashing down like a plummet. Ah, those robot crews, how calmly they died. But the men manning the rocket ships knew they had to die. There was no other way. It was slaughter, but it had to be done.

And the robots were not without protection. Once a heat ray directed at random caught a rocket ship just before the green ray flashed out. Plenty of current flowed down those minute parallel beams. The rocket ship flared into almost instant incandescence, and it took the long plunge downward, a screaming mass of white hot metal. The liners of the Dictator were deadly—they had long held the earth in subjugation—but they were outmaneuvered by the screaming rocket ships.

The robot battalions on the ground stared uncomprehendingly at the battle raging up above. Who dared dispute the will of their master, they wondered. Vainly they attempted to train their heat rays, their atomic missile projectors, on the rocket ships. As well might they have tried to stab the mist of the morning. Speed, speed, and more speed, those ships had. They stood on their tail and climbed up to heaven, climbed clear out of sight, climbed as easily and as rapidly as they flew horizontally. Then down to earth they dropped and a duro-vane liner crumbled.

Under their attack the guard ships fell one by one. As the liners bent on

rescue came up, they met a similar fate. Ever in the history of the world speed has triumphed.

Then the rocket ships calmly started flying in circles high above and around the sky dome, wherein Genghis Khan II sat in rage and growing panic. Perhaps he expected an attack on the dome, but none came. With the failure of the attack to materialize, he realized that in all probability they were saving him for a different fate.

The thought of capitulation never entered his mind. Too well he knew what his fate would be if he fell into the hands of those angered men and women whom he had enslaved. Exquisite would be the torture they would invent for his passing. He would die, oh yes, but he would die slowly, in as horrible a manner as the combined hates of millions of people could devise.

He saw what he thought to be one of his own ships appear high in the heavens. The rocket ships left off their circling and approached it, but they made no move to attack. Then the Dictator knew that the end was near. This was his own ship, the one that had vanished. As he had suspected, the rebels had captured it. Now would follow the attack on the sky dome. Judging from the way the green ray had sliced through his ships, the sky dome, constructed of duro-vane, would not offer resistance to it. Genghis Khan II never doubted but that soon a green ray would reach out and the sky dome would crumble beneath him. So he prepared to play his one remaining trump, his hope of escape when all other hopes had failed.

Housed in the sky dome, ready for instant and prolonged flight, was a blunt nosed speedy flier, the fastest ship on the earth—or so the former world ruler thought before he saw the rocket fliers.

When the liner moved slowly toward him, and the rocket ships had climbed out of sight in preparation for a power dive, Genghis Khan II, seeing that the end was near, opened the doorway out of the dome, slipped into his flier and hurled the speedy little ship out. Somewhere on the globe he would find sanctuary. Somewhere he would be safe.

The rocket ships, lost in the blue above, did not see the flier slip out. But the men in the liner saw the tiny projectile leap from the dome and they hurled their ship after it. The escaping Dictator laughed. This was faster than any ship ever invented, almost as fast as those devils that had destroyed his guard ships. They could not catch him now. He hurled his screaming flier along, a hare thousand feet above the ground.

But when they had stolen his secret of atomic power and had unlimited energy at their disposal, the scientists of the cavern had devised, besides the greenish disintegration ray, another effective weapon, which they had planned to use on the sky dome. But now they had another quarry. Genghis Khan II felt his ship slow down as the magnetic ray struck it, felt it lose speed and swing back toward the liner coming toward it. But before he could bring his weapons to bear on the opposing ship, the two were locked together by the magnetic beam. The rebel liner opened a port, and Thornton's chisel snipped a small hole in the flier. Before the Dictator realized what was happening, while he was still attempting to bring his weapons to bear on his captor, he found his ship filled with gas. The master of the earth quietly dropped off into unconsciousness.

Locked together, this oddly assorted pair, captor and captive, turned back in the direction from which the larger

had come. Two of the rocket ships followed as guards. The others took up their patrol around the sky dome. With constantly increasing speed, the stolen liner moved away, carrying with it the flier containing the unconscious body of the captured Ruler.

Again the doors of the mountain cavern rolled back. Like Siamese twins the rebel ship and its captive moved in, while the two rocket fliers turned on their tails and pushed themselves out of sight in the sky above, where they took up positions as guards.

The captive was extracted from his ship much as a sardine is extracted from its can, by removing the protecting metal. When the people in the cavern got a glimpse of his unconscious body, a murderous growl arose from their throats until the entire cavern resounded to this song of hate. Here he was, this man who had killed their friends and relatives, who had made slaves of free men, who had forced men to become hunted creatures moving only by night, living within caves, forever shut off from the light of the sun. Here he was, the man into whose hands had been given the ability to lift the human race to undreamed heights, but who had perverted this ability to his own use. Here he was, this fiend. And the people growled. "Let us tear his flesh from his bones with red-hot pincers," they screamed. "Let us tear off his fingers and his toe nails and pour molten lead on these quivering surfaces. Let us break, slowly but surely, every bone in his body."

When the tel-visors still in use in the world were electrified by a broadcast from the cavern and the helpless Dictator was shown to the goggling populace, a chorus of hate rose to the skies, and all the fliers on the earth were jammed

to the guards with men and women who had but a single idea, to get to this cavern in the Rockies to help destroy the man who had held them in subjugation. Only the robots, milling aimlessly without a leader, failed to take part in this heira to the Rockies to witness and assist in the death of a tyrant.

But the scientists were too wise to be swayed by hate and in the end their ideas prevailed. Their captive was not killed. He was not even tortured. He was given an injection of his own drug, made into a robot, and set to work repairing the damage he had done. His genius was unquestioned. Robbed of

his will to do harm, he was incarcerated in a laboratory, heavy guards were set over him with orders to destroy him utterly if his normal mind showed signs of returning, and he was kept there, toiling away at the problems facing a devastated world about to be rebuilt.

In the years that have elapsed since that momentous date, humanity has come out of its hiding place, cleared its tangled fields, reset its temperature regulators, and normalized its robot population. Again air liners sail serenely through the skies.

Again there is peace and happiness over the smiling earth.

THE END

COMING!

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Illustration by
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"We can't, we can't go
through that boiling zone!"



Escape Through Space

BY
ROSS ROCKLYNNE

The Martian dynasty overthrown, the ex-princess is /
exiled to Earth under escort of Larry Sharon. Pursued by treacherous revolutionists, the unhappy pair face the deadly "Boiling Zone" of the sun

CHAPTER I

Rebellion on Mars

LARRY SHARON strode through the waiting room of Inter-Planet Import Co., main office in the capital of Mars. He put a dime into the slot of a machine which shrieked out for prospective newspaper buyers the latest interplanetary news. A newspaper, which, in seven centuries had found no equal as a purveyor of detailed information, fell into his hand.

Taking off his hat, and running a hand back over a rebellious mop of coal-black hair, he swung past the secretary, and pushed open a door reading Justin Pringle, Pres.

"Hi, J. P.," he said casually, and J. P. nodded, but went on reading a letter. Larry dropped into a chair, surveyed the newspaper nonchalantly noting the headline: MARTIAN MONARCHY

OVERTHROWN.

"Well, the rebels ruz up and overthrew the reigning heads," he observed facetiously. "Looks like the kings get stepped on sooner or later on Mars as well as every place else."

"It happens." Justin Pringle dropped the letter and devoted his attention to his youngest buyer. He waved a scornful hand.

"There wasn't a monarchy left on Earth," he pointed out, "when Bursdell made the Moon; yet, within the next hundred years, every large expedition to land on a planet, went ahead and founded a monarchy. Kings and queens first. Dukes, lords, barons, after more settlers arrived. You wouldn't think it possible in a scientifically enlightened age—but that's man for you." As an afterthought, "Who is it this time? . . . Mars?" He appeared startled and

opened his eyes. "Well, the Mars business finishes up another one, and I suppose Titan will catch the fever too. . . . Details?" There was a worried look in his eye.

"Oh, nothing much. All reigning members of the Martian aristocracy killed—except a Princess Helen. They can't finish her off deliberately, now that the heat of the rebellion is over. Guess they'd like to, but they'd have the condemnation of every planet in the solar system. Oh, yes, Mars has gone socialistic."

He expertly skimmed over smaller headlines, dropping the Martian matter, as if it were of no concern to him. "A single member of the last Venerian expedition came back alive—the usual story. Venerians are inimical to everybody but themselves, and they've got senses that enable them to detect intruders at once. . . . New comet sighted this side of Pluto—terrific velocity—small, about half a million miles in diameter—will make perihelion passage in four months, about. Hmm. Must be a fast devil." He read the details, then threw the paper aside.

"What's on your mind, J. P.? What's that funny look on your face for?" he queried, dangling long legs over the arm of his chair.

Justin Pringle was grinning crookedly. "You don't seem to be paying much attention to the Martian business, Sharon. But that's where you're going."

Larry shrugged his shoulders. "Not surprised. Been in worse places than that."

"Well, I'd hate to have you run into trouble, Sharon. Last month they reported having found tritonite—large deposits, too. There hasn't been much danger of any other firm snagging their output, since we're the only ones know

how to use the stuff, but I've been letting it go too long, now. Mind running out, getting prices, and arranging for a shipping schedule?"

"Be glad to, J. P. I'd like some excitement for a change. I'll look up the Princess Helen," he added, his blue eyes mischievous.

"You're just the type for it," Justin Pringle growled. "You'll have to start in the morning, though."

Larry nodded, and tucking the paper under a muscular arm, rose to his feet, yawning, his jaundiced eye wandering to the window, catching glimpses of the web of bridges, cables, and catwalks that overhung the parring city two thousand feet below. Before he left, he cocked an eye at his superior. "How about your computer fixing me a decent curve this time—last time he had me playing tag with an asteroid belt, and there was a comet worrying my tail."

"Don't worry—we've never plotted you wrong yet. Send your course in the morning *hy vacuo*. I'll be seeing you, Sharon—good luck."

In the administration building of the recently formed Union of Mars Socialist States, the newly elected Secretary of Foreign Affairs faced the manager of the newly discovered tritonite mines.

"I think I've got your man," the manager said quietly. "An American, of Earth. He represents the Inter-Planet Imports Co., commuting between here and his branch office on Earth. He has been making a deal with me for shipping tritonite to Earth. We get a nice price, and we've signed the papers. But he's just the type you need. Not overly intelligent, self-satisfied, Irish stupidity and devil-may care. And I'd say he was interested in money."

The secretary nodded musingly. "Offer him—no, ask him if he would like to earn a hundred thousand dol-

lars. And if he accepts make an appointment that is agreeable to him." He paused thoughtfully. "Oh, yes. Assure him there is nothing underhanded which he will be asked to participate in." He dismissed the other man.

So it was that Larry Sharon, as curious as he was interested in accumulating at one stroke what amounted to a medium-sized fortune, and decidedly suspicious at the same time, rode through the fine, broad thoroughfares of Mars City, seeing evidences of anarchy and horror rather than socialistic order, and finally entered the centrally located administration building. A courteous aide led him with dispatch to the Secretary of Foreign Affairs, who, with numerous other members of the swiftly formed cabinet, stood or sat around.

The Secretary was small, cruel-eyed, mustached. He wore the conventional flaring trousers, and his waist coat had a touch too much of color. Sharon didn't like him. His bold eyes underwent no effort in meeting the other man's eyes.

"Did you want to see me—something about a hundred thousand dollars?" he inquired politely but with directness.

The man smiled, and rose to his feet. "Yes," he said precisely, and with a slight touch of patronage, "about a hundred thousand dollars. You are doubtless aware of the political turnover on Mars, Sharon," he went on. "We have routed the royalist element, for the most part eliminated the aristocracy which was draining the lifeblood of the—"

"Spare me," begged Sharon. "They used the same line three centuries ago on Earth. Do you mind?"

"Not at all," coldly. His eyes glinted. In one swift movement he crossed the room. He flung open a handsomely carved door that was

marred only by the deep ax-gash some vandal had cut into it. He beckoned to Sharon, who with slight misgivings followed him into the room beyond the door.

It was a small room, with a single window that apparently overlooked a courtyard. It was barely furnished. In the middle of the room was a table. Seated at the table, reading by the light of a small lamp, sat a girl. Her head was raised, startled. She rose to her feet. She was garbed in the filmiest of materials, caught about the slim waist with a single purple sash. Her hair was black and flowing, and her face was beautiful with a creamy, flawless simplicity. But her eyes were strained from much suffering.

Staring at her, Larry hardly heard the Secretary of Foreign Affairs speak.

"Princess Helen," he waved a small hand, "Mr. Larry Sharon, whom we have engaged to transport you to your friends on Earth."

The expression on her face hardly changed, save that her eyes became a little more hopeless. She simply inclined her head.

"Blue blood," the secretary said in tones vicious with contempt. "She doesn't deign to speak to her inferiors." His manner changed, as Larry turned to stare at him.

"Yes, Sharon. We'll give you a hundred thousand dollars if you can get her to Earth safely. She is the last member of the royal family, and of course cannot remain on Mars."

Larry glanced at him coldly. He didn't like the way the man spoke of the princess—as if she were some inanimate object. "Why 'safely'?"

"She has enemies, Sharon."

"Naturally. But why choose me, of all people? Why not some one you know?"

The secretary shook his head smilingly. "Do you think there is anyone on this planet we could trust? The royal family stirred up a lot of bitterness here, Sharon—"

"I realize that, too. But why not call for an escort, from Earth, from Ganymede, a large enough force to protect the princess from possible attack? Why assign one man to the job?"

"Because," impatiently, "we must get the princess off Mars immediately! We haven't the time to call for help in the matter. There are mutterings even now that the Princess be executed. So," he shrugged, "we learned of your arrival, looked into your character a bit, and are satisfied you are qualified for the assignment." His manner became at once stiff and haughty. "We'll take your answer now, Sharon. If not—" He let the sentence hang.

Sharon's eyes bored into those of the other man, as if trying to read exactly what was in his mind. Then he slowly turned his head toward the princess, who stood with pallid, hopeless face across the room. She seemed so royally remote from these calculating men that he felt it'd be a bold affront to touch the hem of her gown. He smiled a little ironically. "I accept," he said quietly.

CHAPTER II

A Tough Job

WITH a single movement the Secretary of Foreign Affairs reached into an inside pocket and produced a roll of papers. "Your instructions, Sharon."

Sharon unrolled the scroll, glanced at them. Leave at a certain time, down to the second. Use maximum acceleration after a certain point. He nodded to himself—the course they had plotted out seemed sensible.

"This will take me just outside the boiling zone?"* he inquired.

"Yes—as near as you can possibly get to the Sun. Earth, when you arrive there, will be in direct line with the Sun and the point in space which Mars now occupies. We have given you the shortest possible route to Earth; it is imperative that you make haste. You noted the time of your departure—the morning?"

Sharon nodded, and placed the instructions in a pocket. "I'll use my own ship, of course," he said matter-of-factly.

"I'm sorry. That will be quite impossible. We will furnish you with a ship." The man's eyes were cold.

"Well, certainly there's no harm in using my own ship," Sharon began angrily.

"There is, Sharon!" sharply. "When your ship leaves, there will be immediate suspicion fastened onto it. We must take every precaution in the matter of the Princess Helen's safety—it isn't an idle matter with us. We have our prestige as a nation—"

"What make do I use then?" Sharon broke in, with a narrowing of the eyes.

"Hispano-Suiza."

"Model?"

"2422." Nonchalantly.

Sharon sprang forward, murder in his eyes. Almost as if by magic two men grasped him from behind.

"You can't do that!" he shouted. "Of all the modern ships, you have to pick on a Hispano-Suiza '22. They build up slow. What if some of these often al—"

* The boiling zone is that area surrounding the sun which Space Navigators shun, because of the extreme heat, which literally "boils" alive the occupants of a space ship incautious enough to pass through it. It is also a region frequently filled with outlying incandescent material hurled from the surface by the tremendous explosions in the sun itself.—Ed.

luded to 'enemies' should show up in a late model ship—they could outrun us ten times over, and that's one whale of a lot over long distances!"

The Secretary of Foreign Affairs quietly waited until Sharon had finished. He made a motion, at which he was released.

"Please understand, Sharon." He became deliberately patient. "We choose a Hispano because it is an old ship—inconspicuous. No one could possibly suspect—"

"—that the princess was aboard!" Sharon finished cuttingly. "All right. I waive all objections. Give me the money and I'll get the Princess to Earth."

He was disgusted with the whole proceedings. There was something wrong, he couldn't figure exactly what. But whatever it was—Lord, how could a

man turn down the chance of helping that girl over there? When she sensed his looking at her she let him see, in one movement of the eyes, all the hopeless misery and despair that fate of the past and future had held, and would hold, for her.

When the Secretary of Foreign Affairs politely handed him a check drawn on a New York bank, Sharon as promptly and politely handed it back.

"I'll take cash, in platinum," he said coldly.

There was a moment of tense silence. The secretary drew back and conferred in hurried whispers with his colleagues. Finally he nodded.

"We'll deliver it to your ship in the morning," he announced.

"Fair enough. But there'll be no takeoff if I don't get the money."

An attendant came forward. "I'll

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show you your quarters, Mr. Sharon."

Sharon nodded, but before he left, he met the eyes of the girl again—she couldn't have been more than nineteen. He tried to put as much assurance in his glance as he could, but he supposed it didn't register, for her eyes remained distant, and her lips were tight except for a slight tremble. Sharon followed the attendant.

Under cover of darkness that morning, Sharon was smuggled into the ship. He didn't even have the opportunity to examine it—but he knew the Hispano-Suiza '22s. Heavier in the stern than in the stem, when anybody could see it should be otherwise, if you didn't want to run the danger of looping loops in mid-space. Jets, less than a square millimeter of firing surface for every square meter of the ship's area. But the fuel was good, and there seemed to be plenty, though of course the combustion system was practically barbaric.

"Where's the Princess?" he whispered to his guide, who was made ghoulish in the faint light of two moons.

"She is aboard," came the whisper. "Your money will be here shortly."

Sharon waited. The moment of the take-off was nearing.

A shadow was coming toward the ship, a man with a heavy satchel flung across his shoulders. Sharon's guide took it, hoisted it up to him. Sharon closed the outer valve, and then the inner valve, sealing himself within the ship.

Grimly he started to count out the money, by the simple process of throwing the dull platinum cartwheels into a corner. All were there. He looked at his watch and started forward. Thinking better of it, he went aft.

He knocked on a door beneath which shone a crack of light.

"Princess?" he whispered.

"Yes." The voice was low, frigid.

"I wanted to make sure you were safe. Will you please come forward later on? I've some things we have to talk about."

"I'd like to be alone for a few days," the princess made answer, still with that icy tone. "After that, I suppose I'll need companionship, and I'll have to find it where I can."

Larry emitted a gurgling sound. Wow! If ever a princess had used a royal tone, that was it! He staggered forward, and blasted off. But he found himself smiling a little.

He rocketed along until Mars had dwindled to a red speck a million miles astern. At that point, following instructions, he drove into maximum acceleration, setting his nose on the parabolic curve necessary. He went back and put his eye to the 16-inch, photo-amplifying refractor. As soon as he saw what he expected to see, he was going to consign those damnably accurate instructions to Hades, and follow whatever course he wanted to.

On the fifth day, the Sun visibly increased in angular diameter, but still more than one-hundred-thirty million miles distant, he heard a sound behind him. It was the princess.

"Oh—good afternoon, or whatever it is," he said coldly, but his pulse began to pound a little faster. She didn't look too much like a princess standing there—she was all girl. She studied his features a single moment and then subsided into a chair. She smiled.

"Are you a fool?" she asked presently.

"I don't think I'm qualified to answer the question," he replied tartly.

"I heard you counting your money," she complacently continued. "A hundred thousand dollars. That's the price

you ask for your life. I think you will never spend it."

"I don't intend to spend it," he answered flatly. He relaxed. "That's what you're driving at, princess—my cupidity overcame my common sense?"

She nodded expectantly.

"Well, it didn't. *You* overcame my common sense." He turned angrily away. "I couldn't leave you in the hands of those vultures. As for the money—that's yours, if you'll take it. I don't suppose the revolution left you much."

She was silent. She presently said, in a voice she must have fought to keep from shaking, "Thank you."

Sharon devoted himself to correcting small errors on their ship's course. After awhile the princess said, "Of course, we both realize I am not supposed to arrive safely on Earth."

He turned to her slowly. "I'm glad you understand that, princess. No, they very likely wouldn't want a single member of the aristocracy alive. You might leave descendants, one of whom would secure hacking to fight for the throne."

"You were very angry when they gave you a Hispano," she told him, her eyes twinkling. "But of course, they didn't care whether or not you escaped my 'enemies.'" She added mournfully, "But of course, they are my only enemies. All the people loved me. I know they did. They slaughtered my parents, but they would not touch me."

He remained silent. She met his eyes again. "It was brave of you to help me, Larry Sharon. But I think you have thrown your life away."

"Not if I can help it!" he exclaimed. "I'll give them a fight—" Then he stopped, laughing at himself. "But that's just talk, of course. Imagine a Hispano giving fight!"

They both laughed. "I am glad we are friends," she said naively. "I like you quite a lot."

He grimaced. "I like you, too—more than is going to be good for me."

"Why?" she demanded innocently. "I am only a woman, Sharon. Some day I will marry a man, not a prince." She smiled, added frankly, "You are nice—I may fall in love with you. Perhaps it would be a privilege. I did not love the heir to the Ganymedan throne, yet I was to marry him when I became of age." And instead of allowing him to become either surprised or discomfited at the unconventional statement, she said:

"Do you think there is much chance of escape?"

"Very little princess." He became grave. "You see, we can't outrun anybody. We're now following the shortest route to Earth, a curve that comes within fifteen million miles of the Sun, the nearest any ship can get without running into the boiling zone. That's the picture. Suppose there should be a ship waiting—no, they won't have a ship waiting, come to think of it. We'll smash past perihelion at enormous velocity, and they'd have to have a speed matching ours." He snapped his fingers.

"I'm beginning to get the plot, now," he ruminated. "They gave us this old model—slow. Now what if they had their figures computed down to the second and the mile. They could start after we did, and catch up with us exactly over the Sun, at our velocity. Training a heater on us seven seconds, the bulkheads of the ship would collapse. After that, it'd be easy to nudge us into the Sun, and no one would be the wiser."

Her face was expressive in its registration of horror. "That is why they

gave you such detailed instructions," she exclaimed.

He tapped a finger on the instrument panel, thoughtfully. "We have to follow that course, though," he muttered. "We can't turn back to Mars—the ship that follows us, or is going to follow us, will certainly sight us, and rather than run the risk of losing us altogether, will blast us then and there. There are three superior planets this side of the Sun—" He abruptly took pencil and paper, made some calculations. "We couldn't make them on the fuel we've got. Venus is inimical, although accessible. To escape them at all," he went on, elevating his brows at the princess, who had been listening with great attention, "we'd have to go right through the boiling zone!"

"That would be suicide. Oh, Sharon," she weakened, "what else is there for us." Then she began to cry, softly, regally.

"We can't, we can't go through that boiling zone!" she exclaimed.

Acting on sudden impulse, Sharon took her hands in his. Since she didn't resist, he continued to hold them and look at them. They were small. They were white and delicate. They were the hands of a princess and the hands of a lovely, troubled girl at the same time. His eyes traveled to her face. Her eyes were deep and blue as a Terrestrial sky, as steady as the Earth itself.

"I am afraid I've fallen in love, princess," he said humbly.

She smiled frankly, but withdrew her hands. "There is nothing to be afraid of, Sharon," she told him sincerely. "I am glad you love me. I have met many men—I do not like any of them as well as you. If we arrive on Earth, I will need a man to show me its many wonders. It is very probable that I too will fall in love with you."

"That's a promise," he said quietly, and she nodded brightly.

CHAPTER III

Into the Heat!

THREE weeks after the little Hispano-Suiza had fled upward, fighting the gravitational hands of Mars, two other ships had put out from Deimos, one of the two moons of the red planet. They immediately assumed maximum acceleration.

Aboard those ships, there were, collectively, six men, and they were all high officials in the Martian state. Each of these ships had different courses, for, although they seemed at first to have the same course, they slowly but steadily diverged. One of the ships was following Sharon's course—the other was heading for the opposite side of the boiling zone, to take care of any lapses in the American's instructions.

On the ship that followed Sharon, the pilot asked of his superior, "Do you think Sharon will follow any other course than the one outlined?"

"Possible," the other nodded. "Even probable. But no matter what course he does follow, he can't escape. You see," he said easily, with quiet assurance in his statements, "if he lags, we'll catch up with him. If he goes around the Sun any other way, either myself or Goren, in the other ship, will note it. Since the inhabitants of Venus kill intruders without compunction, they can't land there.

"Mercury? On the other side of the Sun, same as Earth. No," he yawned, "only way they could elude us now would be by going through the boiling zone."

His subordinate laughed heartily at the witticism.

Meanwhile Sharon was contemplating his almost hopeless chances. Suppose that some miracle enabled them to pass through the boiling zone? Within two or three million miles of the Sun. On their present course, the distance from Mars to Earth would be 253,202,000 miles, and by cutting in three million miles away from the Sun, they'd shave off about 20,000,000 miles from their flight, and save more than a week doing it! And they'd get to Earth in plenty of time, safe! Absurd speculations! It was quite impossible.

Sharon caught sight of two ships astern, and noted their diverging courses, and guessed the significance. They were going to approach from both sides!

More and more he sensed his impotence. What course, other than the one outlined, could they follow?

The dread crept up behind them. Each day they felt the growing intensity. At their present course, under maximum acceleration, they could make Earth in seventy-eight days. Nice of them to figure that far ahead.

"I don't mind dying, Sharon," the Princess Helen insisted. "I have been happy, for the first time in many months. But, of course, it would be so much nicer if we could continue to live." She added, laughingly mournful, "If only there were something to give us shade from the Sun, to protect us from the blistering heat."

Larry started to laugh with her. Abruptly he stopped laughing. He looked at her so long in absent-minded wonder that she was alarmed.

"Is anything wrong?" she queried, putting a hand on his arm.

"Jehosaphat!" he exploded, jumping as if sleep. "Wrong? No! Great Jovel!" He was blubbing to himself. "But that can't be!" he continued to

blubber. "There ain't no more miracles. Things like this don't happen to me, not to little Larry Sharon!"

Without a word of explanation, he went away. He ran up a companion-way, emerged into the observatory. For an hour he trained his eye into the telescope. Watching, breathless. Three times he turned and made calculations. Three times he whispered, "Good!"

He left the observatory, ran down to the control room. Without a moment's hesitation, he began to change their course, going at it gently, for a sudden swerve at this velocity would provide an unendurable acceleration sidewise.

Finally, he swung around, and with pure enthusiasm grabbed the small hands of the princess again. This time, she did not object. "We're going through the boiling zone!" he announced. "1,200,000 miles from the Sun—but we're not going to boil. The new comet will take care of that!"

Larry gripped the arm of the Princess. "It's the new comet. A hyperbolic orbit, which means that it was drawn in toward the Sun from the space beyond the orbit of Pluto, even. Probably it'll vanish in the same way, for it has a tremendous velocity. But in the meantime, there it is! Our escort around the Sun, protecting our ship from the heat."

The comet fierily paralleled the course of the Hispano; it was not large, being but a half-million miles in diameter. But its tail, under the fierce, repelling light of the Sun on its rare constituents, spread backward in a steadily widening fan-shape that must have been ten millions of miles long.*

* Astronomically, this is considered a small tail, since many attain lengths of hundreds of millions of miles.—Ed.

Far ahead was the nucleus, seemingly rushing straight at the Sun. The nucleus was small, emitted a bright light which it imparted to the envelope of tenuous gases surrounding it.

The Princess looked up at Sharon thoughtfully. "But," she spoke up, showing some little knowledge of astronomy, "a comet is—tenuous. Why, even on Mars they can see stars right through the nucleus."

"Which doesn't mean that there mightn't be chunks of matter large enough to berth this small ship—does it?" he asked.*

There's no scientific proof that a comet's nucleus, in many cases, might not be either solid all the way through, or composed of a more or less tight pack of smaller masses. I read an account of this in the news just before I left Earth—and from all reports it apparently has a small but substantial nucleus.

She shook her head and he went on:

"Now this is a fast comet—faster than any previously discovered. It's going to cut close to the Sun—I only know of one that cut closer.**

"The great velocity of this comet is responsible for its close passage—the Sun doesn't move out of its way fast enough to arrange for less crowded quarters. But it's our salvation."

He began to make more changes in the ship's trajectory. The gloriously radiant tail of the comet—shining by the Sun's reflected light only—became more parallel to their own course. Now, by jockeying the ship in at an

angle, Sharon could envelope it in the tail, and by following the path it presented, he could ease into the shade of the nucleus, just before it passed the outside limits of the boiling zone.

The glare of the Sun was becoming intolerable. They had to close all ports, and they put the refrigeration system on full force. Whoever had calculated the limits of the boiling zone had shaved a hair close.

Meanwhile the Martian pursuers drove deeper and faster into the celestial night.

The high commander, eye fixed to the eye-piece of the fore telescope, was puzzled.

"I don't understand this at all," he muttered to his subordinate. "There can't be any doubt that Sharon discovered our trap—he's changed his course entirely." He moved away from the eye-piece. "Take a look."

His subordinate frowned in incredulity. "He must be a fool. He's heading right into the boiling zone. It's suicide—"

The other shook his head. "From what I saw of Sharon, he isn't the kind to commit suicide. He's up to some trick," he grated. "Keep your eye on that ship, and the minute anything untoward happens—let me know!"

Two days later, he was called to the 'scope. "Look at that," the watcher said with tense calm. The commander looked once, then raised his head.

He slumped into a chair. "This may ruin our plans," he said. "They're right on the edge of the boiling zone, and they're headed right into it."

He jumped to his feet, face savage. "Put some power in those rockets. Get around the Sun as quick as you can and head for Earth. If we can overtake them—"

His subordinate shook his head

*Sir James Jeans holds that comets are probably composed of meteors held together by mutual attraction. If one were to collide with Earth, there would be no danger, just a magnificent meteoric display.—Ed.

**Sharon undoubtedly refers to the comet of 1860, which approached the sun within 1/163rd of Earth's orbit—less than a half-million miles.—Ed.

doubtfully. "No, there is not a chance. They'll never get through that boiling zone. We might as well abandon the chase. We have forced them into a flaming death."

But the chase was not to be abandoned. Operating the rockets at full blasts, the Martian ship headed towards the earth, skirting the dangerous Boiling Zone.

All that day, Sharon sat at the controls, tense. He was within the tail, which, because it determinedly swung straight away from the Sun, necessitated a peculiar sidewise course down its length toward the comet's head. His problem was to equalize his velocity and acceleration to that of the comet.

And finally he made it, the boiling zone a mere half-million miles distant. The comet apparently came slowly drifting upward—and then stopped.

They saw its main mass now, shining with a cold phosphorescence. They saw huge masses slowly jostling back and forth, bumping, drifting back together again, but in general keeping a constant formation.

Through it, they saw more of the Sun than was concealed. Its glare and heat were still things to be dreaded. But in the lee of one of those masses there was safety.

Sharon brought the ship down gently onto a mass of matter that might have been no more than an exceptionally large meteorite, were it not for the phosphorescent notes that danced in an aura on its surface.

The Sun was blotted out, completely eclipsed.

To either side were the fantastic spangle of stars, the constantly swinging tail, the fuzzy halo of the comet, and an incredible number of tiny meteorites that at times rattled like hail against the ship.

They were safe, except for the danger presented by the constant internal movement of the nucleus, which was no more than two miles in circumference. Three times, the chunk they were riding threatened to penetrate into the middle portions of the comet's head. Four times, the masses they rode started to roll around the edge of the nucleus toward the Sunward side. Thus, seven times they nudged away and chose another resting place.

The comet penetrated deeper into the boiling zone, accelerating toward perihelion passage. Five days after entering the boiling zone, the comet came its closest to the Sun. During this time the two fugitives never once saw the Sun, nor were they affected by the awful heat the other side of the comet must have been experiencing.

They were now within the tail, which stretched straight away from the Sun they knew not how far. But it must have been an enormous distance; the length of the tail becomes greatest after a comet passes the Sun.

The comet began to emerge from the boiling zone. In four more days it was completely outside. Its course was straightening. The Sun had whipped it around like a small boy whips a stone on the end of a string, had given it a greater velocity than it previously possessed.

Far in the distance they sighted Earth.

"Great!" exulted Larry Sharon. "We're safe. Look at these figures. We cut off about 22,500,000 miles from the original course. We're safe!"

The glorious eyes of the Princess Helen sparkled. "And that is the Earth," she whispered, clasping her hands. "I have never been there. Larry," she laughed, "it was such a nice, obliging comet!"

The nice, obliging comet carried them a little farther, and then, hand in hand, they regretfully bid it goodbye. It went away, a great shining nebula 500,000 miles in diameter, its 10,000,000 mile tail swerving distastefully away from the Sun into whose proximity it had so closely ventured.

They turned the ship Earthward.

Three thousand miles from its security, they saw, in the stern telescope, a great ship that even now was braking its speed. It had come around the boiling zone, but as for catching those who had gone through it, they knew it couldn't be done now.

END



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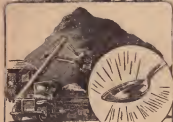
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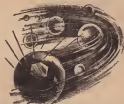


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IMBEDDED IN METEORITES, TINY DIAMONDS HAVE BEEN FOUND, BROUGHT BY THESE STRANGE VISITORS FROM FAR OFF SPACE

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Blake Henthorne and his father are trapped by the ruthless ruler of Golden City. Subdued and enslaved in the underground mines, Henthorne, inspired by the love of a fellow captive seeks escape and revenge.

CHAPTER I

Hugh Dalaker's Story

WORLD wide storms and shattering electrical disturbances were the basic reasons for three men occupying a lonely camp in the foothills of the Peruvian Sierras. . . . It was long past sunset: a high moon revealed the towering, snow-capped peaks of the Andes. The Sierras—boundary line between the Peruvian coast and the wild, trackless forest of the interior.

"I still think you're crazy!" Blake Henthorne remarked. "You figure that the cause of all the troubles in the outer world lies right here on this map? Somewhere in the interior. That it?" His sharp grey eyes darted a question in the light of the table lamp.

His father, Doctor Henthorne,

nodded his white head slowly. "Exactly it. Experiments don't lie, Blake. Besides, we have the word of Mr. Dalaker here—"

"Yeah, I know," Blake spoke gruffly, stood erect again. There was no love lost between him and the short, dark-skinned Hugh Dalaker. "I still think it's crazy," he growled.

Dalaker, lounging in a portable chair, studied Blake's six foot two and massive shoulders for a moment, then he laid his drink on the table. . . . His eyes were very dark, his forehead very good, but his lips just a trifle too thin and tight.

"I don't know why you persist in discounting my statements, Blake," he commented, smiling a little. "I know exactly what I'm doing. I know the South American interior backwards—spent all my life in it. And I repeat that two years ago I saw El Dorado."

"So did a Spanish sailor," Blake

Golden City

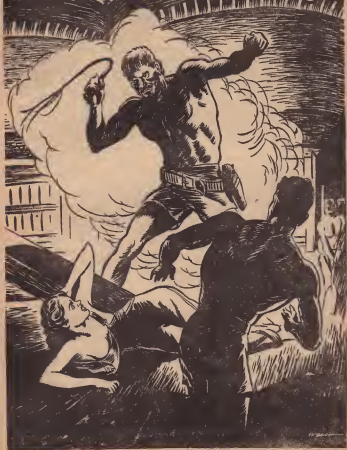


Illustration by Harold Welch.

"Get up from that floor!" The brutal overseer raised his whip.

grunted, lighting a cigarette. "Maybe he drank the same stuff as you. . ."

Dr. Henthorne snapped, "There's no need for that, Blake! Since Mr. Dalaker has been good enough to offer his services to me the least you can do is to be civil."

Blake sat down, stared moodily at the map. Then he looked up at the men's faces. "Ask yourselves, does it make sense?" he demanded. "First we get vast electrical storms in all parts of the world. You, dad, with your experiments and your directional indicator definitely proved that the storms have a source, pointing directly to an unknown spot in the South American interior. You publish your report, but only one man believes you—Hugh Dalaker here. He comes along, offers to take you pronto to the exact source of the disturbance—El Dorado. . . . El Dorado the City of Gold!" he finished in disgust. "The myth, the delusion of a drunk, the— Oh, what's the use? There isn't any such place anyway. We're on a wild goose chase."

"There is such a place as El Dorado," Dalaker stated steadily. "Oh, I admit that it does not possess that actual name, but from its situation, from the vague records that persist about it concerning a city of gold—for it is composed of yellow metal—there is no doubt that it is the same place seen by the Spanish sailor of history fame. I've seen this city, marked its exact position—and that position coincides with Dr. Henthorne's tests. What more do you want?"

"Only a strait jacket, I guess," Blake said laconically, then crushing out his cigarette he lounged to the door of the tent and stared moodily out across the waste of country they had so far covered. It lay swathed in misty moonlight, and somewhere amidst it all,

heading homewards, were the mulatto muleteers who had guided them this far.

Somewhere further away still was civilization—and to Blake Henthorne civilization meant New York. . . .

He turned sharply as a figure came up softly in the gloom. It was Hussi Ranji.* Tall, slim, tightly clad, with a broad sash and turban of dull cream hue, he was, thanks to the schooling of Blake, not quite such a warlike individual as he had been at first. But the fierce cruelty of an Afghan heritage was somewhere in his blood, though he managed to mask it with impartial calm, aided considerably by a rounded, weirdly clipped beard that always reminded Blake of an untrimmed hedge.

"The bird of heaven will move more smoothly than a thousand streams, Sahib Blake," he commented.

"Nice going," Blake answered, and he stared across the space to where the machine stood, now completely assembled from the sections that had been brought to these foothills. The moonlight glinted on the sweeping outspread wings.

"You've done a nice job of the final assembly, Ranji," Blake resumed, turning back to him, and he saw white teeth gleam in momentary approval amidst the whiskers.

"I seek no greater praise, sahib."

"Skip that and tell me something. Did you ever hear of El Dorado?"

"Only from sahib Dalaker. He gave me my instructions when the sun mated with the mountains. Tomorrow, by the graciousness of Allah, I shall fly you in the sky bird some five hundred or so miles into the rising sun."

"Easterly direction, huh?" Blake mused. "That'll take us right over the forest. . . . Dalaker's plenty free with

* Pathan servant of the Henthorne household.

his orders, anyhow. Frankly, Ranji, I don't like the guy. . . ." He lowered his voice and looked back into the tent where Dalaker and Dr. Henthorne were still studying the map.

"I can always consign the body of sahib Dalaker to the tomb of all infidels," Ranji commented smoothly, his lean brown hand sliding gently into his sash. "If you but wish—"

"Uh-uh, nothing like that!" Blake interrupted hurriedly. "You keep that carving knife to yourself. . . . But, gosh, would I like to sock him!"

"Maybe Allah will provide," Ranji suggested, howing a little, then he moved on sedately towards his own tent.

CHAPTER II

Into the Jungle

NINE O'CLOCK the following morning found the loaded plane traveling over pure virgin forest. Ranji was at the controls, following out the orders of Hugh Dalaker as he constantly checked position on the map. Dr. Henthorne, though he could do little to assist in this direction, watched with silent interest.

Blake was still openly skeptical. He kept his eyes on the verdure below, studied its changeless vastness, tried to picture how long it had lain thus undisturbed, only its veriest edges scratched by the probings of mankind. . . .

Hours passed. The powerful plane still droned onwards— Until at last Dalaker shot out of his usual impassivity and pointed to a spot in the greenness perhaps twenty miles away.

"There!" he cried. "See?" He handed over the binoculars. "Here, take a look. You first, Blake; you need

convincing."

Blake took the glasses, couldn't help starting a little as the keen lenses revealed what was apparently a yellow obelisk glinting in the sunshine, backed by a range of low-lying hills. He stared long and earnestly, lowered the glasses at last with a puzzled expression.

"Something there all right," he muttered. "Something yellow—"

"El Dorado!" Dalaker breathed, his dark eyes intense. He clenched his lean fingers on the window frame. "I knew I'd find it again. I couldn't help but—" He stopped suddenly, almost as if he had said too much.

But Blake had been listening intently. "Why?" he demanded curtly. "Why couldn't you help but find your way?"

Dalaker shrugged, turned easily. "Oh, calculations—certain landmarks familiar to an old hand like me, and—" He broke off, opened the driving cabin door. "Bear left, Ranji, towards that distant yellow tower."

The Indian nodded, swept round in a huge circle. Blake stroked his chin, his eyes a little puzzled.

"Listen, Dalaker," he said slowly, "there's something a bit strange about this. Fliers have passed over this forest before today—especially world-hop fliers—and it looks to me as though they couldn't help but see that gold spire just as we are doing."

Dalaker smiled with his lips. "No flyer has ever mentioned such a thing, has he?" he asked coolly.

"No. That's what I don't understand."

"And not every flier has returned, either," Dalaker finished steadily. "Many have been missing—mysteriously lost. . . ." He shrugged, left his meaning hidden in mid air.

"You're not suggesting—" Blake began in amazement, then as he saw the

explorer's eyes were coldly inscrutable he turned away and stared through the window again.

The golden spire was much nearer now, projecting over the summit of the hills, clearly visible above the tree tops. And, little by little, the view beyond the hills became clear, to reveal a verdure-free basin surrounded entirely by a hilly range. A volcanic range, in fact, for in one section smoke was curling lazily upwards on a hot wind.

Then something peculiar happened. The great obelisk, standing in the exact center of a sprawling city of yellow, suddenly began to sink downwards into the ground, controlled by some complex but exceptionally strong levitative system.

Blake wheeled round to question the mystery, turned so quickly that he caught Dalaker in the act of studying his wrist watch. Only it wasn't a wrist watch! In that split second Blake saw very clearly that it was a peculiarly designed compass with a false watch face made to fit over it.

Dalaker fondled his wrist gently as he saw Blake's sharp stare. His eyes were hard though his mouth smiled.

"So that's it!" Blake breathed, striding forward. "That spire is magnetic! You've got a compass tuned on it! No wonder you found your way so easily. . . . What's your game, Dalaker?"

"Game?" Dalaker shrugged. "I don't understand."

Dr. Henthorne strode forward impatiently. "Look here, Blake, will you stop making trouble? You and Dalaker have been at each other's throats ever since the trip started, and—"

"What about his wrist compass?" Blake demanded. "Was that in the bargain?"

The scientist looked surprised. "Wrist compass? Why, I—"

"This is really all very foolish, my friends," Dalaker smiled. "Certainly I have a compass. Why should I hide it?" What better way to reach El Dorado? I have seen this place before, of course, and I found that it had magnetic qualities. So—"

"So that golden obelisk is just sinking because it's so heavy, I suppose?" Blake asked sourly. "You're not fooling me, Dalaker. *And we're not going to land in that city, either.* Ranji's going to turn around. . . ."

"No he isn't!" Dalaker snapped, and he abruptly whipped out a small automatic from his pocket. He looked at the startled men with bitter eyes. "Since you choose to be—er—hostile, so shall I. . . . My apologies," he went on, smiling acidly. "And my compliments to you, Blake. You're far smarter than your father."

Dr. Henthorne gulped and colored. Dalaker still smiled.

"Yes, gentlemen, I have been here before," he resumed. "I call this place El Dorado because I believe it to be the supposedly mythical city that has been seen on occasions in the past. I have met its peoples: they knew I was returning—hence the obelisk. It is magnetic, but the city itself is not. You mentioned the fact that some fliers might have seen that obelisk. That couldn't be because I invented it only two years ago and it is used only for my own purposes. If however the *city* is seen by fliers, or the basin containing it, it is quite unlikely that those fliers have ever landed anywhere to tell their tale."

"You've seen to that too, eh?" Blake barked bitterly.

"Naturally."

Blake shot a glance through the window. The plane was fast nearing the outermost hills of the basin. He turned back to Dalaker.

"What's the big idea, anyhow?" he demanded. "Can't we look at this city on friendly terms? Why the hold-up?"

"You've only yourself to thank," Dalaker said coldly. "You were about to give orders to turn back. I can't allow that: in fact I can't allow either of you to return to civilization at all to tell the tale. . . . You, Dr. Henthorne, are the only man alive who guessed my secret, worked out scientifically the undeniable fact that electrical storms have been produced by artificial means from a South American source. . . ."

"Well?" Henthorne snapped.

"Well, naturally I couldn't allow so valuable, so *clever* a scientist to work out his experiments so successfully. I took the precaution of capturing the pair of you, and your servant."

"Then—then you're not an explorer?" Blake shouted.

"Oh, but I am. You will find my name in 'Who's Who.' Up to two years ago I was actively engaged as a scientific explorer, then I happened on this place and—"

Dalaker broke off and whipped up his automatic. For a second his vigilance had relaxed, and in that second Blake acted. He hurled his powerful body forward, clutched Dalaker round the neck and flung him to the floor. The automatic went off deafeningly, twanged on the metal wall. Then Dalaker found himself sagging in a sickly heap, numbed as a bunch of iron fist struck him in the face.

"Now get up!" Blake grated, snatching up the fallen gun. "Get up, blast you!"

Dalaker rose slowly, mopping a streaming nose. His dark eyes looked like those of an angry snake.

"You think this is going to help you?" he demanded thickly.

"No harm in trying," Blake retorted,

then he put the gun in his father's hand. "Keep him covered," he ordered. "I've one or two things to do."

He jerked open the cabin door, yelled to Ranji above the engine's roar. "Turn around! Fly back."

"Yes, sahib Blake."

Blake watched anxiously for a moment as the yellow city began to recede—then struck by a sudden thought he swung to the radio, gazing at the maps on the table as he made contact. After a few moments' delay Trinidad Air Port answered him.

"Henthorne Expedition plane calling Trinidad," Blake intoned quickly. "Send help. Urgent. Beware of danger. Hidden city. Approximate position, 16.20 South, 49.55 West. . . ."

Trinidad repeated the message, cut contact. Blake swung round swiftly, grinning.

"Well, Dalaker, what do you think of that?" he demanded in triumph—but before the scowling explorer could answer the ship dipped sharply as it swung round the range of hills. In an instant all three men were hurled off their feet. The Doctor's automatic went spinning through the air.

Blake dived for it, and missed. He saw Dalaker, face set and venomous, snatch the gun up, swing it down with the sharp butt foremost. Blake tried in vain to scramble out of the way but a blinding pain shot through the region of his temple and sent him sprawling into darkness. . . .

CHAPTER III

The Sleepers

AS he came back to consciousness Blake found himself staring up at something yellow and glowing. It was a lamp set in a ceiling of yellow metal. He jerked upright, groaned at the throb-

hing in his head, eased himself up more slowly.

By degrees he realized he was in some kind of cell with a single grilled window. Dr. Henthorne was standing before it, gazing moodily outside. On the hunk on the opposite wall Ranji was reclining, hands locked behind his turbaned head. He seemed utterly lost in thought.

"Say, dad, what's happened?"

Henthorne turned sharply at the words, smiled rather ruefully as Blake came to his side.

"Dakker won," he said, obviously enough. "That was hours ago, though. I thought you were never going to regain consciousness. Night's just fallen. . . . Of course he had Ranji bring the plane down here—But, Blake, how are you?" he finished anxiously, studying him.

"Oh, I'll be O.K. Where are we exactly?"

Henthorne's white head shook in puzzlement. "We're in El Dorado; I know that much, and this seems to be a sort of prison. Hills all around the city—and a volcano. Take a look . . ."

Blake gazed over a floodlit expanse of yellow metal buildings—strange buildings, all of them of uniform height, perfectly square, most of them with a plentiful supply of window. And from them there floated a dull, low throbbing that told of immense industry and power.

Blake's eyes lifted to the further distances of the city. There were taller buildings there, having a certain stamp of officialdom. One of them had obelisks on its roof, obelisks that looked odd on account of a copper color amidst the pervading gold. Then there was the volcano . . . brooding and smoking over the whole strange basin, its steamy discharge lighted by the kindled

fires deep within its crater.

"Some dump," Blake observed at length, rubbing his aching head. Then he frowned. "Just what do you make of it all, dad? What sort of people are there? Seen any?"

"Oh, yes—men and women, pale skinned. All of them—or nearly all—dressed in somewhat Arcadian attire. The men wear shorts and long-sleeved tunics; the women knee length skirts, sleeveless blouses, and sandals. Men wear skin shoes . . . All most extraordinary." Henthorne knitted his brows. "This place seems to be extremely scientific. As we were brought here I had glimpse of machines, mainly electrical, defying anything I ever saw in my life before. I forgot to mention too that some of the people are peculiar—downtrodden in appearance, clad in rags for the most part . . ."

Ranji came silently from his hunk. "Might I suggest, sahibs, that people come from other world?"

"Huh?" Blake exclaimed, staring.

"For these people to have skin as fair as the sky and yet so close to the sun troubles me deeply," Ranji embellished. "One would expect them as dark as Allah's own children—yet they are not. I am disturbed, sahibs; deeply disturbed."

"Maybe something in it," Henthorne admitted, musing. "These people look as though they've spent ages out of sunlight. They are obviously not natural inhabitants otherwise they *would* be dark. But people of another world—!" He laughed a little incredulously, and Ranji shrugged.

"I wonder if—" Blake began, then they all three turned as the cell door suddenly opened to admit two of the curiously garbed men. They carried a collapsible table and four chairs, which they set up in the cell's center.

Then two other guards came in and began to lay a meal of fruits and cold meats.

"What's this? Execution feast?" Blake demanded, watching.

The men did not answer, so he watched them silently. They were hefty fellows, splendidly muscled, bull-necked, with yellow hair and very vivid blue eyes. The Arcadian attire was very much in evidence, conveying an impression of easy comfort. . . . When they were through laying the meal they stood silently against the wall with folded arms.

Blake looked longingly at the open doorway, and at that moment Dalaker came through it, faultlessly attired in white flannels. He spoke a few short words to the men in a language that was entirely new to Blake, despite a fairly wide linguistic knowledge; then Dalaker turned and smiled cynically.

"So you've recovered, Blake? I'm glad of that. . . . Please be seated, my friends." He took his seat at the head of the table and the guards looked on in silence.

For some time the meal proceeded quietly. There was plenty of everything. The food, though strange, was extremely palatable, the wine light—but there was such an air of mystery and incongruity about the whole thing that at last Blake could stand it no longer. Leaping to his feet he slammed his fist down on the table.

"Come on, Dalaker, out with it!" he snapped. "What damned monkey business are you up to, anyway? Why this honored guest fiasco?"

"Still impetuous, eh?" Dalaker murmured. "Sit down, Blake, and try getting some knowledge through your thick skull."

"Why, you—"

"*Sit down!*" Dalaker thundered, and

at the bitter cruelty in the voice Blake slowly obeyed. Then he watched with interest as, at a signal from Dalaker, one of the guards stepped out into the corridor and wheeled in a contrivance like an ebony box with a ground glass screen, supported on a rubber-wheeled tripod.

With swift movement Dalaker switched a hutton, began tuning a figured dial that looked as though it ought to belong to a radio or television receiver. And presently the ground glass screen came to life, presented a color picture of an immense hall of yellow metal illumined with indirect lighting. It was a magnificent place, the mighty domed ceiling supported on carven pillars. . . .

And the hall was populated—by supine figures lying on yellow metal beds. They were dressed in white, gravelike shrouds, whilst wires were affixed by suction cups to various nerve centers of their bodies and craniums. It was difficult to see what the men looked like: there was a confusing impression of distance.

"What on earth—" Henthorne began, staring, then he stopped as Dalaker interrupted him.

"That is the main underground hall of El Dorado, my friends. Those men are the Eternal Sleepers."

"The what?" Blake jerked out.

"They are the real rulers of this city—my sleeping masters," Dalaker went on, thoughtful eyes on the screen. "This television enables you to see the hall, which ordinarily can only be unlocked from the inside by the Sleepers themselves. . . . I only show it to you now because, though you see so much, there is so little you will ever reveal— But I was saying, the Sleepers have slept for generations, generations without number. They are masters of thought and

sensory impression because, as they lie there, their minds are actively working.

"You see the wires? Those carry every sensory impression to them without them having to exert physical effort: that gives their minds free play. And the decision and orders of their minds are impressed on machines. Thought waves *do* react on sensitive machinery, you know, just the same as radio waves react on remote control mechanisms . . . You will appreciate the possibilities. Machines select what thoughts they receive; they set other machines in action which translate the orders of the Sleepers. Thuswise, without any physical effort, the Sleepers can both give orders and receive thoughts, sift the interesting from the uninteresting. A strange but infinitely sublime state of personal detachment."

"You mean that physical sensations, if desired, are produced by certain—er—nerve excitations through those numerous wires?" Doctor Henthorne demanded.

"Yes. And I am the Sleepers' ambassador. . . . They nominated me. They discovered that you knew of a scientific effort to rid the world of humanity through the medium of tremendous electric storms. They commanded I bring you here. I have done so—and you will never leave."

"That's what you think," growled Blake.

"But—but who are you?" cried Henthorne in bewilderment. "*What* are you?"

Dalaker smiled coldly. "Basically, I am a Venusian."

Blake started to say something, then he laughed shortly. "Oh, cut it out, Dalaker! A Venusian! Anybody knows Venus is a helish hot planet and—"

"El Dorado, too, is in quite a warm

spot," Dalaker observed, unmoved.

"But—but— You mean *all* these people are Venusians?"

"The majority, yes—but there are certain low types here in the form of guards who are American. My own people could not do such tasks, so I chose a large number of low-class American types, together with one or two Britishers, and imported them here."

"Oh, you did . . ." Blake's eyes began to get hard.

"After all, this spot is not so much different from certain parts of Venus," Dalaker resumed. "On Venus direct sunlight is unknown—certain ultra violet radiations are blocked. That is why these people are white skinned. If I seem darker than the rest that is purely because I deliberately darkened my skin to fit in with my role as an explorer. . . . After all, it is not so strange a story as it seems."

"Countless ages ago—mere small spans for almost eternal Venusians—we lived on Venus, were born there. But changes in the surface, together with various other things, forced us to move out. We decided Earth would be a possible planet, at that time. But when we arrived here the world was only half formed, filled with rank vapors and ever changing landscape. We decided we must have a world of our own—" Dalaker broke off, then said slowly, "You are aware that the moon is not a true satellite of Earth?"

"Such a fact has been suggested," Henthorne admitted. "Some scientists believe in the theory very strongly."

"The theory is correct," Dalaker said flatly. "We made the moon for our own use, gouged it out of what now forms the Pacific Ocean bed. . . . But the moon didn't serve us long," he went on regretfully. "Its slight gravity permitted the air to escape very rapidly into space,

and with that came disaster. Not only from lack of air, but from the perpetual bombardment of meteorites and cosmic debris which created the craters you see today. On Earth, of course, the frictional quality of a dense atmosphere prevents such happenings—save in rare cases, such as the Siberian meteorite . . .

"But during our stay on the moon some of us—now the Eternal Sleepers—had become masters of mental and physical phenomena. We came to Earth again, transported the Sleepers with great care, and chose a spot where it was very warm, and where the chance of being discovered was negligible. Hence came El Dorado, which is of course a mere fanciful name and not our own. Actually this city is named Kirandol, but that is beside the point . . . City of ageless, imperishable yellow metal. . . . I hope I'm not boring you?" Dalaker broke off, raising his eyebrows and looking round.

"It sounds incredible to me," Blake muttered. "Especially when you say your name is in 'Who's Who'."

"I had a status to maintain as an ambassador," Dalaker explained. "There was no better profession to choose than that of explorer."

"But your race is so identical to ours," Henthorne muttered, shaking his head. "It is by no means common for races of two worlds to be so identical. Especially Venus and Earth."

"I grant you that. But it isn't unusual when one life form is patterned after another. . . ."

A long silence followed Dalaker's observation, then at last Henthorne cried, "Good God, man, you don't mean that Earthlings were originally created by Venusians?"

"Just that. Creation of life is not difficult to our science. Yes, we created Earthly life at the time of our first visit

to Earth—or rather we created the first man and woman of Earth, after the image of ourselves, of course. It seemed the most natural thing. . . . You believe that man worked his way from the amoeba. He did not. The distinction between man and beast is absolute. The gap between—that which you call the Missing Link—really *is* missing, nor will it ever be found because man and beast are forever separate. *Man* began with the lowest cave-man form and worked up from that to his present rather childish status. We started it.

"Our original intention was for the Eternal Sleepers to control these children of our making for definite uses, but only a few—notably those whom you call geniuses—responded. The remainder ran wild. The experiment is a failure . . . Therefore the Sleepers have decided on other measures. What has been built up can also be destroyed. Electrical storms are the answer, mainly because they appear to be natural upheavals of the elements to the outside world. More direct and drastic methods would bring unwanted attention and attack down on ourselves. You, Dr. Henthorne, could have upset our plans with your unusual scientific knowledge, so, obeying commands, I captured you and your son. . . . Fortunately, Doctor, you were utterly discredited, and no other scientist seems to possess your ability. If one does appear, he will be taken care of. . . ."

Another long silence fell after Dalaker had finished. Lighting a cigarette he watched the three through the smoke, a faintly cynical grin on his bronzed face— Then suddenly Blake shot to his feet.

"And suppose I don't believe it?" he demanded fiercely.

"Again?" Dalaker was clearly surprised. "Will nothing ever convince you,

Blake?"

"I'll be convinced by the truth any time, but your story isn't truth. I say it's a lot of bunk! You a Venusian! Hell knows how many millions of years old! You expect us to believe *that*?"

Dalaker's thin lips compressed; then he shrugged. "Obviously it is no use expecting you to believe anything. Not that it matters in any case. I've better things to do than to waste time convincing fools. Maybe a few years in the Mines will teach you commonsense, break your spirit, force you to realize that obstinacy is the wrong line to adopt in the presence of your betters."

"Better!" Blake flamed. "By God, I'll—"

"No you won't," Dalaker interrupted bitterly, his automatic in his hand. "You'll take what's coming to you—and that's slavery! Same as all the rest of the damned fools in this city who thought they could defy the commands of the Eternal Sleepers. In the Mines you'll have plenty of time to think. Down there they obtain and smelt the yellow metal of which this city is composed. It has the name of *ynium* not *gold*, if that interests you," he finished with a sneer.

"If you're so anxious to get rid of us why don't you kill us right now and have done with it?" Blake demanded, glaring.

"Because," Dalaker answered softly, "I have certain recollections of a very strong punch in the face, back in the airplane. Naturally, one cannot treat the ambassador of the Sleepers in that fashion without receiving due punishment . . . lingering punishment through long years.

"For myself," he went on, shrugging, "I am really sorry that matters have come to so unpleasant a pass, but there are certain things that have to be done.

Confinement and punishment of all three of you is one of them. . . . So much slower than a bullet; so much more time to think!"

"B-but you can't send me to the Mines!" Henthorne burst out desperately. "I can't do it, Dalaker! Why, I'm over sixty years of age—"

"In that case you will have less time to brood over your misfortunes," Dalaker retorted coldly. "And take it easy, Blake!" he finished, as Blake stirred in restless fury.

Blake gulped, stared at the automatic, then at Dalaker.

"I'll get you for this one day, Dalaker, if I have to come back from the dead to do it. I'll break every damned bone in your rotten, slimy body—"

Dalaker ignored the outburst. He made a quick signal to the silent guards and they jerked heavy revolvers from their pockets. Blake looked at the revolvers in puzzlement, a vague thought turning over in his mind—then he was seized and bundled out of the cell. His last vision of Dalaker was his coldly triumphant face. . . . Blake felt himself grow hot with mounting but useless fury. . . .

CHAPTER IV

Slavery in the Mines

IT took an hour to reach the Mines, and in that time Blake, his father, and the silent Ranji were piloted by the unrelaxing guards through devious quarters of the strange, floodlit golden city, taken through broad streets and narrow alley-ways.

In the course of their journey they glimpsed only a few people, people that had in their eyes a dull expression of fear. Both men and women seemed to be laboring under an intense anxiety,

the exact reason for which was not altogether plain. Here and there, too, there were visions of actual slave gangs of men and women, most of them clad in rags, shackled together by chain and manacle. At their head there invariably marched a heavily muscled, apefaced taskmaster.

Indeed, the only natural thing about the whole place seemed to be the volcano, smoldering redly against the night sky. Blake bitterly reflected how slim would be the chances of escape if the thing ever chose to erupt—how slim too would be the hope of ever getting out of this infernal valley, surrounded by primeval jungle for hundreds of miles on every side.

He thought again about Dalaker's story as he marched along—and as before he still didn't believe it. He couldn't for one thing, reconcile Dalaker's perfect English-speaking voice with that of a multimillion-year old Venusian. From what he'd seen of the man he was after something, something he was determined to get no matter what the cost. . . . An innately cruel nature, a crafty brain, a smooth manner — they were deadly weapons for any man to own, and Dalaker had them in plenty.

Then Blake found his meditations cut short as he was huddled into an elevator alongside his father and the passive Ranji. The guards still kept their revolvers leveled, never once relaxed their attention as the cage began to hurtle downwards at dizzying speed, falling into blackness that became warmer and warmer as the seconds snapped by.

Blake judged they had dropped a full eight hundred feet into the earth by the time the fall ended and they were pushed out into a region of brilliant blue arclight and suffocating warmth.

Blake gasped involuntarily. The heat

struck him like a physical blow. His eyes traveled over a bewildering industry of figures, sweating men and women in dirty blue overalls, men stripped to the waist controlling titanic furnaces, overseers hovering with set, malignant faces in the midst of the hazy expanse. . . . The place seemed to recede into remoteness—a hive of pounding, hammering, thundering activity.

"We're to work—*here?*" gasped Henthorne haltingly, darting an anguished glance at Blake's set, perspiring face.

"Looks like it," he answered curtly. Then bitterly, "By Heaven, if I could only get my hands round Dalaker's neck—"

He broke off as he was seized and pushed forward, his protesting father beside him. Ranji still said nothing. The heat didn't seem to bother him very much; being a Pathan he was better fitted by Nature for the conditions. . . .

An overseer came forward and the three halted. He listened to the guard's strange language, then nodded briefly. He spoke in American, a satisfied leer on his shining, hulbous face. Obviously he was one of the imported guards Dalaker had spoken of.

"Henthorne, huh?" he sneered. "The old guy who figured he was smart enough to guess where them storms came from. . . . And his son, too!" He appraised Blake's massive form and spat on the floor. "O. K., you'll have plenty of time down here to think things out. . . . And this dirty Indian guy too. You can all work at them furnaces, and if you start letting up—" He stopped, patted his revolver holster and extended a vicious whip clamped in a bairy paw. "It'll be just too bad," he finished venomously.

He shoved Blake violently. "Well, what the hell are you waiting for?" he roared. "Get movin' to that furnace!"

Blake bunched his fists, hesitated an instant, then relaxed. Starting a fight would only make matters worse. He turned slowly, bitterly, stripping off his shirt and vest as he moved, revealing the broad, muscular tautness of his massive chest, the steel-corded strength of his heavy arms.

"Looks like we've got to stop here, for a bit anyhow," he muttered, glancing at his father. "Take it easy, dad—I'll do most of your work."

Dr. Henthorne groaned, stripped off his clothing so far as decency permitted and took the shovel thrust towards him by the overseer. Ranji took his without a word, but his dark eyes were glittering coldly. The reference to "dirty Indian" was burning across his mind.

Blake for his part measured the overseer with bitter eyes then slung his shovel into the compressed wood fuel nearby and took his place among the sweating workers. . . .

The overseer took a seat and mopped his face. Blake spoke now and again to one or other of the haggard workers, but they failed to respond. Probably they didn't understand his language. He watched his father with anxiety: the old man was working mechanically, forcing a body long past active service to a crushing ordeal. Somehow he kept going. . . . Ranji, without removing a single article of clothing, shoveled with a calm, malignant precision. . . .

Then suddenly Blake stopped shoveling into the raging inferno of flame in front of him. He twisted round at the scream of a girl. Puzzled, he stared across the industry; his father and Ranji stared with him. Work stopped momentarily as every eye focused on the figure of a girl lying prone on the floor, her slender body quivering under the lashing tails of a whip.

"By God, it's *our* overseer!" Blake

panted, darting a momentary glance at the now empty place where the man had been. "Thrashing a helpless girl—!" His jaws clamped shut; he dashed the dripping sweat from his face and began to scramble over the fuel heap.

"Blake, don't do anything rash—" his father cried anxiously. . . . But Blake wasn't listening. His smoldering fury was at white heat.

As he leapt lithely towards the disturbance he saw that the girl was held to the floor by a massive girder, her overall trapped beneath it. Evidently it had fallen as she had tried to raise it.

"Get up from that floor!" screamed the taskmaster, white with fury. "By heaven, we'll see if you'll get away with this!" He raised his whip in a whining arc and the girl's hands smothered her fair head in terror. But Blake got there first.

His left hand tore the whip away and flung it through space. His right shot out like a steam piston, smashed clean in the center of the overseer's astounded, brutal face. He didn't fall: he went sailing backwards with blood spurting from a broken nose.

"Guess I owed you that," Blake panted, striding over to him. "Want some more . . . ?"

The overseer couldn't speak; he was numbed with pain — so numbed he hardly noticed that Blake turned away and that a lithe, dark, bearded figure slid from the knot of interested but scared workers. It was Ranji, short but deadly Afghan knife in his hand. Without a second's hesitation he stooped before the groaning man, drove the blade clean into his heart, then withdrew it sharply.

"Filthy infidel," he whispered. "Offspring of a million infidels. Pig of an unbeliever. You sleep with your vile an-

cestors in purgatory. Allah is just . . . Allah is powerful, and Mohammed is his prophet."

He stood up, slid the knife back into his broad sash so that the hilt was hidden. By the time it was discovered that the overseer was stabbed to death Ranji was back at Blake's side.

Without effort Blake heaved aside the offending girder with a metallic clang, lifted the sobbing girl to her feet. She raised a youthful face that was dirty and tear-stained, enframed by bushy yellow hair. Her eyes were a curious misty blue, her mouth still young and full even though it trembled with emotion.

"O. K., honey," Blake murmured reassuringly. "Our charming friend got what was coming to him. . . . Say, you speak English by any chance?" he asked anxiously.

She nodded. "Many of us here speak it. I—I want to thank you for . . . My name's Lania, and I—"

"Hey, you!"

Blake twisted round, faced another overseer. He was pointing back at the bloodstained, dead body on the floor.

"You did that!" he bellowed. "Murdered him! And there's only one answer for murder down here. . . !" The man's revolver flashed out of its holster, but in that second Blake was upon him, lifted his struggling body by shoulders and trousers seat and flung him over the heads of the nearest workers. They went down like skittles under the impact.

But in doing that Blake started more than he intended. The workers, realising control had been twice flouted, surged forward to assist the crazy American. The air of tensely suddenly disrupted into a habble of battling figures, the thwack of fists on flesh, the screech of whips, the banging of gons. . . .

Ranji, knife in hand, stood waiting at Blake's side.

"I consigned the animal faced infidel to his ancestors," he stated tonelessly. "It was Allah's will."

"Looks like Allah's started something too . . ." Blake looked about him anxiously on the hattling, milling figures. Still clutching Lania he began to return to where he had left his father—but long before he got there he saw the old man go down before the revolver shots of an overseer.

"Dad!" Blake screamed, plunging forward. "Dad—!" He released the girl, dropped by the side of the old man's quivering body. Ranji mysteriously vanished.

Henthorpe fought for breath. "Perhaps it's better this way, Blake . . . I'm finished — finished, anyway. I—S-stop Dalaker, Blake—" He choked over his sentence, made a desperate effort to rise, then relaxed limply. Dazed, Blake felt the still heart.

"He's dead!" he shrieked hysterically, leaping up—and found himself gazing into the sad, sympathetic eyes of the girl. She grasped his brawny forearm gently.

"I'm so sorry—" she began quietly, but Blake cut her short.

"Where's that damned overseer?" he breathed in quivering fury. "Where's —" He broke off as Ranji suddenly came into view. He was smiling in his beard, sliding his stained knife into his sash.

"Allah is just," he murmured, with a little obeisance.

"You killed him?" Blake whistled in satisfaction, and Ranji nodded. Then he looked quickly round on the struggle.

"I would suggest, sahib Blake, that dangerously close finish to our lives is imminent. We might suffer same fate as sahib Henthorpe, and—"

"There's a way out of here," the girl interrupted quickly. "Up through the storage tunnels. Usually it's guarded but in the present upset we might manage it. Come on—this way."

With Blake's pile driver fists and Ranji's wicked knife to clear the way they finally fought clear of the main body of the mutiny into the comparative quiet of a small tunnel, leading away into drafty warmth and blackness.

CHAPTER V

Escape

THE girl moved onwards with unerring steps, holding Blake's hand. He in turn held Ranji's—until at last, after perhaps half a mile of progress, they came into a roomy, man-made cavern lined with cases and lighted with a single bulb of glowing yellow.

The girl closed and halted the massive yellow metal door, blocking the tunnel up which they had come. On the opposite wall was the hole of the tunnel's continuation.

"We'll be safe enough here," she said, turning. "The tunnel's continuation is never used. It's an old conduit as a matter of fact. But there is a way out, as you'll see later. In the meantime, we can rest and regain strength."

She perched herself on a crate and breathed deeply. Blake squatted down and sat in silence for a time, moodily going over his father's last moments. Then at last he gave a resigned shrug and studied the girl, noted again the details of her slim, youthful body in its inappropriate, filthy dirty overall.

"I suppose," he questioned at length, "that you're a Venusian?" And he said it on purpose because he expected a denial. To his surprise, however, the girl nodded.

"By heritage, yes. Aren't you?"

"I'm an American, Lania. This chap here is an Indian—my servant."

Her misty eyes opened wide. "Oh, an American!" she cried. "Now I begin to understand—especially about your companion. I could not quite understand why he was so dark. . . ."

Blake smiled, briefly considered. Then he asked, "How old are you, Lania? Trillions of years?"

Her fair head shook. She had a most somber manner for so youthful a person. Like the rest of her people she was curiously downtrodden, afraid—and the experiences in the escape of the furnace room hadn't helped much to restore her confidence either.

"No, I'm not old," she answered slowly. "I'm twenty-three perhaps—maybe twenty-four. Certainly no more. I was born here in this city."

"But I thought you said—"

"My Venusian origin? I said 'by heritage'. These people in the city, except the overseers and Dalaker, are all Venusians by heritage, but Earth people by birth. The only true Venusians left are the Eternal Sleepers."

"Then Dalaker is *not* a Venusian?" Blake asked deliberately.

The girl's sad face became hard. "No! He is an Earthman—an Englishman, I think. He is self appointed dictator of this city and these taskmasters are people he's brought here. . . ."

"Ah. . . !" Blake got up and sat at the girl's side. She glanced at him in surprise as he looked at her very directly.

"Lania, there's probably a lot you can clear up for me," he mused. "Dalaker is the main reason for my being here—but his story doesn't match up with yours. . . ." He related as briefly as possible all that Dalaker had said, then asked, "Now, how much of that is

true?"

The girl's smile was weary, bitter. "Very little of it," she answered, thinking. "I can tell you the truth because I've nothing to gain by lying. I'm a slave: I live in filthy little workers' hovels underground. I— But my life doesn't interest you. It's Dalaker you want to know about. . . . Well, the story of the Venusians starting life on Earth is correct—so too is the story of them making the moon, returning to Earth, and bringing the Eternal Sleepers with them. . . .

"Where the story goes wrong is in Dalaker saying that the Sleepers are trying to destroy humanity and start a new experiment. The Sleepers are peaceful: they created life on Earth to see if synthetic man and woman could evolve and survive against the beast. They proved it right—and they've no desire whatever to wipe out humanity."

"Then what do these Sleepers *do*?" Blake insisted.

"Have you never liked to lie and dream?" Lania questioned reflectively. "Do not some people in the outer world take drugs that give them pleasant dreams—cut them off from the woes of the physical being?"

"Oh, sure. Some even take drink. But how—"

"The Sleepers dream," the girl said steadily, her eyes just a little—a little envious. "They have lain like that for untold generations—suspended animation, of course. Their minds are studying the cosmos, and the only way to do that is to have absolutely no connection with worldly things. That is why, according to record, they were removed so carefully when my ancestors abandoned the Moon for Earth. They have lain like that ever since, deep in an underground hall. The remnants of the

true Venusians lived on in this city, minding their own business, hostile to nobody—until at last the true Venusians died out and birthright of necessity became Earthly, but of Venusian stock. . . . One day the Sleepers will awake. It may be milleniums; it may be tomorrow. . . ."

The girl became silent, pondering absently. She started a little at Blake's voice.

"Where does Dalaker fit into this, anyhow?"

"Oh, he came here two years ago on an exploration trip, found our valley by accident. He seemed cordial enough and gave his word to leave us alone—but a year later he returned in a large airship and brought a collection of men with him. Criminals, I believe, absolutely in Dalaker's power. . . . Of course, we were utterly defeated. Dalaker became dictator, using his scientific knowledge against us—turning our own machines upon us. Invasion was a thing almost unknown to us and we were caught unprepared.

"Dalaker set up an iron dynasty, invented new destructive scientific machines from our own cherished inventions, forced all the young and fractious ones—like myself—into newly opened pits. Others he forced into collusion with himself on pain of instant death; guards and so forth. He claims that he is the ambassador of the Sleepers—a deliberate lie of course—and says that the Sleepers have ordered the destruction of humanity and their cities. So he has been at work with electrical apparatus which produces storms sufficiently violent to bring about the slow destruction of all civilization."

"But why?" Blake cried helplessly. "Is he mad, or what?"

Lania gave a hollow laugh. "Mad! Good heavens, no. He's distinctly in-

genious. You see, the storm method will destroy most of the cities of the outer world, but it is not possible that every living person will be wiped out. There will be thousands of survivors, all of them demanding new homes—storm proof homes. . . . That's where *ynium* comes in."

"This yellow metal that's around everywhere?"

"Yes. It's ordinary iron ore mated to an imperishable ingredient which is the product of our science. Down here we mine the iron ore, smelt it. In the surface laboratories it becomes *ynium*. No known thing can destroy it entirely. . . . It's proof against explosive, acid, fire, pressure—almost everything you can name. This very city, built of it, has hardly changed in all the time man has evolved to a state of intelligence: it has survived earthquakes, storms—everything, and even now it is hardly tarnished.

"You'll see, then, that being in control of such a metal, springing it on the world after storms have shattered most of civilization, Dalaker can become a virtual world-dictator, name his own price for the stuff—and what's more, supply it. He will corner the market. That's why we are all mining iron ore, why Dalaker lets nothing slip. He has a vast fortune and world power in his grip, and means to get it. . . ."

"So that's it," Blake murmured, musing. "A commercial and scientific giant gone wrong. Nice going. . . . But maybe he'll slip up somewhere before I'm through with him." He turned back suddenly to the girl. "Thanks a lot, Lania, for the information. . . . And say, while we're about it, how come you know English?"

"That's easy. Before Dalaker came I was able to listen to the radio reception from the outer world. The coun-

tries that spoke English seemed to be the biggest and sanest and, in the hope that one day I might see such places, I learned the language. Just as Dalaker taught most of his guards our native tongue as well as their normal English."

Blake glanced at her quickly. "Do you mean that if Dalaker's rule were broken up, if peace were restored here, you'd still like to see the outer world?"

"For a very good reason," she replied seriously. "You must have seen Valcus—that's our native name for the volcano in the hills—must have realized how easily he could wipe us out. Six years ago he nearly did: our *ynium* buildings saved us. But in another eruption, although the buildings might stand it, we would perhaps be killed by poisonous gases, molten lava. . . . No, if I had a chance I'd like to be in the outer world. Out there one can live peacefully and yet achieve. Here, in normal times, there is nothing to achieve. . . . Can you understand me?"

Blake nodded slowly, studied the misty eyes for a while. Then he said, "I guess we've wasted enough time in here. I've got to get moving and settle a few scores with Dalaker. If I could bust him up I'd bust the entire morale of his cut throat gang. That's a certainty."

Lania restrained him as he got to his feet.

"Not now," she said quietly, shaking her head. "It must be nearly daylight outside. We'll do better to sleep through the daylight hours, then get out of the conduit by night. . . ." She looked around, drew up her slim bare legs onto the crate. "We can sleep here quite well. Besides, we need refreshing."

"Guess you're right." Blake settled himself on the crate opposite, lay for

a while looking across at the girl. She smiled at him a little.

"What's your name?" she asked, almost naively.

"Eh? Gosh, I forgot that! Blake Henthorne—and down here we have Ranji. . . ."

"Oh!" She said no more, coiled up and closed her eyes. Blake lay with eyes open for a long time, then he pilloved his head on his arm, fell into the sleep of exhaustion.

Below him, propped against the same crate, Ranji snoozed gently, his lean brown hand clasped in readiness round the hilt of his knife as it lay on the floor. . . .

CHAPTER VI

Through the Sewers

ACCORDING to the girl, whose sense of time seemed uncannily developed from her constant life underground, it was nearly ten hours later when they all awoke—nearing night-fall again. Thus briefly refreshed they set off again under the girl's expert guidance.

After a time, Blake could tell they had left the main tunnel continuation and had branched off to the right. The darkness was pitchy; even the girl herself was at a loss at times. Then again she would go onwards, clinging to Blake's hand, he in turn pulling Ranji along with him. . . .

As they went they could hear the buried throb of the strange city's industry, muffled with intervening rock and distance. Evidently the mutiny had been gotten in hand: it sounded as though things were back to normal.

Now and again they passed below gratings which gave them an angled view of the floodlit city above. It was

night again; the girl's judgment had been correct. . . . At one particular grating, however, which according to the girl was near the city's center, they all came to an abrupt halt at the sound of voices.

"Are they in this sewer?" asked Blake tensely, gripping Lania's arm.

"No. Above. . . ." He saw the whites of her eyes as she stared upwards. He looked with her, could make out the feet and foreshortened figure of a man. As he moved a little he became revealed as a Taskmaster. Angling away from him, still and silent, were men and women slaves. The chin and face of another taskmaster appeared.

"If them damned planes land here we can look out for trouble," he said thickly. "One of 'em is a bomber, accordin' to what I've heard. Y'know what that means."

The other taskmaster laughed. "What the hell's eatin' you, man? You can trust the chief, can't you? He'll knock those planes into so many pieces it'll take years to find the bits. Just the same as has happened to other planes that have come nosin' where they're not wanted. . . . Besides, they're not even likely to find this place. If they do"—it sounded as though he spat—"they'll find plenty of electrical frequency waiting to meet 'em."

The other man's voice didn't sound as though he was very convinced. "I hope you're right, that's all. . . . Well, I'll be seeing you later. Got to get down to the mines. Plenty of trouble down there yesterday and we ain't gotten it properly straight yet. . . ."

"O. K." There came the crack of a whip and the feet of the men and women began to scrape over the grating. Blake looked quickly at Lania.

"You heard what he said?" he whispered quickly. "He talked about planes

coming here, a bomber amongst them. They must be coming in reply to that radio message I sent out. I warned them of danger, and— And that devil Dalaker knows all about it!" he finished anxiously. "Listen, Lania, I've got to find him! Stop him! He's planning on destroying the whole darned squadron—"

"Of course he is," the girl said, in bitter resignation. "That's what he always does to anybody or anything that comes too close to the valley. . . . But Blake," she went on seriously, "you can't possibly do anything. The generating station, source of all electrical power in this city, is always guarded."

"Let me worry about that!" he retorted. "Where is this place? How do I get there?"

"Well, I'll show you—but it's no use. Come on."

She broke into a run and they all went racing at top speed along the tunnel, faintly illumined now by the equally spaced gratings. It seemed to extend for miles, but at last the girl stopped before the shadowy outline of a metal ladder. Far above at its summit was another of the gratings.

"This is the only grating that's unlocked," she explained, turning. "I found it once by accident; the catch has snapped. Follow me. . . ." She began to climb steadily, Blake right below her, Ranji further down still with his knife now clamped in readiness between his white teeth —

Then suddenly the girl gave a cry and swayed perilously. Blake too felt the entire ladder move sickeningly and he nearly plunged the fifty feet to the conduit floor. With an effort he saved himself, swept his great arm round the girl's slender waist and fixed her back in position on the rungs. For a moment they all listened to a subsiding grumble

of sound.

"What happened?" Blake demanded in puzzlement, and he saw the girl's face was strained as she peered down at him.

"It's Valcus!" she said breathlessly. "The volcano— That was an earth tremor, just like the one that preceded the last eruption. . . ."

Blake laughed shortly. "Nice place you've got here. Well, we can't do anything about it anyhow. Carry on, kid."

After a moment or two the girl recovered her courage. The tremor had plainly unnerved her; evidently the horror of the earlier eruption was still imbedded in her mind. . . . But she climbed again with increasing steadiness, finally pushed up the grating and scrambled over the rim. In another moment Blake and Ranji were beside her, standing up under the stars. They stood appraising their surroundings.

El Dorado's massive, floodlit bulk lay to the left, spread out along the valley floor. It was perhaps a quarter of a mile to the nearest block of buildings, and one mile from the city's center. Beyond the city, dominating the range of hills on the opposite side of the valley, Valcus was smoking and glowing ominously, spewing forth little showers of reddened ash.

Blake eyed it dubiously, then shivered a little as the night air, cool after the hot underground, blew round his semi-nude body. He turned to Lania.

"Looks quiet enough. Now, how do I get to that generating station?"

She looked at him with serious eyes. "Blake, do you really mean to make an attempt to stop Dalaker?"

"Of course! What else did you expect?"

"But you haven't a chance!" she cried. "He'll kill you on sight if—"

"Listen, Lania, there's a job of work to be done—and I'm going to do it. Re-

CHAPTER VII

The Generating Station

member, there are more ways into a generating station than through the doorway. Come on, which is it?"

With obvious reluctance she pointed to the city center, indicated an edifice a little taller than the others with two tapering copper obelisks on its flat roof.

"That's it," she said in a low voice, dropping her arm. "The two ingots are transmission aeriels. I don't fully know their use—Dalaker erected them. It seems that they radiate electrical agitations in the same fashion as radio aeriels. . . ."

"So that's the place," Blake murmured, eyeing it. "I saw it from the prison, but I never guessed—"

"Blake, isn't there some *other* way?"

He stopped, looked down at the soft clasp on his arm. Then with a shrug he clasped the slim shoulders in his hands. "'Fraid not, kid—but don't you worry. I can take care of myself. You stay here with Ranji until I get back. He'll look after you."

"Most charming memsahib will be protected from all infidels," Ranji promised, his hand in his sash. "Unless, sahib Blake, you would rather I—"

"No—no; you stop here and guard Lania." Blake stooped and looked into the girl's pretty, anxious face for a moment. Then very suddenly he kissed her upturned mouth.

"Sorry," he said hurriedly, seeing her look of astonishment. "I'll get Dalaker to give me a sprig of mistletoe to make it legal. . . ."

And without giving the girl a further chance to speak he turned and went off with long strides towards the city. He looked back once to wave and saw the two figures dimly outlined against the stars. There was something about the lesser figure, the slender appeal of her body. . . . Then he thought of Dalaker and went on again at almost a run. . . .

HE saw but few people as he neared the city, a fact which occasioned him some surprise. His surprise deepened to suspicion when he finally gained the generating station from the safety of an alley-way and found only one tall El Doradian on guard.

Blake studied the fellow for a moment, wished he understood English in order that he might make his purpose clear. Since that was out of the question the only permit was strong-arm methods. Blake began to edge forward slowly, keeping well in the shadows.

Then at length he had reached the angle of the four entrance steps, waited tensely as the guard paced rhythmically along them. He tensed his leg muscles, sprang lithely, hooked an arm under the guard's chin and bore him to the ground.

The Doradian was powerful, a mass of highly developed muscles, but he wasn't powerful enough to dislodge the brown arm that crushed round his neck, or the band that cramped relentlessly in the small of his back.

"Sorry, pal, but this is business," Blake whispered, and suddenly releasing his hold he dealt the man a blow on the side of the jaw that sprawled him for a knock out, blood oozing between his lips.

Blake looked down at him for a moment, then snatched the man's gun from his holster and crept up the steps. Once through the main doorway he was faced with a vista of narrow hall, machine rooms leading off on each side.

He moved cautiously, alert for the slightest sound, reached the first machine room and peered within on an expanse of gigantic, whirring engines,

utterly confounding his rather limited scientific knowledge. Perhaps his father might have understood, but—

"Would you care for a guide, Blake?"

Blake twisted round with a hoarse cry as that icy question fell on his ears. He started to bring up his gun, only to find himself looking down the steady muzzle of Dalaker's automatic. The thin lips were smiling bitterly.

"Drop it, Blake. Quickly!"

Blake obeyed. If the situation had not relied so vitally on his gaining the mastery he would have shot it out there and then, but he couldn't afford to take chances. He stood glaring, and Dalaker still smiled contentedly. As usual, he was in immaculate white, a cigarette between his lips.

"I rather thought you'd be here sooner or later," he remarked pleasantly. "You should have known that in such a city as this television is a perfected art. I have followed you, that girl, and Ranji ever since you escaped the Mines. Later on, when I have settled with you, they'll find their lives at an abrupt end. . . . Unhappily, our television is not able as yet to receive sound as well—not without a transmitter, that is. I have had to guess your movements. I think I should be complimented on my powers of deduction."

"So you cleared the streets and lessened the guard on purpose?" Blake grated.

"Of course. . . . Oh, by the way, is it in order for me to extend my sympathies for the death of your father? A pity: he was such a clever man. . . . Almost too clever."

"That's on my debit account," Blake answered stonily.

"Dear me, how interesting. . . ." Dalaker came forward slowly. "You'll be interested to know that your radio

message from the airplane was picked up not only by Trinidad, but by several planes as well. In consequence five planes, among them a bomber sent from Trinidad, are about two hundred miles from here at the moment. Television discovered them, of course. In about another hour, allowing time for the planes to find this valley, they will be here. . . . But they won't land."

"I overheard all that in the sewer," Blake snapped.

"Oh, you did! That explains why you came here, then. It also saves a lot of explanation on my part. I shall of course destroy those planes with electric waves."

"I know that, too."

Dalaker threw down his cigarette; his dark eyes were glittering. "You know quite a lot, don't you? I suppose that infernal girl told you everything about El Dorado? Why I'm here?"

Blake eyed him steadily. "Keep the girl out of this, Dalaker. This is our fight."

"Then she *did* tell you!" Dalaker colored a little with inner fury. "She'll learn plenty before I'm through with her. . . . All right, Blake, I can throw all pretense aside. I'm mining *ynium* so I can sell it to a shattered world—and I don't intend to be balked by you or anybody else. I'll get you—then I'll get that girl and Ranji. Television will find them. . . ." He stopped, his obvious fury subsiding a little. He went on with his old calmness, "I'd kill you right now, Blake, only I think you ought to know a little about the workings of my destructive system."

"Nice of you," Blake sneered.

"It is only right," Dalaker murmured. He jerked his automatic meaningly. "Move forward until I tell you to stop—and don't try any tricks. I shan't shoot to kill, but I'll most certainly in-

capacitate you. Get moving!"

Blake turned, hands upraised, and marched into the center of the great, machinery filled room. Between two low-built transparent halls of a silvery substance, supported on heavily insulated pillars, he came to a halt at Dalaker's command.

"In case you're not aware of it," Dalaker said, "those globes are positive and negative spheres. They're essential in the makeup of this machinery. Upon the final release of my electrical energy into the surrounding atmosphere—energy which spreads out as it travels in the fashion of all waves of matter—the excess power stores up in potential form in these two spheres and is released from one globe to the other. It is definitely surplus power, which if not released might blow the entire city to atoms—if *you* can be destroyed, that is . . . But even a surplus power can have disastrous effect on any body or thing in its path . . ."

Blake said nothing, and Dalaker went on steadily.

"The actual disturbances are simple to produce. Electric waves—or, to be more exact, electronic waves—can of course produce havoc with the atmosphere if they are present in large quantity. They can cause severe thunderstorms, completely upset radio transmission and reception, produce electrical effects of dangerous intensity. The fact is proven by Nature herself by the electron streams reaching us from the sun, especially when his spots are numerous. The electronic streams agitate our atmosphere, at times, into severe storms. The same effect, artificially created and rendered a thousand times more potent is, of course, correspondingly increased in danger."

Blake stared incredulously for a moment, then he demanded, "You mean

you deliberately generate these electronic waves knowing they will spread out and produce shattering storms in their track?"

"Exactly that . . . And as for any airplanes, well—the waves naturally interfere with the electrical parts of the engines. Dynamos stop, generators cease, sparking plugs refuse to operate, radio is useless, ignition fails . . . And when ignition fails over a trackless jungle it is most unfortunate for the fliers. . . ." Dalaker smiled significantly, went on softly, "Right now I am building up power to destroy those approaching planes. The same wave, when released, will travel onwards and outwards, produce atmospheric havoc in its track until its energy is spent. Also, the surplus energy from that release will kill *you*!"

"Me?" Blake's eyes narrowed. "What are you getting at, Dalaker? I'll stand so much and—"

"You're in no position to say what you'll do!" Dalaker snapped. "If I shoot you dead you'll take a short cut out of all your worries. I don't like it that way. You've caused me plenty of trouble in the short time I've known you: you started that mutiny in the smelting room; you were responsible for two of my guards being killed . . . So I'm going to pay you back in slow coin."

Dalaker stopped and nodded towards the globes.

"In roughly forty five minutes the surplus energy will be released. At that time you will be in the path of those two globes and—"

"Oh no you don't!" Blake roared; and utterly regardless of consequences he flashed down his hands and slammed round a right to Dalaker's jaw— But he missed.

The revolver went off stunningly; the bullet pinged off metal somewhere to the

rear. Dalaker went down, clawing and struggling, as Blake plunged on top of him—but that automatic was still useful. It twisted in Dalaker's vicious hands, came forward butt foremost so that the sharp edge struck Blake clean in the forehead. His intended knock out punch collapsed in mid air and he went down in a reeling tide of darkness. . . .

CHAPTER VIII

Trapped

BLAKE came back to consciousness with an aching head and the sensation of something gripping and biting into his body and limbs. He tried to stir, but couldn't. Jerking his eyes open he found he was bound hand and foot, securely fastened to one of the two great globes. Whether it was the positive or negative one he didn't know: either way they were equally dangerous.

The metal of the globe was cold under his bare back and arms. He tightened his powerful muscles in a vain endeavor to break away the tough cords that held him, triply knotted to projections on the globe's surface. But the more he pulled the tighter they became until at last he desisted, breathing hard, perspiration streaming down his face.

He was aware of two things during the brief respite—things apart from the rumble and thud of meshed gears and whining machinery. One was a more distant sound, a dull heaving booming, and the other was the trembling of the one great window in its sockets under the repeated concussions. He twisted his head round as far as the cord allowed and stared: through the window smoke was visible—heavy, yellow smoke drifting by like fog.

He frowned in bewilderment, then suddenly it dawned on him. The vol-

cano! Nothing else could produce such effects. . . . Instantly he redoubled his efforts with frantic desperation, wondering as he tugged and pulled how much time had elapsed during his unconsciousness. At any moment he might be blasted into infinitesimal dust . . . And Lania! Blake felt sick at the thought of her. If Dalaker had kept his word and gone after her. . . ! He could sneak up without Ranji seeing him in the gloom, and—

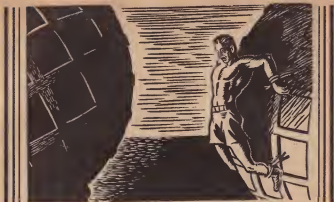
Blake gave a hoarse cry as the realization stunned in upon him. He tore on his ropes until his flesh bruised and bled; but Dalaker had done a good job of work. There was no shifting them. Aching from his efforts, Blake stared in bewildered fascination at the opposite globe, fifty feet from him. He'd have given his soul to know how long he had before death caught up with him.

Outside, the boomings increased, and suddenly the tortured window cracked and splintered into pieces that tinkled inwards. Blake twisted his head again and gasped in hoarse delight as a cream-hued turban hove above the frame. A gleaming knife followed suit and in another second Ranji had vaulted lightly into the machine room, followed by wisping streaks of evil smelling smoke.

"Ranji!" Blake screamed. "Up here! Quick!"

The Indian glanced up, nodded, then turned swiftly aside and seized a ladder, evidently the one Dalaker had used. Propping it against the globe Ranji scrambled up it almost before it came to rest, sliced his knife to good effect, and supported Blake as the last rope gave way until he was able to get a grip on the rungs for himself.

They literally fell down the ladder to the metal floor—but they had not gone five yards before the thing happened. Violet streamers of electrical



Blake tore at his ropes until his flesh bruised and bled

energy surged between the two globes with a shattering, crackling roar, flooding the great place with a purple haze of light.

Blake felt his hair stand upright as a terrific wave of static beat around him. His body tingled violently. Shaking and gasping he and Ranji staggered away from the globes' near proximity. When at last they came to look back the globes were gray again. The machinery had changed its note, but it was still working steadily.

"Well, that's that," Blake groaned bitterly. "The electrical wave has been released so I guess there's nothing on earth can save those planes now—" He broke off and turned sharply to the Indian.

"Thanks a lot, Ranji," he breathed gratefully. "But how in heaven did you know I was here?"

"Infidel has lot to answer for," Ranji answered venomously. "Like reptile he sneaked out of dark. His gun was ready before honorable knife could spill his

blood. . . . He gloated like an overfed pig over leaving you tied to gray globe up there. . . ."

"Then?" Blake urged. "Hurry up, man! What about Lania? Why did you . . .?"

It was not in Ranji to be hurried. He went on with cold, passionate bitterness.

"Infidel Dalaker shot the memsahib, sahib Blake. Shot her in back. Bad wound. Then pig of a Dalaker shot at me. I wonderfully ducked, received long scratch on shoulder. Feigned death, like animal, sahib. Infidel then go way."

"Well?" Blake grated. "Damn you, man, step on it!"

Ranji shrugged, winced as he fingered his ripped shoulder. "Came for you, sahib Blake. Left the memsahib lying. Much fog to shield her, from volcano—"

"Let's go!" Blake snapped.

In one bound he vaulted to the window, dropped outside into the choking smoke wreaths with the Indian beside him. Doradians came scurrying past in the gloom, some of them gripping their

remaining possessions, searching frantically for the nearest place of safety. . . . The ground shook incessantly, and overhead the denser smoke banks were painted dull red from the volcano's furious crater.

"This way, *sahib*," Ranji exclaimed, and with an unerring sense of direction headed through the smoke. "I took note of my course. . . ."

They began to run at top speed, dodging the phantom figures that occasionally merged out of the mist—until presently they left the city's main buildings behind. The shouting and screaming and stampeding grew less—they had a vision of the wilder terrain of the valley ahead of them, almost clear here of smoke as a drift of the wind carried the volcano's discharge in the opposite direction.

Once they glimpsed the crater itself, flame-encrusted, spouting forth cinders and ash. There was a significant laboriousness about its efforts that seemed to presage it had still to get fully into its stride. . . .

Blake hardly heeded it. He strode on with a set face, hurst into a run where he could, until at last, nearly spent for breath, he reached the fallen girl's side, lifted her limp body in his arms.

"*Lania!*" he cried hoarsely, raising her head. "*Lania*, say something—"

Her eyes still remained closed: her face was ashy gray in the volcano's glare. Blake shook her gently, then as she made no response he turned her over gently and stared like one fascinated at the discolored red on Ranji's makeshift bandage. Very quietly he laid her down, got to his feet. He turned a face that was like marble in its frozen setness.

"She's alive, but in a bad way," he muttered. "I wouldn't give a red cent for her chances without medical aid. . . . Guess you've done all you can,

Ranji." He clenched his fists. "Maybe she's only a jump ahead of us anyway. The volcano will finish the rest. . . . But before it does," he almost whispered, "I'm going to find Dalaker. I'm going to smash him, Ranji, if it's the last thing I do on God's earth!"

The Indian nodded slowly. "The infidel made remark of visiting generation station to see remains of yourself—"

"He did!" Blake's eyes glazed. "Right!"

Without a word he turned and vanished in the smoke. Ranji hesitated a moment, then, setting his teeth at the pain in his shoulder he stooped and lifted the limp girl in his arms, began to carry her gently in the direction Blake had taken. If death was to be the outcome of everything he preferred to die near his master and the girl his master so obviously loved. . . .

CHAPTER IX

Blake Faces Dalaker

BLAKE strode through the gathering redlit darkness like a man possessed. At times he broke into a trot, his heavy fists clenched. His face was a taut mask, a mirror for the fury he was holding in rein until he found his objective.

By the time he'd gained the city, smoking cinders and occasional showers of fine ash were dropping from the overhead pall. The ground groaned and creaked under the forces of internal torment: somewhere a din like a dozen steam safety valves split the already hellish row.

Once in his journeying Blake found himself facing a taskmaster. He didn't stop to speak: he left the men groveling on the street with a pulped jaw . . . then through the haze and fleeing figures he

caught sight of the generating station, still unshaken in its main bulk by reason of the peculiar metal composing it.

Blake went forward again, paused, smiled twistedly as he saw a figure appear on the steps. There was no denying who owned those white flannels. The figure looked right and left, then began running swiftly down the steps—but at their base Blake caught up from behind.

"You!" Dalaker screamed incredulously, as he was whirled round in an iron grip. "B—but I thought—"

"Yeah: you thought I was dead," Blake nodded, and smiled as though his face was frozen. "Thought you'd killed me, like you thought you'd killed Ranji and nearly killed Lania, eh? Like you sent my father to his death . . . Remember?"

He stopped as Dalaker tore savagely at his revolver pocket. The weapon came out and traveled into the smoky haze under the impact of Blake's hand. Clutching Dalaker by the lapels of his coat he forced him to his knees, looked down at him long and steadily.

"D-don't look at me like that!" Dalaker implored frantically, sweat beginning to trickle down his face. "You look as though you've gone mad or something—"

"I'm not mad." Blake's voice was taut and measured. "I'm just taking a look at that pan of yours before I smear it into unrecognizable pulp—and your blasted body too!" he finished with a roar. "By God, Dalaker, you've asked for this and now you're going to get it! Other things I might have let slide—but Lania! Why, you're too damned rotten to be allowed to live, you—"

Dalaker scrambled to his feet by sheer force of effort, whirled round his fist. He missed his objective and instead received a punch like a steam hammer

that slammed his top and bottom jaws together like a rattrap. He dropped in his tracks, got up again in blind fury and hurled himself on his nearly naked aggressor.

The very thought that he was a predestined loser goaded Dalaker to a false strength, turned him into a hattering, gouging tiger of a man fighting for his last chance for life. Blake fought more coolly, impacting all his rage into his punches, controlling his movements with a methodical, relentless strength. It was only when he took one on the chin that sent him staggering that he really hurst into demoniac fury and set about the deliberate mauling of his enemy.

His right fist came up and slammed into Dalaker's sweating face, sent him reeling. He came back again with hands outspread, blood smeared in an unlovely mess across his mouth. Springing suddenly he clutched Blake's neck, struck down gouging fingers on his face, tore with his nails, until two vicious jabs across the kidneys made him relax with a howl of pain. He kicked in retaliation, sent a bone splintering impact on Blake's ankle and momentarily defeating his guard. Blake went down dazed, shaking the confusion of a punch out his skull . . .

Instantly Dalaker was upon him, clutched him like a leech and hung on with hind, furious tenacity while blow after blow crashed remorselessly under his broken jaw and into his unprotected face.

Blake began to realize he was dealing with a maniac: no sane man could stand up to such punishment. And suddenly the hands that held him relaxed and instead moved to his neck, tightened with hellish force.

Blake struggled desperately as he felt the air shutting off from his lungs, but

he couldn't dislodge that panting, clawing figure. . . . Then, mainly by accident, Blake found his hands locked across the small of Dalaker's back. Quickly seizing his advantage, he brought his right knee up with a quick effort and wedged it under Dalaker's chin. . . . Then, exerting every ounce of his strength he began to draw his powerful arms inwards, forced the chin upwards and backwards. Dalaker's back began to crack.

The fingers began to relax a little. Momentary sanity flashed back in Dalaker's brain as he realized what was happening. He screamed hysterically as a terrific wrenching pain shot the length of his spinal column.

"You—you asked for this," Blake ground out between his teeth. "I said I'd break you one day and—and I will . . ." His muscles bulged under the strain: Dalaker's back arched further. He yelled and screamed, pawed air helplessly, but he was powerless to save himself— Then suddenly a sound like the breaking of a bough in the wind. Dalaker's back had snapped.

The body of Dalaker relaxed limply, collapsed in curiously twisted fashion on the street. Shaking violently Blake struggled to his feet and drew a forearm over his drenched face.

"It was you or me, Dalaker—and I had the aces," he muttered. "You—"

"So the infidel goes to his ancestors!" Ranji's voice preceded his actual form as he merged through the smoke, still carrying Lania in his arms. "You are avenged, sahib Blake, and—"

He broke off, astonishment on his dark face. Blake too was standing motionless as, above the rumbling and booming of the volcano, there came the sound of throbbing engines.

The sound mounted with the seconds.

"Planes!" Blake screamed, forget-

ting his aching body in sudden excitement. "Planes, Ranji! But how?" he demanded in bewilderment. "That frequency was released—"

"There, sahib!" Ranji cried, and he nearly dropped the girl in trying to point to a clear space in the smoke clouds, through which at low altitude were moving three ordinary fast planes and, more distantly, a heavy bombing machine. The drone of their engines began to beat heavily.

"Here!" Blake bellowed, cupping his hands and running up and down desperately. "Land here! Hey—I!" He looked around helplessly for something to signal with—and suddenly the astounded Ranji found himself without his turban.

Instead a broad length of cream cloth was waving wildly in Blake's upflung hands. He watched desperately as the foremost plane swept by not more than two hundred feet above. As it went off into the smoke he groaned in despair—but in a few minutes it came back, much lower, began to nose through the mist of smoke and landed bumpily in the broad expanse of main square.

In an instant Blake had taken Lania from Ranji's arms and was racing towards it, the Indian not a yard behind. He cursed in his native tongue as a cinder just missed him. They were falling more thickly now, the dust and fumes were becoming chokingly strong.

The plane's door swung open. Without a word the girl was hoisted gently inside by willing hands. Blake and Ranji tumbled in after her. The door slammed again . . . But as the plane swept up to join the others Blake noticed something.

The slender copper electrodes on the generating station roof, formerly hidden by smoke, had collapsed under the incessant concussions and tremorings.

Being made of copper instead of *ynium* they had succumbed more quickly. In that moment he understood why the planes were safe: the destructive frequency had never been transmitted . . .

An hour and a half later, as the planes droned steadily over a waste of tropical forest, Blake leaned gently over Lania as she lay in a roughly devised bed by one of the windows. The plane's pilot, shirt sleeves rolled up, was smiling a little.

"I'm no surgeon, but I guess she'll be O.K.," he remarked. "We can get proper aid when we strike Trinidad . . ." He held up the forceps and studied the hullet in their grip. "One inch further," he muttered, "and—" He shrugged. "But why bother over that? Incidentally, you can thank that damned volcano for showing us where to find you. The smoke attracted us."

He broke off, glanced at his watch, smiled ruefully. "Guess I'm plenty late on my schedule. I've passengers to pick

up, but they—"

He shrugged and slid into his jacket as he saw Blake wasn't listening. He was concentrating on the girl's feeble enquiries as to what had been happening. Quietly he told her, tapped his face plasters for confirmation.

"So Dalaker's all washed up and you're on your way to New York," he smiled. "As for your city, I guess it's finished."

The girl shook her fair head slowly. "No, Blake. Nothing can destroy *ynium*, even if it be huried in lava. And the Eternal Sleepers are deep underground, so even yet they may someday awake."

"Until then, though, you'll look mighty good in America," Blake remarked. "That's if you'll accept the proposition?"

She smiled, lay passive as he kissed her gently. Ranji holding his bandaged shoulder, regarded them steadily.

"Allah is just," he commented. "Very just."

Did You Know?

A cubic inch of the material contained in the dwarf star named after Prof. Adrian Van Maanen of the Mt. Wilson Observatory weighs 7 tons, and the star itself is smaller than the Earth.

In the last century only two comets besides Halley's have been seen by day with the unaided eye. One of these was in February, 1843, the other in September, 1882, that of 1843 having a velocity of 366 miles per second and passing halfway around the sun in two hours.

The light of the sun reaches the earth in 498.7 seconds, or slightly more than 8 minutes.

The rate of dissipation of energy by tidal friction is sufficient to have slowed the rotation of the earth by 4 hours during geologic time.



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The VANISHING DIAMONDS



Illustration by H. W. McCauley.

"Go on with the job!" barked the dapper gangster

**BY
CHARLES R.
TANNER**

A fortune in jewels awaits Professor Stillwell, discoverer of flawless artificial diamonds. Then the gangsters decide to muscle in—and the diamonds begin to disappear.

AMONG the various activities which serve to stimulate and interest the vagrant hodge-podge which I call my mind is that of stamp collecting, and it was this hobby that first brought me to the attention, and later caused me to be listed among the friends of that ponderous intellect, Professor Isaac N. Stillwell.

When I say ponderous, I mean it in more ways than one, for it is not only intellectually that Stillwell is ponderous. Physically, he is six feet tall, bald-headed, with heavy black brows and keen eyes, and he weighs—or did, the last time he confided in me—two hundred and ninety-four pounds.

Mentally, the man is just as big. I sometimes think that he is not just exactly human; he must be a sport or mutant, for surely an ordinary human being could not cover the enormous range of knowledge that Stillwell does. But sport, mutant or normal human being, Professor Stillwell is a genius of the first water, and as such, he has my respect.

As I say, it was through stamp collecting that I met him. The Pest and I had been shopping and while in town I thought I had better visit the stamp dealer's and see if any new items had arrived that might add to my collection. The Pest, I suppose I should tell you, is my ward, Marjorie Barrett. She is nineteen, and because I am thirty-two, she treats me as though I were in my second childhood. Around the house, she seems to think I am part of the furniture. I think quite differently of her, but I would die before I'd let her know it.

Anyway, the Pest and I had been shopping, and so we stopped in at the stamp dealer's. Arriving there, I opened the door and stepping aside for the Pest, she swept past me in her usual breezy, confident way, and collided forcefully with the back end of a man-mountain that was walking backward toward the door and chattering away to the dealer as he walked.

The Pest went down to the floor in a heap. I let out a cry of alarm and jumped toward her, and the mountain spun around, all apologies. He stooped over, offering her his hand.

And again that mountainous back of his brought catastrophe. He bumped into a table, a small table at one side of the counter. It went over with a crash, and a watermark detector full of benzine which was on it splashed to the floor and the contents fell squarely on a little gas burner which provided heat to a stack of blotters between which the stamp dealer was drying some stamps. There was a flash—and the skimpy, dusty little curtains which hung in the windows were a mass of flames.

For a moment all was confusion. Stillwell forgot the Pest even before she got to her feet; he turned and began bating at the blazing curtains with an enormous paw, but fortunately he was wise enough to desist when the first window-pane broke and so no more damage was done.

Presently the dealer and I succeeded in quenching the flames that were consuming the curtains, and some measure of calm was restored. I turned to see Stillwell clumsily trying to apologize to

Marjorie. That young lady was unhurt and apparently quite amused by it all.

"It was quite unavoidable, I am sure," she was saying. "Pray think nothing of it, sir. Remember the words of the immortal Shakespeare? 'There's a divinity that shapes our ends, rough-hew them how we will.' Don't you think that fits the point?"

She said this so solemnly and sincerely that I am sure Stillwell missed the atrocious sarcasm, indeed he became quite cordial. He waited until I had completed my business and then, still apologizing, tagged along to the street and even followed us to our machine. He wound up by asking me to visit him sometime to look over his stamp collection.

So it was that I first became acquainted with him, and never until this day have I regretted our friendship. Of course, it is a rather hazardous friendship in a way, as you will see, but between Stillwell and the Pest, my life is not in danger of ending from *ennui*, anyhow.

At first we were merely acquaintances, brought together by our mutual liking for stamps, but presently I found that we had many more things in common.

I am by way of being a sort of scientific *dilettante*, and have dabbled superficially with a half dozen sciences; I have collected minerals and fossils, played a bit with chemistry and astronomy, and even read a few books on biology. And in all of these sciences and a dozen beside, Stillwell is an authority.

I found in him, one who could answer my questions on any subject; and he found in me, one who at least knew enough to understand him, whatever the subject he chose. So it was natural that our friendship grew, in spite of his

peculiarities—and my own.

CHAPTER II

A Startling Discovery

THE particular adventure which I here intend to tell about began about three months ago. I had not seen Stillwell for over a week and I was sort of half-way expecting a call from him when the phone rang one evening just after supper.

"Clement, my boy," it was Professor Stillwell calling. "I want you to come over here right away. I've designed a new kind of watermark detector for our stamps. A light that shows up the watermark without even wetting the stamp. Hurry over."

I congratulated him, bung up and apologized to the Pest for leaving her alone. Half an hour later, I was ringing Stillwell's door-bell, eagerly wondering if he actually had invented the long-needed dry detector.

He admitted me, boomed out a welcome in his pompous bass voice and led me to the basement. Stillwell's laboratory was in the basement and I had never been there before, for heretofore my visits had consisted mainly of conversations in the living room. But he had talked so much of experiments in the lab that I had looked forward eagerly to this day when he would invite me to visit it.

We entered the basement and I looked around, striving to keep from smiling. For the big room was certainly characteristic of the man. Thirty feet long and half as wide, one whole side was taken up by a massive work-bench composed of twelve inch boards and two-by-fours. It beld a bewildering maze of chemical and electrical appliances, and beneath it a half-dozen

trash cans and a litter of broken flasks, test-tubes and burettes testified to the fact that Professor Stillwell's amazing clumsiness was not left behind when he entered his work-shop. A number of large cabinets on the side of the room opposite the work-bench held mysteries that, for this time at least, were to remain unrevealed.

"Now, here's my little trick, Clement," began the Professor, leading me to the far end of the bench. "The system I use is based in the relative lengths of red and blue light waves, see?"

He began an explanation, but for once I was inattentive. My eyes were roving the laboratory, trying to puzzle out the meaning of this thing and that, staring at one complicated piece of apparatus after another, only vaguely aware that Stillwell was talking to me. But one cannot remain in the presence of that adipose genius long without being definitely aware of him. He raised a pudgy hand to take me by the shoulder to emphasize some remark he was making, and his cuff swept a beaker from the bench. It fell to the floor with a clatter and splash, spattering liquor and scattering across the cement floor a dozen or so small crystals that had evidently formed in the liquid. Stillwell was annoyed. This surprised me for ordinarily he ignored his clumsiness, his pompous dignity being too great to allow him to notice it. But this time:

"Drat the infernal luck!" he exploded. "That was my solvent, Clement. I wasn't through working with that. Now I'll have to make up another batch."

"Solvent?" I queried. "What kind of a solvent?"

"It's a solvent for carbon," he answered. "I discovered it myself. A complicated organic acid, it is, and rather volatile. I hoped to be able to

add something to it to make it less volatile."

"But—those crystals!" A vague thought was stirring in my mind, a vague incredible thought based on a long-remembered fact that I had learned back in the days when my hobby was inorganic chemistry. "What are those crystals, Professor?"

"Carbon, probably. Carbon crystallized out of solution as the solvent evaporated."

"Carbon! Good Lord, Stillwell, do you realize what you're saying? Carbon only crystallizes in two forms, and you know well enough that those transparent crystals aren't graphite."

"Eh? Oh, no, they're the *other* form of crystal carbon—diamonds."

I stooped and snatched up one of crystals. It was an octahedron in shape, like two four-sided pyramids set base to base, and it was glassy in appearance, with a sort of cloudy crust over it. It was an unprepossessing sort of thing, and looked about as much like a diamond as it did like a goldpiece, but I had read, somewhere, of the appearance of rough diamonds and I was not deceived.

"Professor Stillwell," I harked. "Do you realize what you've got here? You've discovered a way to make diamonds! It could have been done long ago if somebody had known of a way to dissolve carbon. Why, man, there's millions in this. You can make these and sell them— Why there's no limit to it."

"Nonsense." The Professor chortled. "Two weeks after I publish the formula for my solvent, diamonds won't be worth a penny a peck. Everybody will be making them."

"After you publish your formula! Now, look here, Professor, that's carrying philanthropy a little bit too far.

What good will publishing that formula do? A few chemists will be able to simplify their work and that's all. And a million jewelers will be ruined.

"On the other hand, if you keep this a secret, and make a few diamonds each month, and sell them; the jewelers will be in no danger, you'll get rich, and the added facilities with which you can equip your laboratory will enable you to produce a dozen new processes which you can offer the world in place of the one you have withheld. You simply mustn't publish this."

Now, frankly, it was not entirely the milk of human kindness and love of my fellow man that led me to this philanthropic speech. I was seeing visions of myself and Stillwell engaged in a business of turning out synthetic diamonds for the trade. And I was not to be the least member of that business by any means. But, whatever my intentions, my arguments convinced the scientist. He admitted my wisdom and, taking the crystal from me, waddled down to the other end of the bench. For a moment, he was busy examining the stone.

"Hm-m. Let's see. Hardness?" He reached into a box, brought out a huge handful of crystals and minerals, selected one and carefully put the others back—into a beaker full of red liquor that stood by the box. Ignoring his mistake, he went on:

"Hardness—scratches corundum, all right. Crystal form, octahedral, correct. Index of refraction? Hm-m—hm—Yes, I guess it's diamond, all right. Well, Clement, my friend, now what do we do? Know any jewelers we can peddle this batch to?"

Ah, there was a place for me in the business, already. Agent for the Stillwell Diamond Co. I could see, in my mind's eye, the coming business.

"I think I know just where I can

dispose of them," I hastened to say. "Let me have them, Professor, and I'll let you know all about them by tomorrow night."

He helped me gather up such of the scattered diamonds as we could find, and with them carefully wrapped and in my pocket, I hurried home.

CHAPTER III

Disappearing Diamonds

THE next ten days were a bustling maze of good fortune. I found out at once that I would have to dissemble a little if I wished to dispose of my gems to a reputable jeweler, for rough diamonds have a duty, and not many are brought into the country without the revenue department knowing about it. So I prepared an elaborate story of a diamond field recently discovered and kept a secret by Professor Stillwell.

I assured the jewelers that as soon as we had disposed of a certain amount, the location of the field would be made public, and so—well, the diamonds were so fine that I suppose the jewelers overlooked the possibility that they might have been smuggled.

So, at the end of ten days, we found ourselves richer by some \$30,000. That day was the first since the night of the discovery that I had found it possible to remain at home, and by great good fortune, the Pest was home, too. She was reading the paper (the Pest reads everything from Homer to Dorothy Dix), and presently she looked up, holding her finger to the place where she had left off reading.

"Didn't you sell some of those diamonds of Professor Stillwell's to Parrot & Small, Clem?"

"Why, yes, I did. Why do you ask?"

"And didn't you sell some to the

Endicott company?"

"I believe so."

"Hm. Strikes me those diamonds of yours are rather flighty things. Look!"

She handed me the paper. One item, on the first page, read:

JEWELER'S SAFE BLOWN

Endicott Co. Reports Theft of Valuable Gems

New York, N. Y.—The George B. Endicott Co., wholesale dealers in diamonds and jewels, reported to police this morning that they had been robbed of a number of rough diamonds, recently purchased. The robbery was accomplished by blowing a small safe secreted in the wall of their office. The act took place about three o'clock this morning and police are puzzled at the quick get-away of the bandits. Nothing was missing from the safe but the diamonds, although other jewels were scattered about the office by the force of the explosion. The watchman denies having noticed anything unusual prior to the explosion, but is being held on suspicion of being an accessory."

There was more to this, but I turned to read the other article which the Pest pointed out. It was a smaller item, on an inner page, and read as follows:

Mystery Thief Nets Rich Haul

New York, N. Y.—Elisha Parrott, head of the firm of Parrott & Small, manufacturing jewelers, reported today the loss of a number of valuable diamonds recently purchased. The diamonds disappeared from the jeweler's machine while he was making a trip to dispose of them in Albany. Parrott states that he is quite positive that the satchel containing the gems was not tampered with at any time during the journey, and remained at his feet in the bottom of the auto throughout the trip.

Notwithstanding this fact, on opening his satchel in Albany, the jewels were gone. When and where they were taken, he cannot say. Parrott says the jewels had a value of over seven thousand dollars. The case is similar to that of Edgar Withrow, who reported the loss of several rough diamonds from his office several days ago. Police are considering the possibility of an exceptionally clever jewel thief operating in the city.

I lifted my eyes from the paper to encounter a dubious look from the Pest.

"Well?" I asked.

"Well, don't it seem sort of funny, all those diamonds you sold disappearing like that?"

"It is a rather strange coincidence," I began, but she interrupted with a most unladylike snort.

"Coincidence, bah! Call it that if you want to. I think there's something funny about those diamonds. They always did seem too good to be true, to me."

I attempted to scoff at her ideas, but the more I scoffed, the more I felt convinced that something was wrong. At last, I clapped on my hat and dashed off to Stillwell's.

The Professor met me at the door with a beaming smile that vanished when he saw my face.

"Why, what's the matter, Clement, my boy? You look as if you had just lost a fortune instead of having just made one."

"Maybe we have," I began bruskiy. "Look at these items in the paper." He took the paper from my hand and was just about to close the door when he noticed a tall, brisk-looking man striding up the walk. The man bounded up the steps and:

"You Professor Stillwell?" he chattered, rapidly. "I'm from the Revenue Department. Like to ask a few questions about some diamonds you've been selling recently. Have to watch out for smuggled gems, you know. We'd like a little more knowledge of where those jewels you've been selling are coming from."

Stillwell, looking a little bit discomfited, waved the T-man inside and I followed. We entered the living room and took seats,

"Now, about those diamonds," boomed the professor in hesitant tones. "I don't suppose you'll believe me, but—I make them myself."

"*What!*" The detective was certainly not expecting such a statement as that. He looked at me as though to find some one to support him in his doubt.

"He's right," I announced. "I've seen him make them. Down in the basement. It's very simple, but we're trying to keep the process secret, in order to keep the market from collapsing."

The government man scratched his head dubiously.

"Never heard of anything like that in my life," he stated. "Tell you what. Let me watch you make some, and I'll report it to the department. And if they think it's O. K., why, it's O. K. with me."

So Stillwell led the way to the basement, and presently he was busily making up some of the solvent. We already had several beakers with diamonds forming in them, but the detective intimated very politely that he must see the process from the beginning, so the professor had to mix up more of the solvent.

Presently he began searching for one of the ingredients but without success.

"I hope you don't mind this delay," he sputtered. "I seem to have mislaid a solution of nitrogen iodide. It's quite essential. I'll find it in a moment."

His search, however, was interrupted by the doorbell. He pardoned himself and lumbered upstairs, but minute after minute passed and he failed to return. At last the T-man [Familiar title given investigators associated with the Federal Department of Treasury—Ed.] grew impatient.

"Look here, Mr. Jordan," he said (I

had already introduced myself), "maybe he's took a run-out powder. Better go up and see—"

His words were interrupted by the sound of voices raised in altercation coming from upstairs. There were several of them and the professor's was not the only one which sounded angry and threatening. I gave the detective a significant look and dashed up the stairs, the T-man closely following. By the time we reached the top of the stairs, Stillwell had dropped his angry tone and had become conciliating.

"I assure you—I assure you, gentlemen, that if there is a mystery about these diamonds it is not a mystery about their structure," he was saying. "Didn't you all examine them and certify their genuineness?"

"Never mind about that," snapped the biggest of the four men who faced him. "What we want to know is, where did those diamonds come from? By the Lord Harry, when six different jewelers buy diamonds from a man, and then the diamonds disappear from all six of them, there's something wrong with those diamonds!" I gasped in dismay as I looked at the speaker, for I recognized him, and the others as well. The big man was none other than Jeremiah Small, the junior partner of Parrott & Small, and the others were also jewelers, all of whom had bought diamonds from me within the last week. They saw me at the moment that I saw them, and Small immediately seized me by the collar.

"Here's his accomplice, men," he snapped. "Now we'll get at the truth of the matter."

Stillwell was looking most uncomfortable, and I have no doubt that I was, too, but fortunately the government man intervened. He explained who he was and sort of took charge of

things. He explained, quite unconcernedly, that Stillwell was making the diamonds and suggested that the angry jewelers come down and prove it for themselves. But Small, who seemed to be acting as spokesman for the jewelers, was further incensed by this statement.

"*Making 'em,*" he howled. "Now I know it's a game. I knew there was something phony about this, hut—making 'em!"

He shook his head dazedly, but nevertheless, he started for the basement, and the other jewelers followed. Once there, Stillwell began again his search for the nitrogen iodide solution. The patience of the jewelers was reaching another breaking point when the doorbell rang for a second time. Professor Stillwell looked annoyed and started for the door.

"No, you don't," snapped Ben Small. "Don't let him get away, boys. Hold him."

He dashed toward the professor, and I was about to make a dash toward him when the government man again interfered.

"Come on, calm down now," he barked. "We don't need any rough stuff. Jordan, you go see who it is. Professor, you stay here. Looks like there's going to be a regular convention before the night is over."

I left with Small and Stillwell glaring at each other, and went up stairs. I opened the door and a dapper little man with a tiny red moustache brushed by me and entered the living room.

CHAPTER IV

A New Arrival

"YOU Professor Stillwell?" he asked in a crackly, clipped tone. And then, before I could answer and deny

it: "Look here, Proff, you been peddling a lot of diamonds lately, haven't ya? Diamonds which nobody knows how they got into this country? Sure. Well, me and a couple of pals has got interested in them diamonds of yours.

"We ain't no fools, and we been figuring, see? We know you ain't smuggling 'em. And where could you mine 'em at? That's out, too. But—you're a brainy guy, Proff. So me and my pals put two and two together and doped out that you're making 'em. See? Are we right?"

"Well, in the first place, I'm not Professor Stillwell," I snapped, angrily. I didn't like this fellow's ways, he was too much like the gangsters I had seen in the movies. And I was beginning to fear that he was *entirely* too much like them. "I'm not the professor," I went on, "and I'm not at liberty to divulge anything concerning his processes."

"Is *that* so?" The little man's hand went into his pocket and came out flashing a snub-nosed automatic. "Now, you ain't going to be silly, brother. You just tell me where the professor is, and lead me to him. And—keep your trap shut, so he don't get wise to anything, see?"

This last was uttered so emphatically that I realized the utter seriousness of the man. I turned without a word and led the way to the basement. The hoodlum pocketed his gun but I noticed that he kept it trained on me and so I said nothing when I entered the laboratory, allowing him to do all the talking.

He was disconcerted slightly at seeing the crowd, but recovered himself at once and asked to see Professor Stillwell alone for a moment. I tried to catch Stillwell's eye, but he was uncertainly looking toward the T-man, trying to get his permission to leave the lab-

oratory with the crook. And the T-man wasn't looking at Stillwell, for he had his eye on the dapper gangster.

And then suddenly things began to happen. The T-man burst out: "Tony the Slip!" and tugged at his hip pocket, the gangster whipped out his gun and covered the entire group, and Professor Stillwell, overcome by the quick succession of untoward circumstances, lost his patience at last, and burst out with a string of oaths that would have done credit to a sailor's parrot.

But the Tony person was the one who controlled the situation. He remained calm, and a command from him calmed the rest of us. Then he turned to Stillwell.

"What's all this about, anyhow?" he demanded. "What kind of a pow-wow are you holding here, huh?"

I was about to demonstrate to these gentlemen, my system of making diamonds," answered the professor stiffly. As was always his way when at a loss, he had retired into a shell of dignity, and seemed likely to remain there indefinitely.

"Well, what do you think of that!" cooed Tony, seemingly greatly pleased. "Ain't that just splendid. Really, Proff, that is just exactly what I came here to see. Go on with the job." Stillwell looked besitantly at the rest of the group, but: "*Go on with the job!*" barked the gangster, as he motioned to the work bench.

Again he took up his search for the nitrogen iodide solution. He peered into cabinets, looked on shelves and under them, but the missing chemical failed to materialize. All the while, the detective kept an eagle eye on the gangster, and presently he gave a lunge toward him but Tony leaped back and sent a shot winging over the T-man's head. The bullet struck a test-tube on

the top-most shelf above the work-bench, and a shower of broken glass clattered down into a big beaker standing on the bench. And then—

There was a blinding flash from the beaker and a roar that was deafening. Amid the clatter and crash of breaking glassware and crockery, I saw the jewelers buried backward, saw the Government man buried through the air to land bodily on "Tony the Slip." Then I, too, was dashed to the floor by the force of the explosion.

For a moment, I was dazed, then I felt bands lifting me to my feet and saw that my aid came from Professor Stillwell.

"Quick, Clement," he sputtered, "Get me out of here while there's a chance. Those men will kill me if they get hold of me. I've got to get away."

I turned as he hustled me out of the lab, and looked at the chaos we were leaving behind. The gangster was struggling in the grip of the detective, and Jeremiah Small and another jeweler were helping the T-man hold him. The other jewelers were sitting on the floor in a daze, but apparently they were unharmed, for one of them cried wildly and pointed to us as we hurried up the stairs. I did not hesitate, for I knew they would soon follow.

We dashed through the house and out on the street and then hesitated, uncertain just where to go next.

"Taxi, sirs," called a feminine voice, and I looked around and there was the Pest, seated calmly in my machine, and bolding the door open for us. We darted in, I with a question on my lips, but it remained unspoken, for even as she closed the door and sent the machine speeding down the street, the Pest answered it.

"A couple of those jewelers phoned and asked for you, and before I thought,

I told them you were at the Professor's," she said. "After I got to thinking, it looked a little funny, so I thought I had better come over and sort of look after you."

"And a mighty good thing you did, young lady," puffed Stillwell. "You probably saved our lives. If ever I saw murder in a man's eyes—" he stopped and puffed some more. "Drive to the depot, Miss Marjorie. I—I really think I had better get out of town for a while."

We drove on in silence for a way, and then I thought of something.

"Those diamonds, Professor. It seems they all disappeared. How do you account for it?"

"It must have been allotropy,"* the professor answered, speculatively. "The crystals we formed from solution seemed to be diamond—but I suspect now that they were a new allotropic form that resembled diamond only superficially."

"But—why did they disappear?"

"Well, of course, I can't be certain but I suspect they were unstable at ordinary temperatures. Diamond will combine with the oxygen of the air at

* The capability shown by certain chemical elements to assume different forms, each characterized by peculiar qualities, as the occurrence of carbon in the form of the diamond, charcoal, and plumage, respectively.—Ed.

high enough temperatures and form carbon dioxide. This stuff evidently holds up for a while and then forms the gas, and pouff goes your diamond. Confined in a safe, enough of the gas was generated to blow the door off. But when not confined, the gas escaped and the diamonds disappeared."

"It seems to explain everything," I said—and scowled at the Pest's comment:

"Everything except how you're going to get out of this jam."

"The money we received for the jewels, my dear young lady, will all be returned, of course," stated Stillwell, loftily. "Nevertheless, I think it the greater part of valor to remain out of sight for a few weeks."

We reached the depot and the professor hastily stepped out of the machine and started for the ticket window.

"Just a moment, Professor Stillwell," I called. "Do you know what caused that explosion?"

"Why—ah—it must have been the nitrogen iodide," he called back, wearily. "I had it in solution, but I must have carelessly let it evaporate. You know, when perfectly dry, nitrogen iodide will explode if so much as touched with a feather. That broken test-tube, falling on it—" His voice trailed off as he hurried into the building.



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A SUMMONS

BY
JOHN RUSSELL FEARN

In a weird message from Mars, Eric Sanders is told that he has been betrothed to Yana. Torn between his duty to science and tradition, and his love for Sonia Benson, Sanders makes a momentous decision.

THE ocher sand of the Martian desert spouted towards the blue-black sky under the impact of the falling space machine. The vessel slithered a little distance and became still in the long trough it had gouged for itself.

For a long time nothing disturbed the desert's silence. A thin, icy breeze stirred mournfully across it; the small sun moved among the faint stars . . . until at last its pale light picked out a group of four radio driven robots moving methodically across the waste on smoothly jointed legs. Flawlessly made, rather hideous, equipped with various strange instruments, they finally gained the vessel, set to work with the pincer hands and tools upon the airlocks.

There were three airlocks in all. The guiding intelligence behind the robots saw to it that no trace of Mars' thin,

deadly cold air entered the vessel—that none of the Earthly warmth and air pressure inside escaped. . . .

With a care seeming incongruous for their heavy, metallic bodies the robots lifted the limp figure of an Earth man from the floor, laid him gently on a hunk near the control board. He was good looking after a fashion—still young, strong jawed, but with the fading light of approaching death in his eyes.

He talked thickly, listlessly, between long pauses of hard breathing. The robots' recording mechanisms implanted on mechanical recorders everything he said.

"I—I guess I didn't quite make it. This—this is the first space machine ever made. . . . I made it, but forty million miles was too much for the first hop. . . . I—I got into difficulties. Rockets wouldn't work. . . ." He



The girl stiffened and leaned forward with red lips parted.

Illustration by Harold Peck.

stopped for a long time, looked at the unhuman faces around him.

"I—I'm Gerald Sanders, the first Earth man to get here—maybe the last. I'm the only one who knows the fuel formula for these—these rockets. Hope nobody finds it again. Hellish business, space travel! Gets your mind and body . . . crushes it. If—if," he went on, with sudden frantic desperation, "you've got any method here that's—that's akin to radio, wireless to my wife on Earth and tell her I got here. Her—her name's Louise Sanders, of San Francisco. She—she couldn't come, thank God. There's a hahy. . . ."

He gasped over the completion of his sentence, winced, then with a long, quivering sigh relaxed motionless. The robots stood in silence for a time, then very reverently picked up the dead body between them, bore it outside into the moaning wind.

With steady, unvarying strides they progressed away towards the north of the red planet. . . . Onwards, hour after hour.

CHAPTER I

On Earth, 22 Years Later

OLD Jonathan Dare sighed with heavy regret as he shuffled into the large rear room of the shack, hearing a laden tray in his gnarled hands. He picked his way amongst snaky wires, storage batteries, small turbogenerators driven by a mountain stream, together with fantastically patterned radio antennae and reception aerials.

He sighed even more heavily as he caught the accustomed sight of a black head bent rigidly over a complicated radio reception apparatus—a young figure in flannel shirt and slacks, slender hands hovering over the carefully

graded controls.

Jonathan rubbed the back of his untidy gray head, muttered something about lunacy, then planked the tray down on the hench.

"Here y'are, Mister Eric—your supper."

The figure turned from the apparatus. Eric Sanders got up slowly, stroking a chin that was as square and purposeful as his dead father's had been. There was a half abstracted, half puzzled look in his gray eyes as he picked up the coffee percolator and began to pour out its contents.

Jonathan's rheumy eyes surveyed the wilderness of apparatus. "No luck, Mister Eric?" he ventured.

"Nope—nothing!" Eric sighed despondently; then he brightened a little. "Just the same, Jonathan, I still insist that I'll do it one day. Twenty-two years ago my dad went to Mars. He landed there, but was never heard of again. Never returned."

The old man shrugged. He knew that: he'd been Gerald Sanders' servant. Therefore he made the same observation he always made.

"Y' can't be too sure o' that, Mister Eric. Maybe he didn't land. Maybe a thousand things happened to him out there in space."

"No, Jonathan; he landed all right." Eric Sanders was quite sure of that. Coffee cup in hand he roamed to the window of the shack and stared from this lonely point of the Wahsatch Range of the Rockies down onto the arid, moonlit basin of Great Salt Lake.

"Yes, he landed," he repeated softly, half turning. "The new reflector at Mount Wilson followed his ship. Besides, his special short wave radio messages revealed that he'd gotten to within a million miles of Mars. After that, he couldn't help but fall on the planet.

The gravitational field alone would see to that."

"But twenty years!" Jonathan protested, stirring his coffee musingly. "Ever since you took me on here five years ago after your mother's death—Heaven rest her—you've been playing around with these newfangled radio gadgets, adding this and taking away that, sitting up at nights— What d'you hope to get out of it?"

"A communication from Mars. Some day."

"But suppose your father's dead? He might be, even if he did reach Mars."

Eric smiled a little, sat down thoughtfully. "Probably he is dead, but that wouldn't stop the Martians from discovering the short wave radio aboard his ship. I hardly think his machine could be so completely smashed up as to destroy every darned thing within it. Mars' pull is far less than Earth's, you know. And, if his radio could communicate to Earth when only a million miles from Mars, it could obviously do so from Mars itself."

"Might not," Jonathan said vaguely. "Atmosphere might stop it."

"Only the ionized upper layers and there aren't any on Mars. The planet's almost airless. Besides, those waves penetrated *our* ionized layer, so nothing could stop them penetrating Mars'. See?"

"Ay, I see that—but you can take it from me, Mister Eric, that since them Martians haven't done anything for twenty years they're not going to. You're just wasting your time. Perhaps there aren't any people on Mars anyway. What then?"

"Oh, but there *is* intelligent life," Eric protested quickly. "Every year there are evidences of changes on the disk and in the *canali*, distinctly visible through the new Mount Wilson tele-

scope. There is intelligent life, all right— Yes, Jonathan, I'm sure that one day I'll get what I'm after. Each receiver I build has some new improvement for the reception of ultra short waves such as dad used. Unfortunately I haven't inherited his genius—or his formulae for short wave efficiency and space travel, so I just have to keep on picking my way. Mars is in my blood, Jonathan. It means something to me. I'd give anything to be able to go there."

"Ay; I know that." The old servant's tired eyes watched Eric as he got up and paced slowly round the instrument littered room.

"That new tube I've incorporated, for instance," he went on. "It passes electrons with more ease and latitude than any known tube in the world today. It amplifies even the faintest signal. With ten of those tubes in cascade and linked to the receiver it provides the groundwork of an interplanetary radio receiver."

"And you get?" Jonathan grunted.

"Nothing—yet," Eric growled. "Not even ordinary police or experimental broadcasts. My stuff's too sensitive to incorporate them. I get static by the ton, cracklings that are probably accounted for by the Earth's magnetic poles. . . . But Mars still doesn't bite."

He turned disgustedly away to the window and stared out again. Absently his eyes settled on two spots of light perhaps half a mile distant down the pass on which the lonely shack stood. He watched them with interest, began to frown as they went out and in again as something passed in front of them.

"I'd say it was a car," Jonathan murmured, gazing over Eric's shoulder. "Looks like headlights to me."

"But who on earth—?" Eric began in bewilderment.

"I dunno, Mister Eric, 'less it's some-

body trying to get through to Denver. It is a short cut if you've nerve enough—and gas enough—to try it."

Eric wasted no further time talking. Slipping on his hat and coat he went out into the sharp night cold, picked his way along the broad mountain pass, aided by familiarity and moonlight. Half a mile brought him to a stranded, luxuriant La Salle convertible. The slim figure of half a girl was visible, peering at the car's insides.

"Anything I can do?" Eric inquired, as he came up.

The girl emerged at that and gazed at him in complete astonishment in the glare of headlamps. He looked back with interest, judged that save for a smudge of oil her oval shaped face was decidedly pretty. Her figure seemed remarkably slight, elfinlike.

"Where—where on earth did you come from?" she demanded. "It isn't that—that I'm not glad, of course, but—I thought I was alone here."

"Did you want to be?" Eric asked politely.

"Good heavens, no! I was never so thankful to see anybody in my life. . . . I was heading for 'Frisco . . ." She broke off and laughed ruefully. "Guess I was a fool to take this way along the pass, only a friend of mine said it was O. K."

"It is," Eric murmured, "if you're familiar with it." He stared at the car. "What seems to be the trouble?"

The girl shrugged helplessly. "That's just it; I don't know."

Without speaking Eric tested the plugs, ignition and carburetor. Then, smiling a little, he glanced at the illuminated dashboard.

"It's a good idea to watch your fuel gauge," he remarked dryly. "You're out of gas."

"Gas!" The girl started in dismay.

"Oh, Lord, I never thought of that! Where can I get some?" she asked quickly.

"Nowhere tonight, I'm afraid." Eric looked at her keenly. "Where are you from, anyway?"

"Two miles out of Denver. Anything wrong with it?"

"Oh, no, but it seems kind of odd—a lone girl like you making a solo of a good five hundred miles to 'Frisco."

"There's a reason," she murmured demurely. "And, incidentally, it isn't usual to find anybody living up in this neck of the woods. If I seem queer, you're queerer!" She brought out a compact and rubbed her smudged face industriously.

"I'm a radio experimenter," Eric explained. "What I was going to say was, that in the morning I can fix you up. My servant's going into 'Frisco on business and can run you there in my own car. There'll be just enough room for it to get round this car of yours. You can call at the nearest garage and tell them to fill your car up and run it home for you."

"Umm. . . . You've no spare can of gas?"

"Sorry, no. You're welcome to my shack for the night. It'll be O.K. Old Jonathan will be the guardian angel. How about it?"

The girl's face brightened. "Thanks a lot, Mr.— You have a name, I suppose? Or do experimenters just have numbers?"

Eric laughed, took her arm as they returned up the pass.

"If I did have a number, zero would about suit it."

"Zero isn't a number, it's a negation. . . . And I still haven't your name?"

"Eric Sanders."

"Mine's Sonia Benson. No ties, no parents, and if my friends are to be be-

lieved, no sense either. . . . Say, do you happen to be any relation to the Gerald Sanders who had a spot at Mars some twenty years ago?"

Eric glanced at her sharply. "Why? How do you know what happened twenty years ago? You don't look a day over twenty-three or so now."

"I could have had parents who told me, couldn't I?" she demanded.

"I guess so. . . . I'm Gerald Sanders' son. Does it mean anything?"

"Well, no—but it's interesting. . . . Ah, so this is where you experiment?"

CHAPTER II

A Message from the Void

SONIA looked about her with obvious interest as they passed through the shack's open doorway into the network of instruments and contrivances. Eric closed the door, stood silently watching the girl as she gazed round.

As she pulled off her hat she released a mass of curls the color of new copper. They framed her quick, youthful face and sharply enhanced the pink and white of her skin, the deep unfathomable violet of her eyes. At least, Eric judged that they were violet; they had an odd knack of changing color as she slowly turned. She was definitely beautiful, but in a manner rather different from the usual.

"You must do an awful lot of clever things in here," she said at last, and her dainty mouth smiled to reveal flawless teeth.

"Take a seat," Eric invited, and hastily dusted one of the rather ancient chairs. "Sorry things are so upset around here. Maybe you'd better come into the drawing room—"

"Oh, no—no," she laughed, settling down. "This is fine. . . ." She looked

up questioningly as Jonathan came shuffling in from the kitchen regions. He regarded her with a silence that was almost one of awe until finally Eric spoke.

"Heat up some more coffee, Jonathan—and rustle up some grub from somewhere. Miss Benson must be pretty hungry. . . . This is my man, Jonathan, by the way."

She smiled at the old man prettily and he nodded awkwardly, went out with the percolator clutched in his hand. Then the girl threw off her heavy coat, revealed the flawless curves of her slight, lissom body.

Eric drew up a chair before her and proffered his cigarette case with a hand that shook oddly. To his surprise the copper curls shook emphatically. "Thanks all the same, no."

"No? I should have thought you were—well, modern in every way," he remarked. Then he frowned a little. "Say, you're not a television actress, are you?"

She laughed musically. "Good heavens, no! I'm just a wandering girl, with more money than sense. Why?"

"Oh, nothing, 'cept that with your looks and—er—figure you'd knock any television producer's ears off."

"Never mind television; what about your experiments?" she asked softly, and her eyes changed from inky black to sapphire blue as she leaned forward eagerly.

"Oh, forget them! I can afford to take a bit of time off to entertain a visitor. And such a—"

"But I'm interested!" she broke in quickly. "Anything scientific does something to me. That's why I asked about your name. I think your father was the most wonderful pioneer in history. He dared the void," she whispered. "The void!"

"And somewhere on Mars," Eric murmured, carried away for the moment, "is somebody, I feel convinced, who will one day communicate with me by radio."

She looked at him strangely. "So that's what you're doing up here like a hermit?"

"Sure." Eric waved proudly to his apparatus, got to his feet and moved to his receiver. He felt doubly proud when the girl got up and stood by his side, profoundly interested in all the things he detailed. Without a hint of boredom she listened, her beautiful face alive and intelligent. Even when Jonathan came shuffling in with the coffee and sandwiches she hardly seemed interested in the subject of supper.

"It's simply marvelous!" she declared at last, fingering the receiver with white hands. "To think that this apparatus could receive messages from a world forty million miles away. . . ."

"But it doesn't!" Eric complained bitterly, handing her a cup of coffee from the tray Jonathan was holding. "Just listen for yourself what happens. . . ." He closed the many switches that controlled the apparatus and they sat listening to the crackling, whining hum from the loudspeaker.

"And that racket is Polar static, I suppose?" Sonia asked presently, daintily munching a sandwich.

Eric looked surprised. "Why, yes. Say, for a girl who says she's no sense you're going places."

"No sense in ordinary things, perhaps, but those interested in science rarely have. Since static is the free movement of electrons and protons, one of the direct results of ionization—and since the greatest display of that is at the magnetic poles, that's the natural answer, isn't it?"

"I guess so." Eric drank his coffee

and they sat looking at each other over the cup edges, her profound eyes looking directly into his. Jonathan stood silently waiting.

"Why not try a different wavelength?" the girl asked at last, surveying the graded dials. "Obviously there is nothing in that particular section."

"Can if you like, but it won't be any good. I've done it thousands of times before. What would you suggest? Higher or lower?"

"Oh, I dunno. . . . Try lower."

Eric reached out and played with the directional finder, moving the pointer along its graded dial towards the shortest possible radio waves. Then suddenly he stopped, froze in mid action, dropped his coffee cup with a crash, as there came in the speaker an incredibly faint murmuring, almost like the cadences of a rising wind.

"Listen!" he whispered hoarsely. "Listen to that! A voice!"

"Probably an experimenter from somewhere," Sonia said, putting her cup down.

Eric studied the dials quickly. "Can't be that. No experimenter could possibly tune to this short wave—or even if by some fluke he did manage it he'd have to be quite near to this shack. I know that isn't so because there's nothing within two hundred miles of this place. I made sure of it because of possible interference." He slammed his chair round and began to fiddle desperately with gadget after gadget, and the more he fiddled the more the murmuring changed from inaudibility to definite meaning, slowly began to take on the shape of words.

The girl stiffened and leaned forward with red lips parted. Jonathan advanced and stood with his gray head cocked on one side.

". . . calling to Earth. Mars calling

Earth. Calling to third planet from sun. Fourth planet calling third. . . . Mars calling Earth. . . ."

"It's English!" Eric yelled, jerking round an amazed face. "Oh, gosh, if only I had a transmitter powerful enough to answer I could perhaps—"

"Listen!" the girl interrupted him, her hand raised—and the faint, whispered communication resumed.

"Calling to man or woman named Sanders, child of Gerald Sanders of San Francisco, Earth. . . . This message will be repeated without ceasing until my telepathic apparatus reveals that the mind of the child of Gerald Sanders—if there be such a child—is trained directly on Mars. Then I shall know that my message has been received and will communicate in full. . . . Calling to Earth—"

The message went on again through the same wording, uttered in a voice that was not unpleasing, but so quiet, so suggestive of vast distances, it had almost an eerie quality in the lonely mountain shack.

"I made it!" Eric kept whispering, again and again. "I've tried all these years, and now— They must have learned the English language from father's books and radio-phonograph records, and things. Mars inhabited!" he shouted, leaping up. "Infinitely intelligent people with telepathic apparatus! They'll know when I'm thinking about them! All right!" he yelled, staring at the apparatus in front of him. "I'm concentrating! Do you get it? This is Eric Sanders—!"

"Better take it easy, Mister Eric," Jonathan advised uncomfortably.

"Easy! At a time like this?"

"Anyhow, your thoughts will take about four minutes to cross space," the girl murmured, thinking. "Assuming Mars to be at the mean distance of forty

million miles, that is."

"Why should they?" Eric demanded. "Thought is instantaneous."

Sonia's curls shook. "I don't agree. Everything in the universe, by its very structure and the FitzGerald Contraction, must be limited to the speed of light—even thought waves, which are included in the basic order of radiations."

Eric stared at her and her level pools of eyes stared back.

"I—I can't understand you, Miss Benson," he muttered. "For a girl who knows science so well to drive a car until it runs out of gas, and get stuck *here* of all places— Frankly, it looks far more than coincidence."

She shrugged. "What's my being here got to do with it, anyway? You've far more important things to think about at the moment. I've brought you luck, anyway, and incidentally done myself the good turn of being in on one of the most amazing radio communications in scientific history—"

She broke off and looked at the loud-speaker again—but it was the same message, repeated in the same calm, inscrutable voice. For nearly an hour it went on, then Eric got stiffly to his feet.

"Guess my thoughts aren't strong enough," he growled disconsolately.

"Maybe they take some analyzing," the girl suggested, rising up beside him. "I'm quite sure these Martians must know what they're about. It may take them a long time to sort matters out."

"Maybe. . . ." Eric stood looking at her, then started as she tried ineffectually to stifle a yawn.

"Say, I'm forgetting I'm host!" he cried. "You must be about worn out." He glanced at his watch. "Whew! Two o'clock! I'll show you your room. Not very feminine, I'm afraid, but passing comfortable. . . . Jonathan, fetch

Miss Benson's bags from the car."

"Yes, Mister Eric."

At the doorway of her room the girl turned and looked at Eric seriously. "I suppose this is your room, Mr. Sanders? What are you going to do for the night?"

"Sit by that radio and wait for something to happen. You surely didn't expect me to do anything else?"

She moved to one side as Jonathan came in with the bags.

"Frankly, no. If anything really important happens, outside of that repeated message, don't forget to wake me up."

"I promise," he smiled, and they surveyed each other. Then she began to withdraw into the room.

"Well, good night. And thanks again."

She closed the door gently and Eric turned away, not feeling at all sure of himself. On the one hand he had the excitement of his radio messages; on the other he had the fascination of this strange and lovely girl who had dropped into his life.

"She may be one of them newspaper reporters," Jonathan muttered, when they were back in the experimental room. It was as though he'd read Eric's thoughts.

"No, Jonathan, I don't think that. They don't come that beautiful as newspaper reporters. . . . Funny. Sort of puts me off experimenting."

"Them experiments is husiness, Mister Eric," Jonathan observed heavily. "The other is only pleasure. . . ." He hesitated, then asked, "Seeing I've to go to 'Frisco in the morning, I wonder if you'd mind if I went to bed?"

"Eh? Oh, sure—sure. Go right ahead. Good night. . . ."

Eric turned aside to the radio once more, prepared for an all night sitting

—but although he sat through seemingly numberless hours nothing was added or deleted from that same steady communication. Then towards the dawn it began to fade. At sun up it stopped entirely. But Eric wasn't aware of that. He was dead asleep. . . .

IT was Jonathan who aroused him, and by the time he had dressed and shaved Sonia had arrived, even more freshly beautiful after a night's rest. She looked up from the ham and eggs.

"Anything happen?" she asked quickly, then sighed as Eric shook his head.

"Maybe I'm too dense to register thoughts," he growled. "Anyway, they surely ought to have had time to analyze them by tonight. The moment darkness sets in I'll be on the job again. Lucky that I've nothing else to do. Jonathan does all the running about for provisions, and money, and stuff. That's why he's going into 'Frisco this morning."

"You're independent, then?"

"Sure. Dad was worth a fortune, otherwise he couldn't have built the things he did. When mother died, it all came to me, of course."

The girl was silent for a moment, toying with her breakfast. Then she said, "Funny, isn't it, that we both have plenty of money, are both interested in the same things, and yet came together because I was foolish enough to run out of gas?"

"If that was the reason, yes," Eric agreed.

"Oh, it was—really!" Her eyes were very serious.

"It's a pity there are conventions in the world," he grunted; "otherwise you could stay here with me and we'd experiment together. Your friends would think things, though. So would mine,

the few I have. . . . It wouldn't work out. Even in these days, Platonic friendship is looked at askance."

"You're right," she said in regret. "Besides, I've several things I must attend to in 'Frisco. Just the same I'm coming here every chance I get. If I may?"

Eric grasped the hand she extended over the table. "Nothing would suit me better," he murmured. "Nothing—"

Jonathan came in and interrupted him. "I've got the car ready, Mister Eric, and fixed Miss Benson's bags. It's just nine-thirty."

"The devil it is! Say, you've got to get moving—"

The girl drank up her coffee, hurried into her overcoat. Eric found it an effort to control himself as she took her leave, held out her hand again.

"You've been so kind, Mr. Sanders," she smiled. "And I'll come again at the earliest moment."

"Do!" he said earnestly. "In the meantime, where can I reach you? I've no 'phone here, but there's always the mail."

"Mark Hopkins Hotel, San Francisco. That will be my base for a day or two. . . . Now, goodbye. . . ."

Goodbye." Eric stood watching her slim form in the morning sunlight as she walked out to the car, Jonathan beside her. He was still watching when the car made its way round her own stranded hus, then finally passed out of sight on a bend in the pass.

Eric felt as though something had dropped out of his life as he turned back into the room. He reflected it was just his damned luck that his experiments needed his whole attention at this very time. A day earlier, and he'd probably have abandoned them for the pleasure of Sonia Benson's company.

CHAPTER III

Love or Duty?

THE DAY passed quietly for Eric. He pottered around among his instruments, ate a lonely dinner, and thought of Sonia and Mars by turns. In the afternoon, garage men came and took her car away.

At sundown he settled himself before the radio again—but to his infinite disgust, and dismay, no further messages came through. Only the old static that had neither sense nor meaning. By midnight he gave it up and went to bed to catch up on his previous night's vigil. . . . The room carried a certain perfumed memory of Sonia and he slept blissfully, dreamed of her and the red planet by turns.

Jonathan arrived back by tea time the following afternoon, loaded with fresh provisions. He patiently answered all Eric's eager questions about the girl. Yes, he had dropped her at the Mark Hopkins Hotel; he hadn't seen her after that. She had been very grateful.

"She's a grand girl, Jonathan," Eric murmured, wagging his head. "I begin to think I've fallen for her. . . . Pity is I have to divide my attention over two things. I got no results last night from Mars; maybe I'll be luckier tonight. Fix up some tea when you're through and we'll get busy."

"Right, Mister Eric. . . ."

And by seven o'clock they were both before the radio. Eric tensed himself as the static began to disappear as it had two nights before, vanished under the gentle power of an incredibly distant communication. Taut and rigid, he listened; head crouched towards the speaker.

"... I know that Eric Sanders, son of Gerald Sanders, lives on Earth. My machines received the impact of his concentrations. I speak to you, Eric Sanders, because I know you hear me. I am the last of my race, the last of what you call Martians. I have everything, yet I have nothing. I have a mighty empire beneath the desert sands, yet when I die it will cease. Robots work for me, machinery acts for me, but my mind alone controls it all. You understand that, Eric Sanders?"

Eric nodded absently, foolishly enough, and went on listening. He frowned irritably as Jonathan tried to plug up his pipe.

"I am forgetting," the communication suddenly resumed, "that you evidently have not the apparatus to answer me. Very well, then—listen. I, the sole remaining survivor of the Martians, have the name of Yana. I am female. . . . Twenty-six of your years ago I was born, but when I was six years old, your father came to our world and died here from his injuries.

"It happened, however, that he brought with him many instruments and records of which we took possession. But several of those instrument cases had within them germs, brought from Earth, harmless on your world but fatal to our particular constitutions. In a week vicious disease was abroad among our peoples. Men and women fell before the Plague of unknown bacteria, with which our medical science was powerless to cope because it had no conception of the basic nature of the trouble. It belonged to the chemistry of another world. . . .

"At the time of this disease entering the heart of our main city I was under long period anaesthetic undergoing surgery. Every young Martian of both sexes undergoes operation at the age of

six for the removal of unwanted evolutionary organs which only show themselves at that age. From the records of your father there is a similar case with the human appendix, an evolutionary throwback. You wait until it gives trouble. We remove all possible cause of trouble when a similar organ is ripe. . . .

"It must have been when the operation had just been completed that the disease struck down the surgeons and other occupants of the hospital. Being in a state of suspended animation, the equivalent of your anaesthesia, the disease passed me by. I awoke to a hospital of the dead, hours after the normal time for revival since there was no normal restorative used upon me. The more I wandered round the more I realized the ghastly thing that had happened. What few had been left from the disease's ravages were now dead! My parents, my friends, the people of this particular sector of the city, were wiped out. I was alone. . . .

"The disease seemed to have spent itself. There were no more living carriers for it. I was alive in a dead world—a world of machines, of colossal possibilities, on the very verge of starting a new empire under the deserts whither we had been driven by lack of surface air. Water there was—and is—in plenty. Atmosphere we manufacture artificially. Year by year the surface canal system passes the water down into the underworld. . . . Eric Sanders, your father unwittingly destroyed an entire race on the very edge of its newest achievements!"

The communication stopped for a while. Eric sat immovable, his face evidencing some of the horror he felt; nausea at the knowledge of the mass-murderer his dead father had unwittingly been.

"I thought once of destroying myself," the voice resumed steadily, "when I discovered I was the only living being in a dead world. Then I thought better of it. At six years of age a Martian is as fully developed in reasoning as a young Earth adult. Robots fed me: I would come to no harm. For years I just grew in knowledge and physical size, absorbing the information left by my dead people, and particularly that of the man who had come from another world. I solved the riddle of the diseases he had brought with him: I rid myself of all chances of disaster from decaying bodies by raying them out of existence. . . .

"I mastered the language of this Earthman from his talking machine, studied all about his planet, found diary notes to the effect that back on his world his mate, your mother, was expecting an offspring. It was more than possible that, some day, that offspring would try and reach Mars. But though I waited for twenty Earth years nobody came. Then I hit on the idea of radio communication. I patterned a machine similar to the one in your father's machine and communicated. . . . Your thoughts impacting on my telepathic machines revealed that you had heard me. . . ."

Again there was a long interval. Eric sat in brooding silence, chin on hand, and when the words were resumed they were full of subtle meaning, had a certain grimness.

"Eric Sanders, I believe you love Mars. I believe you love it because of the mighty thing your sire accomplished in crossing space to reach it. More than that, I believe you owe Mars a debt of honor! A race has perished through no fault of its own: a race can only be born again through your willingness. . . . I am not threatening you,

Eric Sanders, but I am reminding you of your duty. If on Earth you unwittingly did a wrong to a neighbor, you would deem it necessary to put matters right insofar as you could. You have a similar chance now.

"As fortune has it you are fundamentally male; I am female. Biological research on my part has revealed that union between us can be just as perfectly accomplished as between different races of Earth. I have tried, ineffectually, to create synthetic life, but the secret still eludes me. Between us, by the intermarriage of offsprings, a race can be born anew. Mars acknowledges no sects or creeds in the creation of a new generation—not when the very life of the planet depends upon it.

"You owe it to Mars, Eric Sanders—in the name of your father . . . I shall not expect your answer yet. I will not communicate until two more Earthly nights have passed, by which time I shall expect your decision. It will, as before, be rendered telepathically by your concentrations. If you agree I will tell you what you have to do. If you do not—I will deal with that later. For the time being, Eric Sanders—farewell!"

THE voice faded out, was succeeded by a terrific burst of static. Eric sat heedless, staring blankly before him, soaking in the terrific import of the proposition hurled at him over forty million miles. Then as the speaker row became deafening he slammed off the receiver switches and got unsteadily to his feet.

"It's—it's incredible!" he whispered at last, rubbing his forehead. "I must have dreamed it—"

"That you didn't, Mister Eric," Jonathan interrupted him shaking his gray

head. "I heard them words myself, and mighty queer they was, too! I got the idea that that woman—if woman she be—is sort of proposing to you! She wants to marry you. . . . Leastways, that's how I saw it."

"Then I didn't dream it," Eric breathed, smiling bitterly. "This is the sort of reward I get after years of struggle— A request, almost a command, that I sacrifice everything on Earth in order to be the procreator of another race on another world! The—the Granddaddy of the red planet! A Summons from Mars! Why it's ludicrous!" he cried.

"Ay, it is," Jonathan agreed sagely, smoking steadily. "But have you reckoned what might happen if you refuse?"

"If I refuse! I *shall* refuse! What do you take me for?"

"I takes you for an intelligent man like your father, Mister Eric, if you'll forgive the liberty— intelligent enough leastways to know what might happen if you don't do what this Martian woman asks. She might start a war! War between worlds might become a fact!"

"But she distinctly said she wasn't threatening me."

Jonathan spat eloquently at the coke heater. "Huh! Don't they all?" he demanded sourly. "Even invaders on Earth don't threaten anybody these days—they apologize while they blow the damned ground from under your feet. An' she'll do the same! Maybe she's a sort of lone wolf, but if she's got robots and machines like she says, she can be the controller of a mighty tough army. She must have some way of crossing space, too, else she wouldn't have suggested you coming to Mars. Probably she's gotten the secret from your dad's own ship."

"Yeah—probably she has." Eric

lighted a cigarette and sat down again, pondering. Then he said slowly, "You know, Jonathan, that war angle hadn't occurred to me. She *might*, at that! If she can't get me she'll take Earthmen, or an Earthman, by force. Maybe women too. Faced with such a desperate situation she might do anything. This is evidently a sort of preliminary negotiation. . . ."

"I know wimmin, Earthly, Martian, or anything else," Jonathan growled. "They're all the same."

"Oh, hut the thing's so fantastic!" Eric cried. "It just isn't reason! Married to a Martian! Some ghastly monstrosity or other . . . It's hideous! Monstrous she'll have to be. No life on two planets can evolve on the same lines. For one thing, Mars' lesser gravity will produce physical differences. I can imagine a mighty-lunged creature, heavily muscled, broad hacked and— Oh, what's the use?" he finished irritably glaring at the apparatus. "I've a damn good mind to scrap all that stuff right now—set fire to the shack—return to 'Frisco and live in peace."

"But you won't," Jonathan said, staring moodily at the heater.

"How do you know?"

"Because if you do you'll have a little voice remindin' you all the time that you shouldn't have done it—that you've perhaps brought a threat of wholesale destruction down on the world—that every death that might happen from a Martian invasion will be your fault. . . . No; you won't do that, Mister Eric."

"Then what the hell am I to do?" he shouted helplessly. "Don't sit there with your philosophies! Give me a line of action."

Jonathan shrugged. "There ain't no line, Mister Eric—but I'll remind you of one or two things. That woman was right when she said you had a duty to

your father's memory: she was right, too, when she said that it's up to you to pay off for the damage he caused."

"In that case I'd take just the same troubles with me as he did," Eric cried eagerly. "Say, Jonathan, that's a get-out! An excuse—"

"No, it ain't." Jonathan's head shook stubbornly. "I figured she said she solved the diseases your dad took with him. That's no way out..." He got to his feet and laid his veined hand on Eric's shoulder. "Talking to you as man to man, Mister Eric—as a man nearly thirty years older than you are, I'm reminding you of your duty—your duty to your father's great achievement, to his memory and your mother's. Remember that she died with the wish you should do all you could to further the ideals of your dad."

Eric sighed. "Maybe, but this contingency hardly came into it. To give up everything! No—no, Jonathan; I love Earth too much."

Jonathan regarded him in silence for a moment. "You didn't love it so much until Miss Benson dropped in," he commented. "I can remember you saying you'd devote your life to the study of Mars. You even said you'd give anything to be there!"

"Well, maybe Sonia—I mean, Miss Benson, has something to do with it," Eric admitted, rubbing his head. "Can you blame me? I'm still young, unattached, and she's beautiful and clever—"

"Ay, but men have faced similar problems and overcome them through sense of duty. Force of character."

Eric sprang up. "But a man has a right to choose between his natural life and his duty!" he snapped. "And I'm choosing right now! I'm not throwing away my life on a hell-fired planet forty million miles from Earth... I

want something out of life on this globe first."

"You want Sonia Benson," Jonathan said, with unerring logic.

"Oh— Oh, go to hell!" Eric roared, and swinging on his heel he stalked out of the room to his bedroom and slammed the door. Jonathan knocked the ashes out of his pipe, spat languidly.

"Well, I guess he might do worse than sleep on it," he muttered.

ERIC slept badly, tortured by fantastic dreams in which he saw his Martian communicator as a pot-bellied, big-headed monstrosity moving through endless halls of bewildering machinery. He saw a face of no human parallel hovering superimposed on the midst of vast armies of soulless, marching robots. He saw hellish war descend on Earth, saw the complete collapse of civilization...

He saw tears in the beautiful eyes of Sonia Benson, saw himself clasping her slim, delicate body in his arms—then old Jonathan came in from nowhere and laconically reminded him of his duty.

He woke up wet with perspiration to find the dawn had arrived. Wearily he shaved and dressed, refused his breakfast at first; then thinking further, decided to have it after all.

"Any decision, Mister Eric?" Jonathan ventured, chewing slowly.

"Yeah! I'm not going through with it!" he retorted.

"But, Mister Eric, your—"

"I know—my duty! Well, to hell with it! I'm going into 'Frisco this morning to see Sonia. I'm going to ask her to marry me."

"So soon?"

"Well, no harm in trying, is there? I'll be back tomorrow night. You stay here and keep a watch on things while I'm gone. The Martian won't com-

municate tonight in any case. . . ."

Jonathan shook his head sadly, lighted his reeking pipe. He watched in silence as Eric flung a few things in a valise, scrambled into his hat and coat, and stalked round to the garage. He was in a brittle, touchy mood. . . .

In ten minutes he was on his way, but night had fallen again before he reached the Mark Hopkins Hotel on one of the hills of 'Frisco.

The girl seemed lovelier than ever as he entered her room on the fifth floor. She greeted him with warm gentleness, motioned to a settee and sat down beside him. Quietly she proffered a drink.

"Something happened?" she asked presently. "You look worried."

"Do you mind," Eric asked slowly, "if I call you Sonia?"

She laughed. "Why, of course not! It's much more informal. Besides, we're the best of friends, aren't we? We have common interests."

"I'd rather hoped we could be more than friends," he said broodingly, studying his empty glass. "That's what I came about. You see, I—I'm in love with you, Sonia. . . ."

She said nothing. Her multicolored eyes were upon him as he looked up sharply. "Does it surprise you?" he asked quickly.

She was slow to respond. "Well, no, Eric, it doesn't surprise me—but I am inclined to doubt your very sudden avowal of the fact. A young man in love doesn't usually work so—so fast, unless he's driven by something. An impelling urge—probably fear. You're driven by fear, aren't you?" she asked seriously.

"How ridiculous!" He seized her white hand. "Why on earth should fear drive me to you?"

"The fear of losing me," she answered steadily. "There's something

mighty real about a love like that, Eric: there aren't any words to express how I appreciate it. . . . But it's forced!" she went on, her face puzzled. "You didn't travel all this way to tell me you love me so much unless it was imperative you do it quickly. I'm not going to run away, therefore the urge is on your side. Come on, what is it? I've a right to know."

"There's nothing, really," he insisted. "If there is any fear at all it's only because some other guy might muscle in and take you from me. I couldn't bear that. I want you to marry me—and quickly."

"Without knowing hardly a thing about me?"

"Oh, why be so old fashioned!" he protested. "If a guy loves a girl he does what he wants—marries her; if she's willing, of course. Long engagements, family inquiries—they're things of the past. Isn't it enough that I want you? I've money enough. . . ."

"If we were married; what then?" she asked slowly.

"Why, we'd go round the world—see everything there is to see. We'd even—"

"And your experiments?" she broke in quickly.

He shrugged, a little bitterly. "I'm giving them up. They're a waste of time, anyway. . . . Come on, Sonia, what do you say?"

"Eric, I say this: something must have happened since I saw you last to make you act like this—something you heard over that Martian radio." Her voice was very decisive. "You'd never drop the experiments otherwise and try to snatch at happiness with me. If happiness it would prove. . . ."

"But, Sonia—"

"I'm sorry, Eric, but I won't marry you yet, not until I know what is be-

hind all this business. It doesn't convince me. I'll help you with your experiments in a couple of days or so. To make the thing decent we can even be engaged to be married, but not until I have every detail will I give my consent."

He shrugged reluctantly. "O.K., then, if that's how you want it. . . ." He sat for a moment in moody silence, then brightened a little. "Well, what are we waiting for?" he cried. "Now I'm in 'Frisco I intend to have some fun. Come on out, before the jewelers shut up shop. Tomorrow I'm returning to the shack, but until then—"

He broke into a laugh, and the girl smiled—then she turned and withdrew to her dressing room.

CHAPTER IV

Eric Decides

ERIC was conscious of an increasing bitterness of heart as he set off on the return journey from 'Frisco next morning. He had left Sonia with a solitaire ring on her finger and the promise that she would join him within a day or two. With that he had had to be satisfied.

But he found himself wondering what decision he was going to give this night when the Martian tuned in. Sonia would never marry him until she knew the truth; and once she did know it and realized he had thrown over duty for love of her she would probably cut him dead anyway. On the other hand, if he agreed to the Martian proposition he automatically finished his Earthly associations. . . .

Small wonder his mood was one of black despair by the time he reached the shack in the evening shadows. Jonathan was waiting for him with a

hot meal out on the table. He said but little; he could see Eric's mood was still anything but pleasant. . . .

For a long time Eric ate in moody silence, until at last Jonathan ventured to speak.

"Did you see Miss Benson, Mister Eric?"

"More than that; I became engaged to her. I'm going to marry her."

"Then the Martian—?"

"I've been thinking about that, too." Eric tossed down his knife and fork, looked keenly across the table. "I've decided it boils down to a matter of self-defense; of playing bluff with bluff. How do I know this Martian speaks the truth, anyway? How does *she* know I'll keep my word even if I accept her damnable proposition? There's not the slightest reason why the mistake of a father should be visited on the child. In plain words, Jonathan, I'm not taking the rap for something my father did. . . . I'm fed up with the whole damned Martian business. I intend to enjoy life. I'll give this Martian my assent—sure I will; I might even carry out the experiments she'll suggest, but just suppose I met with some accident on my way into space? Suppose I was killed? How could she ever find out?"

"I dunno, Mister Eric—but she seems to have some mighty tricky instruments."

"Maybe she has, but I'll wager she wouldn't find out anything if she saw a space ship leave Earth and then vanish in space, never to land on Mars. She'd think I'd started out and got lost. Truth would be I'd never begun to go. But it would stop that idea of war. She'd think I'd shown willingness anyhow."

Jonathan pondered through an interval. "It might," he agreed, rather doubtfully. Then seriously, "I'm

rather regrettin' that Miss Benson ever happened in on you like she did, Mister Eric. You've not been the same man since—"

"Now don't start preaching!" Eric snapped, getting to his feet. "I'll handle this in my own way. I'm going to concentrate on Mars now and give my assent."

"And suppose the things you've just planned have also registered way up there?"

"Not very likely. They were ordinary thoughts with no direct concentration on any given objective. . . . Now shut up and let me concentrate." Eric closed his eyes and sat in silence for a good ten minutes, then he looked up. "Guess that ought to fix it, anyway. We'll see what comes through."

He moved to the receiver and switched it on, was rewarded with the usual static. . . . For nearly two hours he wandered moodily round the little room, smoking incessantly, waiting for a communication to come—and at last he was rewarded. That far distant voice began to speak.

"Your concentration message has been received, Eric Sanders. You will not regret your decision. You will begin to prepare yourself. Now listen carefully and record or write down what I shall tell you. I will wait awhile for you to gather your instruments together. . . ."

Smiling rather grimly Eric threaded steel tape from spool to spool of the recorder, started it in motion as the voice resumed again.

"Air on this planet was once practically identical in pressure to that of Earth, therefore within this underground city it is but little different from your own, even though our surface air is unbreathable—cold, and almost dehydrated. Air adaptation may there-

fore be discounted. The physical changes in your body will be those of adaptation to a gravity 2/5ths of Earth normal, and the development of your brain to the extent of reading thoughts within a range of five hundred Earthly yards. Martians are naturally highly telepathic; we have advanced further than you. You have the same root possibilities in your brain, but they can only be brought into force by the application of certain electrical frequencies. First, however, we will deal with the matter of gravity.

"Gravity is still as much a mystery to Martian science as it is to yours. We do not know whether it is basically magnetic, a pucker in space-time, or some type of force—but we do know its effect on the body. As was proved in the case of your sire, change to a lesser gravity creates death for one very good reason. The blood of an Earthling is held in its circulatory tract by gravity fixed at Earth-norm; but when that pull is considerably lessened it produces an excess flow to the brain—arteries and veins no longer perform their correct function under the decreased pull. In consequence, there is an effect which I might call slow apoplexy.

"Further than that, assuming for a moment that this did not occur, the muscles are entirely out of coordination, and the conception of pleasant lightness and jumping about on a lesser gravitated world is so much myth. One must be prepared, have every muscle trained, have the blood stream diluted so that the removal of gravitative pull creates no harm. Even as you on Earth have invented chemicals for enriching the blood, usually with a basis of iron and phosphates, so Martian science has found one which renders the quality of Earthly blood inferior, yet

enables it to maintain bodily health because the substitute is so perfectly matched to feed the brain and nerves. . . . Here is the formula, which from a study of Earth materials I understand can be easily made. . . ."

Eric listened, watched the recording tape. His interest was oddly stirred anew by the long string of chemicals uttered by the passionless, steady voice. For the moment the scientist in him was absorbed again by the eerie fascination of this strange communication between worlds.

"You will have that formula made up, different chemists supplying different ingredients so no particular one can possibly make the whole. You will inject it into a vein with a hypodermic three times a day for an Earthly week. At the end of that time your blood stream will be fitted for Martian conditions. While you remain on Earth the effect will be one of slight light-headedness, but not sufficient to upset your general health. . . ."

"Now for your muscles. On Mars your muscles will propel you with a power far stronger than is prudent for your body. In time you would become a mass of strained tendons and ligatures through overuse. Therefore the muscular strength must be weakened to a given degree.

"You will accomplish this by using an electrical radiation which will slightly loosen the molecular build up of your muscles and flesh until they become normal for Mars. On Earth you will feel extremely frail, but here on Mars you will be normal. For the electrical radiation you can use an ordinary generator, but equip it with a projector to the following design. . . ."

The tape recorded every word of the designing that followed. It was not particularly intricate, but highly un-

usual. Within it was to be a wire coil, its number of turns round a copper drum giving the exact radiation required to produce the molecular loosening.

"For a week you will adopt these measures," the voice concluded. "A week from the time you have made up the formula and built the radiation projector. I will communicate at intervals while you progress. Once you have accomplished these two things the final work will take place—that of rendering your brain Martian-normal, able to receive and transmit thoughts over a five hundred yard range. Also you will discover how to prevent the carriage of Earthly germs to Mars. It will consist of a formula for a liquid which you will spray over every article you bring from your world. . . . You will not regret this, Eric Sanders. An empire awaits your coming. For the time being, farewell. . . ."

Eric sat in silence for a long time after the communication ceased, until at last Jonathan's dry voice aroused him.

"Well, Mister Eric, what are you going to do about it? It seems kind of obvious to me that that Martian woman trusts you. She's looking to you to do the right thing, on your honor as a man of Earth."

"Yeah. . . . I guess that's right," Eric frowned, stirred uneasily. "You know, I got the funniest impression while she was talking. A sort of feeling that science is the only thing that matters in the long run, and yet— Oh, hell, I don't know!"

"It's in your hands, Mister Eric, and when it comes to a matter of an empire's fate— Well, it's duty as ought to count."

"But, Jonathan, there's Sonia—"

"She's only one woman, lad. I'm not

doubling you'd find pleasure with her, but it won't get you no place. At heart you're a scientist and idealist like your dad. It'll take more'n a beautiful girl to turn you aside. . . . Leastways, I'm hoping so."

"Two hours ago I'd have told you to soak your head in a hucket," Eric muttered. "Now I begin to think you're right. I have a duty, tough going though it's going to be. . . . O.K.! I'll keep my word to this Martian. I'll explain to Sonia—somehow—when she comes," he finished gloomily.

Jonathan rose up with sudden eagerness, fixed the spools so that they read back the messages that had been received.

"Now you're talking, boy!" he cried eagerly. "I'm hacking you to the end. . . ."

IN the days that followed Eric followed out the Martian's orders with an enthusiasm that amounted almost to frenzy. It was a spurious energy, and most certainly didn't deceive the all-embracing eyes of old Jonathan. It was not so much the love of science that was driving Eric this way, but the almost fanatical desire to convince himself that he didn't care a damn about Earth, Sonia, or anything else. He smothered himself in hard work to drown out all other natural calls of his being—and to a partial extent he succeeded.

So hard did he work he had the radiation projector fixed inside a week, personally traveled to San Francisco and lodged the order for the special coil winding with an electrical firm. In two days—days in which he studiously avoided visiting the Mark Hopkins Hotel or sending any messages—the coil was finished and he returned to his shack. That part of the work was done.

The chemical formula was more difficult. He had to contact some fifteen different experts in chemistry in leading cities before he was finally assured of success. Another fortnight was swallowed up, and during the time he received no further messages from Mars, nor any word or visit from Sonia. He began to hope she had forgotten him, or that she was a worthless flirt—anything rather than the attractive, delightful girl she appeared to be. It would make it easier to turn her down when the time came . . .

True to instructions he injected the pale yellow chemical fluid into his arm three times a day, found it interfered but little with his health. There was only a trace of sickness the first day, then the effect began to wear off and was replaced by the predicted sensation of light-headedness. Unpleasant, undoubtedly, but not enough to interfere with his work. The stuff had an odd effect on his skin too—changed it from its normal healthy bronze to dead white. It struck him as distinctly effeminate. He found also, through an accidental cut whilst shaving, that his blood had become infinitely paler than normal. Any doctor would have pronounced him as a sufferer from pernicious anemia.

At the end of a week of injections he got busy with the projector, bathed himself at intervals for seven days in its emanations. At each application of its strange frequency he could feel his muscles and physical framework undergoing subtle, unexplained differences. The iron strength of his young muscles and sinews was softened incredibly. It disgusted him to find his natural strength cut to a ghost of its former power at the end of seven days. He felt oddly ineffectual and almost revoltingly girlish.

On the night his experiments ended, the communication from Mars resumed after sundown. Eric presumed that his thoughts had more effect on those unknown telepathic machines than he had anticipated. Possibly, even, his earlier decision to throw the whole thing up at the last moment had registered. Not that it mattered now. He was forced by very virtue of his physical change to go through with the thing.

"You have done well, Eric Sanders," the calm voice told him. "Your thoughts have revealed your decision to do what is your duty: you will not regret it. The final change in your physical makeup now takes place. Your brain must be made capable of thought-reception and transmission. It is entirely a matter of exercises of concentration—the will to receive and transmit thoughts. The actual brain change to make this feat possible has already taken place. The chemical you used to alter the quality of your bloodstream produced that effect.

"A brain's efficiency relies on the quality of blood feeding it: the substance you have injected into your bloodstream will have a higher ratio of efficiency for your brain, will make you able, by following out a series of exercises which I shall detail to you, of transmitting thoughts and receiving them. Understand, though, that no Earthling will be able to receive your thoughts—no Earthly brain is capable of it. But you will be able to read theirs within a range of five hundred yards. . . .

"Once you reach this planet you will have a perfect telepathic partner in myself. I shall now detail the step-up mental exercises. In another week you will be proficient. Then I will tell you how you will reach Mars. . . . Prepare for details. . . ."

Eric switched on the spool recorder and at the same time listened intently. The stated exercises consisted of greater and greater spells of concentration on given objects, together with a system of memory retention and conception. It was not a difficult process, but he had his doubts as to being able to accomplish it. . . .

"Looks like I'm going to be something of a superman before I'm through," he observed to Jonathan, as the communication ended. "I wish my body was as good. This lily-white effect makes me sore."

"One sacrifices plenty in the course o' duty," Jonathan said sagely, studying the recording tape. "I guess you ought to feel glad at the thing you're doing. . . . Your father would have been mighty proud of you."

Eric didn't answer. At that moment he was thinking about Sonia, wondering why she had not kept her word to come and visit him. . . .

CHAPTER V

The Coming of Yana

SONIA DID keep her promise. On the sixth day of Eric's concentration exercises she arrived, just before sundown, as slender and lovely as ever, full of excuses for her absence. Business had kept her an unusually long time; now it was over, she wanted to help with the experiments. . . . Then in mid-sentence she stopped and studied Eric closely, surprise, even concern, in her violet eyes.

"Eric, you're not ill?" she asked, startled, seizing his arm.

He looked at her steadily, shook his head. He was wishing bitterly that she hadn't come. Now she was near him again, so intelligent, so affectionate, he

began to realize how far he'd travelled on a scientific road away from her.

"Not ill—just preparing for something," he answered quietly. "I'll tell you about it while we have tea. Sit down, won't you?"

She settled herself on the chair Jonathan held for her, began to drink her tea and watched Eric over the cup.

"Sonia," he said at last, speaking with obvious difficulty, "I guess I've been a first class heel. . . . I can't marry you, nor had I ever the right to expect it."

He waited for the girl to be angered by the slight she had received, but it didn't come. Instead she smiled faintly and lowered her gaze. "After all, I knew there was something," she murmured. "You can tell me, Eric. . . . Go on."

In halting sentences he told the full story little by little. A variety of expressions passed over her lovely face as she listened. When at last he finished there was a long silence. The cups of tea were cold, the meal uneaten. Jonathan sat to one side smoking solemnly, his eyes alternating between the girl and tensely earnest young man.

"And yet," the girl said at last, "knowing what this Martian business must mean you are willing to take it on, go through to the bitter end, and sacrifice me? Everything on Earth?"

"That's what makes me a first class heel," he growled, studying the tablecloth.

"No, it doesn't," she said quietly. "It makes you the possessor of a most enviable quality of nobility. A man has got to be noble to give up everything he loves because his duty demands it. Your father obviously had it; it isn't lacking in the son."

"Then—then you're not furious with me for the advantage I took of you?"

Eric looked up quickly and seized her hand.

"No, my dear." She smiled a little regretfully. "You only took a very human advantage. You kicked over the traces—made a great show of what you wanted to do, but all the time you didn't really believe it. . . . I said I'd help you, and I will. I wouldn't be any sort of a woman if I didn't."

Eric said bitterly, "Your decency makes it all the worse for me—makes me realize so keenly what I'm losing. If you'd only blow up, or something!" He shrugged. "Sorry! Guess I don't know properly what I am doing. . . . Say, the tea's cold! We'll have to start again. Come on, Jonathan, do your stuff."

"SO you're on the last lot of physical changes?" the girl asked thoughtfully, as tea proceeded. "What's the effect?"

"Rather queer—but it's right enough. I'm finding ways of getting remarkably adept at concentration. I get some good ideas, too. In another day—by tomorrow night, I'll be through. Then I'll be able to read anybody's thought within five hundred yards. Yours included," he smiled.

"I hope you'll find them interesting," she laughed. "Tell me, what kind of a woman do you imagine this Martian, Yana, will be?"

"Hideous, naturally. Life can't be the same on two worlds."

"I'm none too sure." Sonia mused for a moment, then said, "I think in the case of Mars and Earth parallel evolution might conceivably happen—not identical, mind you, but similar. Yana says her planet had an atmosphere the same as Earth's once—still has, in artificial form, under the deserts. That would produce oxygen breathing creatures like us. Since air pressure is the

same there as here, or almost, it does away with the big chested, large lunged conception. Then again, a small planet will demand comparatively small people. A large person would have too much strength—be top-heavy. That cuts out the giant theory. . . . She mightn't be so grotesque as you imagine."

"Good of you to cheer me up," Eric said moodily.

"No; I mean it. The pointers are there—and life itself can't be so very much different. All the basic chemicals of life came originally from the same source—the Sun. Given similar evolutionary background, save in the matter of gravity, of course, I don't see why there should be such widely differing species. On Venus, yes—or on Jupiter or Saturn, where climatic conditions would produce weird changes, but not between Mars and Earth. Save for the matter of size they're twin worlds. . . ."

Eric shrugged. "Well, there's no harm in hoping for the best . . ." He pushed the remains of his tea to one side and glanced at his watch. "I've got to get busy with my exercises. You can either watch me or prow around. . . . Either way I'm darn glad to have you here."

The girl relaxed, sat in silence and studied him as he seated himself a little apart and closed his eyes. His brows knitted in the effort of marshalling his thoughts.

Neither the girl nor Jonathan moved, though they glanced at each other occasionally. Jonathan watched the girl without her noticing it, studied the calm, serene beauty of her face, the steady, interested look in her varicolored eyes.

A full hour had passed before Eric suddenly opened his eyes. His face was

tense with excitement.

"Say, I'm beginning to manage it!" he cried. "I can feel it little by little, the inflow of thoughts—for the first time, breaking through like . . . like sunlight through clouds. Gosh, I never thought I was so dense before!"

Sonia and Jonathan leaned forward eagerly. "What do you see?" the girl asked tensely. "Can you read *our* thoughts?"

Eric winced with the effort of trying. "I'm just beginning to; I'm getting yours more quickly than Jonathan's. . . . According to the Martian I'll be fully proficient tomorrow night, but even as it is— Yes, I begin to see things! Your thoughts, Sonia! You're thinking about me."

"Of course," she admitted gently. "Always."

"Something else too," he went on slowly, eyes closed. "I can see deserts . . . Martian deserts! Blue-black sky! An underworld of machines . . . Automatic controls . . . Something else! A space machine! From photographs and records I'd say it's my father's space ship . . . That's odd; it's moving through the void. . . ."

"Through the void!" echoed Jonathan blankly.

"Yes." Eric seemed almost in a dreamlike state. He talked with mechanical effort. "Strange . . . It comes towards Earth, not away from it. It falls— No, it's skillfully controlled. It drops gently to Earth . . . There's something I can't quite make out. A radio apparatus, I think. Something is moving dimly before it . . . Now it's gone!"

Eric opened his eyes suddenly, found the girl and Jonathan gazing at him steadily.

"That all?" Jonathan demanded, disappointed.

"Afraid so," Eric muttered. "I think — No, wait a minute!" He concentrated for a moment, then shrugged. "No, I guess I'm just getting memory thoughts from Sonia. She's coming up the pass in that car of hers just as she did the other night, and—" He stopped dead, staring at her fixedly. "Sonia! You never told me you deliberately emptied your gas tank! I read from your mind that that is exactly what you did. You came here on purpose."

"Yes." She nodded slowly. "I shouldn't have let you know of that, should I? Frankly, I wanted to meet you. I couldn't think of a better way."

"But why?" Eric demanded. "Why did you—? Just a minute! I see something else. . . . A figure, so far away I can't distinguish it properly, is sitting studying Earth through an amazingly powerful telescope, making notes on the atmosphere, gravity, and all things related to it. . . . Now it's gone again—but there's something else. A lurking figure round this very shack! It's moving away . . ."

He stopped, rubbed his forehead. "Oh, I can't make head or tail of it," he said wearily. "Besides, these thought receptions are all wrong somewhere. It's impossible to receive thoughts beyond a range of five hundred yards, so Yana told me—and yet I'm getting things from a mind that can only be forty million miles away! Unless—unless that space ship brought the Martian to *Earth*!" he finished with a cry, leaping up. "In that case she's within five hundred yards of me! Somewhere—"

He broke off, speechless, staring into the girl's steady eyes.

"*You!*" he screamed. "*You* are the Martian woman, Yana!"

The girl's eyes were mystical in that

moment, filled with strange fires. Eric felt himself reeling, clutched futilely at the bench, then his weakened strength failed him and he crashed headlong to the floor . . .

ERIC awoke to find the girl bending over him, smiling gently, her soft, delicate hands caressing his face.

"Eric, my dear, forgive me," she murmured. "I had to do it. I should have realized that you were not strong enough in your present Martian condition to stand such a shock—"

"But how—what—?" he asked in bewilderment.

"I gave you the hint that Mars and Earth life might not be so far apart," she said quietly, holding his hand. "Now that you have become Martian in development we are identical. I am Yana, yes . . . I analyzed the deposits of fuel left in your father's space machine rocket tubes, duplicated the fuel. I came to Earth to find his child. I hoped against hope it would be a man . . . I knew too, from a study of the records of your father, that there is nothing to choose, biologically, between an Earthly male and a Martian female. There would be no difficulty about matehood. . . ."

"I studied Earth, decided it was possible for me to stand its rigors without undue harm, provided I evolved the right counteractive for disease. In the twenty years that have passed since my race died I have had plenty of time to evolve one. . . . So, I came. I have felt as you have felt since you began experimenting—frail, lightheaded. . . . Otherwise, perfectly well."

She stopped, her red lips parted in that same slow smile.

"Go on," Eric muttered.

"Originally the space ship landed in a Siberian desert. I became, to all in-

tents and purposes, a wealthy Earth woman by the name of Sonia Benson. I've studied this world for years, knew all about its customs, its monetary values. . . . It took me a long time to locate you, but when I did finally succeed I moved the ship to a high peak of these very mountains, no more than ten miles from here but three hundred feet higher up. In the ship I have a radio patterned after your father's design. . . . On the first occasion when I was with you, you will remember that the message was repeated over and over again. It was simply a perpetual tape with the same wording, timed to cease at sun-up. Then again, it was I who suggested what wavelength you should try on your set. Remember?"

Eric nodded slowly. "And the other times it was you I suppose?"

"My voice, yes. Now you know why I took so long in coming here to see you. That other time, when Jonathan dropped me in 'Frisco, I returned here immediately by plane, landed at the bottom of the range. I had to keep on sending you communications. As to your exact reactions, all your intentions—I knew those by standing outside this very shack and receiving your thoughts. That was why I was comfortably installed in 'Frisco when you came to see me. You gave me ample warning of your intentions by thinking of them

long before you acted. . . . It was all so simple. The low-powered voice to give the impression of distance, my own reading of your every thought—"

"But why?" Eric demanded, sitting up with a jerk. "You knew all the time I loved you. Why did you have to—"

"You thought I was a woman of Earth, Eric. I behaved as such on purpose, to see which was the stronger power inside you—love of an Earth woman, or love of duty. I had to test you, my dear. Had you decided to marry me as an Earth girl, I would have returned alone to my own world. As it was you showed me you were the right man to be my partner in the formation of a new and mighty empire. . . ."

Eric swallowed something, rose on his elbow and gripped the girl's hands. She was still smiling at him.

"Sonia. . ." he breathed. "Oh, Sonia, thank God I decided to do my duty. An' I mightn't have done, but for Jonathan."

"We depart tomorrow, Eric," she murmured. "My life on Earth is finished. I closed my Earthly associations before I came here to rejoin you. We can soon reach the space ship from here. You have only to spray all your belongings with the antidote I'll give you, and then . . ."

"Tomorrow," Eric whispered. "A new world—a new Empire—yow . . ."

"YOU are the Martian woman!" he screamed.



ONLY old Jonathan watched them leave the shack the following evening. Eric's experiments were complete. He was a master of thought reception and transmission between himself and the girl. They were in truth the mother and father of a new race on the red planet. . . .

But old Jonathan saw nothing of their embracing in the space ship: he only saw, towards midnight, a burst of flame sparks from higher up the range—sparks that crept into the starry sky until they were swallowed up.

Moodily he turned back into the experimental room, stood looking at the short-wave apparatus. Then he picked

up the stove poker.

"Since I've been made the legal possessor of all this stuff I've the right to do as I want with it," he said aloud—then brought the poker down savagely on the delicate instruments.

He surveyed the shattered remains, chuckled dryly.

"Well, that's two young folks that have grabbed some peace," he muttered, "and I'll darned well see that no folks on this blasted planet goes upsetting 'em hy trying to wireless. . . . Interfering busyhodies!"

He spat eloquently at the heater, tugged out his pipe and began to light it vehemently. . . .

MATHEMATICAL PUZZLES

(For correct answers see page 144)

1. Imagine, if you please, a thin, metal band stretched tightly around the earth at the equator. The band is exactly 24,902 miles long.

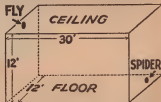
Assume for our purposes that the globe is perfectly smooth and the band is a perfect tight fit.

Now—suppose we add an extra two yards to this band, allowing the slack to be evenly carried around the entire circumference. How far would this enlarged band stand away from the earth at any given point? Would it be an infinitesimal amount?

2. A solid white pine three-inch cube is painted black upon all its outside surfaces. With the aid of a saw the block of white wood is then divided into one-inch cubes. Without the aid of pencil and paper, determine the following answers:

- How many one-inch cubes will result?
- How many with one black side?
- How many with two black sides?
- How many all white cubes?
- How many with three black sides?

3. In a room whose dimensions are 30 feet x 12 feet x 12 feet, a fly is firmly clinging to one of the end walls in a position one foot from the ceiling and six feet from both side walls (see sketch). On the opposite wall of the room sits a



spider, located eleven feet from the ceiling and six feet from both side walls. How far must the spider travel to reach the fly? The answer is not 42 feet, and yet the spider traveled solely by crawling and did not fly. Well, we'll make it simple. Theoretically, the minimum distance the spider need crawl to the fly is 40 feet. But how?

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☆ This Amazing Universe ☆

***** (See back cover) *****

YOU have never seen a true scale model or diagram of our Solar System. Nor will you ever see one. It simply can't be done!

Suppose we try to construct a scale map of the Solar System. We start by making a pin point mark upon the surface of a large sheet of drawing paper and label it the Earth. We will use this as our comparative scale of measurement, thus giving us the diameter of a tiny point as our unit of 8,000 miles.

Approximately five-eighths of an inch away, we mark another dot to represent the moon, it being smaller than the Earth. Then we draw a circle two inches in diameter to denote the Sun, but unfortunately it would have to be NINETEEN FEET from our Earth point. We're off the paper and we haven't even started yet!

Well, let's move outside of the house so we won't be hampered and transfer our design to a vastly larger sheet of paper. Now to put in Mercury, which is smaller than the Earth, we would mark a faint dot $7\frac{1}{2}$ feet from the Sun and another dot for Venus at a point 14 feet from our solar disc.

But to get Jupiter into our solar system we would have to include a $\frac{3}{4}$ inch circle ONE HUNDRED FEET from our starting point. It looks as

though we are going to run out of paper. For a $\frac{3}{4}$ inch circle denoting Saturn would be 180 feet away, and the $\frac{1}{8}$ inch dot for Uranus would stretch 370 feet away, and the far off Neptune would require SEVEN HUNDRED FEET OF MAP SURFACE. We are almost glad that the lost planet Vulcan (claimed to exist by certain astronomers) has not yet been located.

A little feebly now, we take paper and pencil and calculate hurriedly as to the position of our nearest star, Alpha Centauri. On our map, it would be a HUNDRED MILES AWAY, representing twenty-five millions of millions of miles. And yet we have only attempted to chart the mere threshold of the firmament, we have passed only on the edge of a single Grand Canyon of Space.

Postscript. For our aviation fans, the fastest plane in the world, used as a basis for illustrating the immensity of the Universe on the back cover actually can travel 440,681 miles per hour. This speed is the present world's record for airplanes made on Oct. 23, 1934, by Francisco Agello, an Italian military flyer. He flew his seaplane, a special Macchi racing job, over a three kilometer course to establish his record that to date has not been broken.

Planetary Distance Chart

	<i>Greatest Distance, Miles</i>	<i>Least Distance</i>	<i>Average Distance</i>	<i>Time</i>
Mercury	136,000,000	50,000,000	93,000,000	24 yrs. 47 days
Venus	161,000,000	25,000,000	93,000,000	24 yrs. 47 days
Sun	94,452,000	91,342,000	93,897,000	24 yrs. 37 days
Moon	252,710	221,463	237,087	18 days 7 hrs.
Mars	248,000,000	35,000,000	141,500,000	36 yrs. 259 days
Jupiter	660,000,000	367,000,000	483,500,000	125 yrs. 161 days
Saturn	1,028,000,000	744,000,000	886,000,000	202 yrs. 360 days
Uranus	1,960,000,000	1,606,000,000	1,783,000,000	462 yrs. 215 days
Neptune	2,910,000,000	2,677,000,000	2,793,500,000	723 yrs. 241 days
Pluto			3,700,000,000	957 yrs. 117 days
A. Centauri.....	2,520,754,091,856,000		4.29 Lt. yrs	448,805,026 yrs 91 days

On his throne sat Barly Moque,
surrounded by burly pirates.

The



Illustration by Jay Jackson

SPACE PIRATE

By EANDO BINDER

Major Wright of the Ether Patrol is captured in space by the wily pirate Barly Moque. Imprisoned within the bowels of the moon, Wright schemes an escape so he can challenge his captors to a finish battle.

CHAPTER I

"HALF a day," said Captain Gilbert, "and then we'll lower onto good old Earth. I suppose, Major Wright, you're sorry your vacation is over?"

"Not exactly," returned Wright. "Loafing is all right for a month or so, but now I'm ready to get back into service—eager to get back, in fact."

The captain smiled. "Ah, you men of the Ether Patrol have the fire of adventure in your hearts! You have the courage of a lion and the daring of a pirate, and your favorite game is a gamble with death!"

Wright chuckled and flung up a hand. "A bit melodramatic, Captain, but thanks anyway."

The two men were talking in Captain Gilbert's private office on the giant airliner *President Roosevelt*, heading earthward from Mars at the end of a delightful 30-Day Universal Vacation Tour.

Major Cedric Wright of the Ether Patrol was not quite thirty. He was tall and straight of physique, with whipcord muscles and hardened flesh. His reflexes were lightning fast. Twelve years of service in the organization that extended law and order into space between the planets had ingrained him

with quick-thinking and alertness.

There was something of the bleakness of the void in his eyes, something of its calm patience in his strong face. He had the mark of space, which is motionless.

His rise had been rapid. From a raw recruit of eighteen, thirsting for adventure, he had been molded by the code of the Ether Patrol to a major, high command of thirty ships.

"Yes, Capt. Gilbert," Wright continued, "I'm just itching to get back into harness. I've heard reports that the ether lane between Mars and Earth has been ridden lately by a group of vicious marauders, space pirates. My first job is going to be to find out who's back of those activities and put an end to them. Why—"

But Wright never finished his sentence. The door flew open and in rushed a tall uniformed pilot's assistant.

"Capt. Gilbert," he quickly saluted. "We—we've seen them!"

"Who, who, you blubbering young fool! And why this irregular intrusion!"

"Begging your pardon, Captain. But we've seen them. Just now. I mean the Skull and Crossbones of Barly Moque. I recognized his insignia. I spotted him through our new long-range finder, but I don't think he can see us. He's considerable ahead of us."

"Slow up our ship at once," ordered the captain. Moque is undoubtedly cruising around seeking prey. Let him get away, far away."

"Barly Moque!" repeated the captain incredulously after the assistant departed. Why, man, I thought you wiped him and his crew out ten years ago!"

Wright shook his head. "There was always a mystery connected with the hattle. We thought we had destroyed

all his ships, but one of my men reported seeing one streaking away. I've always had a suspicion that Barly Moque had escaped death. Now I know! He's back at his old game!"

The two men looked at each other, one thoughtful, the other worried.

"Damn!" Captain Gilbert said, finally. "Major Wright! You—is there anything you might do—" His voice held a note of pleading. He was thinking of the time ten years before when, at the age of twenty, Wright had broken up a powerful pirate gang and destroyed all their ships.

Wright, strangely, was thinking of that too. But to himself he was saying, "I had ten fighting ships at my command during that campaign. Here I am alone—and without a ship."

There was silence for a minute. The captain sat down and nervously tapped a finger on the chart table. There was nothing he could do. He had no weapons. He could not speed up the ship enough anyhow. And the North Pole unit could not possibly arrive for four bours. The pirates—when they pleased—could cruise, plunder, and escape.

"This is the hittest moment of my life," he said. "It's a disgrace I'll never live down. Oh, if only the Ether Patrol could do something—"

"The Ether Patrol *is* going to do something!" said Wright tersely. "I'm going to take your life-boat, Captain. Round up two men for me—men with spirit. One for the engines, one as pilot."

Gilbert was on his feet, wide-eyed. "But—but Major! The life-boat isn't armed!"

"I'm not going to battle them," Wright said. "I'm going to *follow* them. They must have a base somewhere. Last time Barly Moque had one in Siberia. If I can locate his new

base and set the Ether Patrol on the trail—"

Captain Gilbert delayed no longer. He grabbed the rad-phone and barked into it, a gleam of hope in his eyes.

"All right," he said a minute later. "Your men will be waiting at the rear lock, with the life-boat. They will have along pistols and ammunition, just in case."

"Thanks, Captain," Wright said calmly. "I'll trail them by their rocket blasts, all the way to Earth if possible. *Moque the Mocker and I have a score to settle.*"

CHAPTER II

A Chase Through the Void

MAJOR WRIGHT looked with an experienced eye at the *President Roosevelt's* life-boat and decided it to be a tub—a slow and clumsy affair. But it would have to do for no better ship was available.

"Hop in, men," he said to the two *President Roosevelt* men who stood respectfully at his side. Cedric Wright was known throughout the system. Others were awed in his presence. His exploits with the adventurous Ether Patrol were almost myths to the peoples of three worlds.

The pilot strapped himself in his seat. The mechanic went out of sight towards the rear motor compartment. Wright swung the entrance hatch shut with a bang, jerked over the seal screw, and waved a hand. The pilot, seeing the lock wide open, bent to his controls and sent the ship from its berth.

As soon as they were clear of the *President Roosevelt*, Wright pressed his face against the pilot port. Far in the starry inkpot of space he saw the red-yellow flames of receding rockets. He

pointed and without a word the pilot shot the tiny ship in that direction. Somewhat to one side glowed the quarter moon.

An hour later Wright called them together at the pilot board. Murch, the mechanic, was a short, stocky man with a daring look in his eye. It was plain to see he was having the time of his life—chasing pirates with the famous Cedric Wright. Brill, the pilot, was young, lithe of body, quick in his movements. His eyes followed Wright with a light of worship.

"Now, fellows," Wright said laconically, when introductions were over, "we're chasing pirates whose leader is Barly Moque, known as Moque the Mocker, the same that preyed on ether commerce a decade ago. He's come to life again, and is plundering in the same bold and tricky way. And I'm out to get him. I can't fight him with this tub, but I can follow him if he doesn't put on more speed. As it is, he's gradually drawing away from us, but I think we can keep his rocket blasts in sight till we get to Earth. You, Murch, pet and pamper those engines and keep them going at top speed. You, Brill, just follow my directions."

For another hour they plunged through space, following the faint pyrotechnic trail of the pirates. Wright sat at the port and kept an eagle eye on the flares that looked like some will-o-wisp in a night swamp. The steady, changeless stars seemed to mock him, even as Barly Moque had mocked. The crescent moon began to loom larger.

Pilot Brill stirred and spoke, "Seems to me, Major Wright, that they are heading for the moon!"

Wright started. Then he looked at the moon. It was no more than two hours away, and the gradual arc of the

pirates' course had brought it almost directly ahead of them. Earth, a huge green ball, was off to starboard.

"I believe you're right, Brill," the major said. "But a base on the moon!—hard to figure out. It's airless, uninhabited, inimical to human life. How could they have a base there?"

He was speaking more to himself than to the others. Brill and Murch respectfully kept silence. Suddenly a thought struck Wright. If the pirate chief *did* have a base on the moon—impossible as it sounded—then indeed his lair was secure. For the practically unexplored satellite with its barren, limitless expanse of ravines and craters, would shelter them from discovery for ages. The Ether Patrol might search years, centuries, and never locate it, especially if it were an underground headquarters.

Wright shook his head. "I doubt they have a base on the moon—it's too fantastic. They are heading for it all right, but for some other purpose. When they leave for Earth, we're going to be right behind them!"

During the next two hours, the red-yellow rocket discharges dimmed and finally merged into the blazing glare of the enlarged moon. For a time the pursued were invisible. Then they resolved themselves as tiny black specks streaking across the Lunar surface. Pilot Brill had changed to deceleration an hour before, at Wright's order.

Wright became anxious about the engines. He knew that top-power operation could well burn them out. They were none of the sturdiness and strength of high-speed engine such as the Ether Patrol had. Murch, sweating and grease-smeared, grinned up at him. "So far, so good, sir. But I can't vouch for them all the way to Earth, except at a slower speed. Magno-coils are get-

ting awful hot."

"They can cool off soon," Wright said. "Seems we'll have a stop-over at the moon."

For many minutes Wright watched the black specks racing over the Lunar topography, puzzled as to what they were doing there. In the meantime, their ship plunged straight for the satellite till it covered their whole sky.

"Swing the ship horizontal and follow them," Wright said, "as soon as our forward velocity is zero."

"Right, sir," Brill said, watching the velocity meter.

A little later Brill looped the ship about and sent it scuttling parallel to the moon's surface. The pirate craft had disappeared over the horizon, but in a moment appeared again as Brill picked up speed.

Then Wright gasped. The pirate ships were the size of peas, little black dots against the dazzling white and cream of Lunar pumice. Three of them had stopped dead, but the thing that so startled the watcher was that the other eight were dropping swiftly to the ground. They were going to land! But why? Wright asked himself.

His answer came in a moment. The eight ships descended till they hovered above a small round patch of something that glinted metallic. Then a hole appeared magically in the round patch and the ships slowly dropped through, one by one. For once in his life, the emotionless Wright was completely astounded. Barly Moque had underground headquarters on the moon!

Brill's voice jerked him erect: "Major Wright, sir! Those three ships—they are coming this way!"

Wright, fascinated in watching the other ships descend, had not thought of the three above. Now he looked to see them streaming in their direction with

ominous speed.

"Ship around!" barked Wright.
"Straight away from the moon!"

But even as he spoke, he knew there was no hope of escape, if—as seemed obvious—the pirates had spied them. But Pilot Brill, pale though he was at sight of the gun-bristling, hurtling ships, would not admit defeat. He jerked their ship upward and shot it away.

Futile maneuver. Two of the pirate ships, graceful and swift as birds, zoomed alongside. Cedric Wright closed his eyes and waited for the hissing crash of infra-bolts on their hull, plunging through to sear them to a crisp. But he heard instead an odd tinkling noise. Then he saw.

The two pirate craft had flicked out their magnetic grappling rods and had fastened the fleeing ship between them like a speared fish.

There was an explosive curse from Brill, a sudden grinding noise from the rear, and then silence. Murch stumbled in. "We're caught, helpless!" he cried hoarsely. He looked out the port, then jerked his face quizzically at Wright.

The latter threw himself into a seat. "One of two things, men," he said. "Either they're going to drop us and let us crash on the moon, or they will take us along as captives. In either case, take it easy. We're caught and no escape—at present."

His voice was calm, almost indifferent. Brill, pale as death, heaved a long breath and looked admiringly at the man who could face adversity without a sign of perturbation. Murch shuddered a bit at the thought of crashing on the hard moon, then quietly strapped himself in.

The next move was up to the enemy. The pirate ships drew up alongside—

the three ships were locked together as one.

Suddenly there was a banging at the outside of the hatch. "I guess they want to come in," gasped Brill.

"Watch the air-valves," Wright said as he unstrapped himself and stepped to the hatch. He pulled the lever for the outside lock. In another moment a figure in a vac-suit came in their cabin from the air-lock, radiating a wave of intense frigidity. It fumbled at its face-piece and finally opened the flexible glass flap. A fierce pair of eyes glared around carelessly.

"Who's in charge here?" the voice demanded.

"I am. Major Wright."

"Barly Moque wants to see you," the voice countered in a stern unemotional tone. "We'll release your ship from the magnetic rods, and you follow us down to the moon on your own power. No funny tricks or we'll riddle you with bolts. You're going through an air-lock down there and watch your step so's you don't kill yourselves."

With that the pirate fastened his face-flap and left.

"Get going, Murch," Wright said as though nothing out of the ordinary had happened. "And Brill, see that you follow them closely."

When the ship swayed and strained in the grip of the magnetic rods, the pirates released them and sank slowly toward the surface of the moon, one in front, two in back. Nearer and nearer loomed the gashed surface with its sharp-cut outlines and dense shadows. Wright had eyes only for the mysterious entrance to the incredible underground pirate stronghold. As the first ship descended, a huge circular piece came away from the metallic seal set almost flush with the pumice flatland. The ship was swallowed in the dark

depths.

Their ship being next, Brill carefully lowered away. Wright saw that the seal was perhaps a hundred feet in diameter, being a perfect circle. The lock piece was some seventy feet across, able to accommodate any ship outside of the freight and passenger classes. They sank below the Lunar surface into a dimly-lighted chamber, followed by the two remaining pirate ships. Then the lock swung ponderously shut, motivated at its gimbaled binge.

There was a sudden hissing and the air-lock room changed from a vacuum to a breathable space. Then the lower seal opened. As Brill gently lowered the ship, Wright peered downward. Already the size of the lock and the elaborate seals had impressed him with respect for the pirates.

But the scene below took his breath away.

CHAPTER III

Prison

FROM the narrow air-lock, the underground cavern widened out to a rough circle of a half-mile diameter, like a truncated cone. From the lock down to the flat floor was a quarter mile. And all that immense volume was filled with air!

A breathable, livable pocket in the Lunar surface. To one side, lined up evenly near the wall of rock, were no less than three-score space ships. Most of them were armed with pyro-guns, the rest with smaller weapons, and all were equipped with multi-form rockets. Half the floor space was bare, the other half being taken up with a variety of sheet metal structures. Dozens of figures were running about in the dim light of the cavern, furnished by several sun-

power lamps set a few hundred feet off the floor level.

Wright saw all this with incredulous eyes. The whole thing was gigantic in scope—must have cost several fortunes. It must have been engineered by capable men. Where had Barly Moque gotten the funds? How had he ever planned and built this elaborate hide-away? Or was he just an agent for another, and higher authority?

Brill, too hasty to be astounded, lowered their ship and finally landed it beside the pirate ship which had led the way.

Murch dashed in excitedly from the rear. "Some place, says I!"

Brill feasted his eyes on the surroundings through the pilot port, jerking out exclamations of surprise.

"Come on, men. Out we go," Wright said, as an imperative fist banged outside the hatch.

A pirate with pistol in hand met them as they stepped from the ship. He had a leer on his face.

"*This* way, please, Major Wright!"

They followed him across the bare rock floor to a nearby sheet-metal housing which stood alone and was smaller than structures further on. The pirate waved them in after opening the door. They found themselves in an unadorned room with several chairs and a throne chair. On his throne sat a slight man with a dapper moustache and tiny gimlet eyes, impeccably dressed in military clothing. Nothing would indicate his lawless nature except perhaps a wanton curl of the lips that seemed to mock the universe. In his shoulder holster rested a long-barrelled pistol.

He looked up as Wright and his comrades entered, then nodded his head. The curl of his lips twisted saturninely.

"Ah, Major Wright! What a pleasure to meet *again*. It's like seeing an

old friend. Ten years, isn't it, that we've been apart? You've changed, Major—and it was Lieutenant then. But aside from that, you look matured, experienced. But there's that old daredevil in your eyes—"

"Forget it," Wright cut in. "Barly Moque, what do you want with me?"

"Precipitate as ever," returned the pirate chief. "No hurry, though, Major. You may be here a long time. It's unfortunate for you, Wright, that you couldn't let well enough alone and had to stick your nose into my affairs."

"Your affairs interest us of the Ether Patrol."

"Yes, and duty sent you on the trail of a pirate. Well, Wright, you're due for a few more surprises besides seeing this place of mine. I'm going to make you a proposition later. First, I'll explain a few things. Sit down."

Wright shrugged carelessly and seated himself. Murch and Brill, awed beyond the power of speech, sat down gingerly. They could not have been more awed in the presence of the Devil personified. Before Wright had broken up his pirate crew ten years before, the name Barly Moque had been synonymous with bloodshed and rapacity.

"Ten years ago," began Barly Moque, "our paths crossed and the gods leaned away from me. You and your so admirable Ether Patrol wiped out all my ships and nearly ended my life too. But I escaped—how isn't important. And from then till now, a space of ten years, I have worked hard and finally achieved a goal.

"You destroyed my former base in Siberia, but no one knew that I had hidden much of my treasure—what you would call loot—in another spot. With that wealth I started anew, being far from satisfied to live a quiet life.

"Once long ago I landed on the moon

at this spot and found a curious crater shaped like a cone or bottle. It intrigued me. When you, major, broke up my band, I promptly made plans that had lain dormant in my mind. You will be surprised to learn that the engineers and laborers who made a livable headquarters of this bottle crater, are all now part of my organization. I think you, major, and everybody else, always underestimated my abilities as a leader and organizer."

Barly Moque paused to leer mockingly at his enemy, but the latter gazed back at him disdainfully.

"Well, Wright, today I have this base on the moon. Outside of my men, you are the only outsider who knows of it. A perfect hideaway. Who would ever think of pirates on the moon?"

"I have over six hundred men here, Wright! And I have seventy ships, all splendidly armed and second to none—not even the famous Ether Patrol—in speed. I have a sun-power station up above which furnishes more than enough energy to run my hydro-electric plant which makes water from pumice. And to run my electrolysis plant which makes oxygen. And to run the heating apparatus, lights, battery chargers, and gravity motor accumulators. I have a tight little system of buying foods and materials from earth, through agents of course. I buy on earth, you know. I only rob in space. All this I have, Wright."

"An elaborate outlay," Wright said calmly, "that will someday crumble before the guns of the Ether Patrol."

"You think so?" the pirate mocked. "Only that the excellent patrol will never suspect this place. Remember, I have plundered four ships already, bearing each a sizeable fortune, and Earth is humming at the great mystery. I come like a shadow; I strike silently,

swiftly, and then I am gone, and the fuming Patrol burns up the void. And so it will go on.

"For a year or two I will steadily transfer the system's bullion to my coffers. Then with that wealth I will buy out the biggest interplanetary lines and become the greatest power in the system!"

"Ob, I see," said Wright slowly. "I thought there must be something behind all this greater than mere piracy. Thanks for the information."

"You'll never use it," Barly Moque returned, suavely, confidently. "I've got you fast and sure, Major Wright, and you're the last person in the universe I want out there against me. Really, you were most careless. But I never credited you with the foolhardiness of chasing me with a tub. You see, I've got a meteor-mass indicator mounted outside the lock. It detects ships that approach this part of the moon. Just another of my clever precautions. The operator notified me a ship was up there tailing us, and I knew it would be but one person—with that much nerve—the honorable Cedric Wright. So here you are."

"I know the proposition," Wright said without emotion. "You offer me a choice of taking up your piratical banner or—dying."

"Right, Wright," punned Barly Moque. "After all, you are a clever man of the ether-ways. You can handle fleets of thirty. You have a brain. You will be more use to me alive than dead. At the slight sacrifice of your vows to the law, you can become wealthy."

"I guessed your proposition," Wright said. "You ought to guess my answer."

Barly Moque contracted his brows. "Obviously you want to die!"

Wright came to his feet. "What you

call a choice is no choice to me. When you ask me to renounce law and duty and take up the code of plunder, you're wasting words."

Suddenly Moque's suavity vanished. He snatched his pistol from the shoulder holster and pointed it at the rigid major.

"Wright," he grated, "nothing would give me greater pleasure than to shoot you down like a dog. Ten years ago you ruined my plans, and for a while I vowed to hunt you down. Then I conceived this project and temporarily forgot you. But now I have your life in my hands!"

Murch and Brill cowered away from the enraged pirate, expecting that he would shoot them all dead on the spot. But Wright stood his ground silently, an open dare in his eyes. It was said of him that at one time, with a bullet in his lung, he had attacked and beaten two fleeing criminals whom he had cornered after they had disarmed him.

Barly Moque hesitated. Then he slipped the pistol back into its holster.

"You've got nerve," he grunted admiringly.

"Listen, Wright," he went on, "I'll give you three days' time to change your mind. I'm going to put you in a rock prison which has no lights, and only a few holes for ventilation. I'll feed you for three days. Then, if you still buck my will, I'll just forget to give you food!"

"You're the king," Wright said.

"You're the fool," returned Moque angrily. Then he turned to the *President Roosevelt* men.

"As for you two, in you go with Wright unless you want to join me. I can always use men. You get full privileges, if you join, just like the rest. What's the answer?"

"I stick with Major Wright," shot

out Brill quickly. But Murch hesitated, looking at Wright. Clearly, he was undecided.

"It's up to you," Wright said quietly. "Although I drafted you to serve the Ether Patrol, you have made no vows."

"Vows, bah!" Moque put in, hoping to gain Murch as a recruit. "You fellows will be ten times better off with me than with the *President Roosevelt's* crew."

But Murch, in a weak voice, held to his better principles and stepped to the side of Wright.

In answer to a hutton on the pirate chief's desk, three of his men entered the room.

"Take these fools to the prison. And Major Wright, I hope you'll enjoy my hospitality!"

His grating laugh of mockery followed them as they left under armed escort. From the pirate chief's office, the prisoners were marched to one side of the grouped structures, toward the crater's wall directly opposite the space reserved for the ships.

Cut into the wall was an artificial grotto whose end lost itself in darkness. The leader carried a flashlight. Its beam revealed smooth walls without indentation, except at one place. Here a hole bored into the wall. Tilted back from it was a huge wedge of stone, so balanced that slight effort could swing it up against the hole, effectively sealing it. A man from the outside might conceivably push the wedge aside alone, but any person or persons inside the cell to which the hole led could never budge it, for leverage could be applied only near the base, where it would be ineffective.

Into the hole the three captives were forced to crawl on hands and knees, under threat of pistols in the hands of hard-faced captors.

CHAPTER IV

Murch Weakens

THE wedge of stone hanged into place thunderously and the three prisoners found themselves in stygian darkness. For a long minute they stood motionless. The only sound was their own breathing that sounded loud in the confined space. Gradually the darkness lightened, however, as their eyes adjusted to the conditions. Although they could see nothing of the outline of their prison, the ventilation holes near the door, each about four inches in diameter, shone grey with stray light from the crater.

Murch was the first to break the silence. "Damn!" he said with something of a quaver in his voice. "Those pirates are heartless wretches!"

"Pirates," Wright said in steady tones, "of whatever age or time, have always followed a cruel, ruthless code. This is nothing new to Moque the Mocker. He is not only a thief; he is a murderer a hundred times over."

"The beast! Why does he do this to us? How can he expect us to live in a hole like this without—"

"Hold on, Murch!" Wright interrupted. "Watch your nerves. I admire both of you for sticking with me, but don't think you're in for anything easy. As long as you've taken the hardest course, you've got to face things squarely. First of all, we'll try to get some idea of what this cell is like."

"You, Murch, start at that last ventilation hole at the right facing the door and feel your way along the wall. Brill, you start at the left. Go slow now and watch your feet. It would be just like Moque to have a pit here someplace."

By the muffled sound of their voices, Wright surmised the room could not be

large. When the other two started their courses, Wright put his back to the doorway and strode straight away from it, raising and lowering each foot tentatively before moving his body. He stretched one arm as high as he could reach. His feet encountered loose rocks as he progressed slowly and he heard Brill shuffle once and curse softly, having stumbled on a rock.

Fifteen feet from the door, Wright encountered ceiling with his hand and from there on it sloped rapidly to join the back wall, where the three men met. The other two reported unbroken walls. Wright then had them feel along the ceiling and wall as high as they could reach, up and down the place. Then he hoisted Brill to his shoulders and had him feel for the roof where none of them could reach it alone.

"That's that," Wright said finally. "Apparently we're in a completely closed pocket off that passageway outside the door. It's roughly egg-shaped and about thirty feet long."

"You didn't expect for a minute there'd be a door leading out, did you," Murch said, unnerved by a sense of oppression that came upon them, thinking of their narrow space bounded by incalculable masses of solid rock.

"Naturally not, but it's better knowing than guessing," Wright returned sharply. "Now just as a precaution, we'll try huddling that wedge across the doorway."

But strain as they would till their breath came short, the immovable wedge gave not an inch. "No use," Brill said, panting. "Can't apply leverage from here."

Suddenly there was an ear-splitting crash that sounded as though two worlds had collided. "What was that!" Wright asked, addressing no one in particular.

Murch gave a short laugh that indicated frayed nerves. "Nothing. I just picked up a rock and threw it against the wall."

"Why did you?" Wright asked quickly.

"Why—why?" cried the mechanic shrilly. "In plain disgust! Here we are like rats in a trap. No light, no bed, no chairs, no nothing. Just a bunch of rocks. And what's the good of it? We may as well—"

He stopped, conscious that he had said too much.

"Careful! Pull yourself together," admonished Brill. "We're with Major Wright in this—both of us! See?"

For a moment Murch breathed hard, as though conquering some flaring emotion. Wright said nothing, waiting to see if the man had will power enough to subdue his own despair and fear.

"All right," muttered Murch weakly. "But for God's sake, let's talk so this damned silence doesn't get us. It's worse than a lone routine on watch-deck ever was on the *President Roosevelt*."

"Sure we'll talk," Wright said. "We can discuss Barly Moque and his ambitions. What do you think of the whole thing, Brill?"

"I don't know what to think, sir. Moque seems to have gone into the project thoroughly. If he ever *does* get control of interplanetary trade, like he wants to, he can sure dictate as he pleases. Interplanetary trade is the biggest thing going these days. But, Major, if he keeps on plundering ships, won't the Ether Patrol make a concerted effort sooner or later to put a stop to it?"

"They will try right enough," Wright said. "But let's look at it carefully. Moque has a fleet of wonderful ships, just as modern, well armed, and speedy as the Patrol's, although I don't think

bis men are as well trained. Nevertheless, he can plunder with impunity any time the Patrol is not around, and it's physically impossible for the Patrol to give armed escort to every freighter with valuable cargo.

"Then having a base on the moon—which is something no one would ever suspect—makes it almost a sinecure for him. I just wish I had one—just one—chance to contact the Ether Patrol and tell them about this pirate nest. Or I'd rather have my fleet of thirty ships at my back, facing Moque the Mocker and his fleet for a battle to the finish."

"I'd like to see that," Brill said, picturing in his mind the two fleets circling and weaving, hurling white-hot infra-bolts at one another.

Again a moment of silence came upon them, and with crushing effect, the absence of sound seemed to roll over them and drench them with oppression. Wright realized the danger of *listening* to the silence, and hastily scraped his feet along the rock floor and spoke again, enlarging on the menace to society that Moque the Mocker bid fair to become.

Brill valiantly helped to sustain the conversation. Murch seemed sullen and moody. But whenever there was the slightest break in their talk, and the echoes had died to nothingness, the brooding silence engulfed them like a tidal wave.

It could almost be felt. No surface silence, nor the quietness of a freighter in mid-space, can ever equal the absolute muteness of rockbound underground chambers. Luna, long a dead and immobile world, made no faintest suggestion of sound in her lifeless bowels.

The dread silence, along with the unrelieved darkness, soon made an effect on the prisoners. Their conversation

became stiff and forced. Their tongues moved mechanically. Even Wright, iron-nerved though he was, felt his spirit sagging. Brill bore up marvelously, for all of his inexperienced youth.

Murch reeled from the verge of hysteria time and again. Once he had said in a ghastly tone: "I feel as though the walls are—are closing in!" Brill had sharply told him to shut up and think of less insane things.

It seemed days later that something came to interrupt the monotony, but Wright knew it was only a few hours, for none of them had slept. One of the ventilation holes winked to blackness and a scraping noise came from it.

"Hey, you in there!" a voice said. "Here's something to eat and drink."

With a gurgling cry of joy, Murch jumped up from the rock he had been sitting on and took from the hand that came through the ventilation hole several paper wrapped articles. Then three cups of water, which he placed carefully at his feet.

It was not much of a meal, consisting of hard biscuits of uncertain composition, a few meager dried fruits, and the water. The jailer left immediately, after a sort of hard chuckle when Murch asked, "Is that all?"

It was over all too soon, the welcome sounds of chewing teeth and licking lips. It left a void greater than before. Another eternity of fighting the hideous silence, struggling against the drug-like desire to listen to what could not be heard, and they felt sleep coming upon them. There was nothing better than bare rock upon which to lay their heads.

Wright awoke from a troubled sleep with a dull throb in his head. The air in the cell, little renewed by the crude ventilation, was warm and stuffy. As he sat up, his muscles cracked like dried leather. He cursed softly.

"Me too," came Murch's voice, listless and hollow. "Haven't slept a bit—not really. Brill, there, is fast asleep—he's young."

When Brill awoke, he complained immediately that the air was foul. "By the end of three days, it will be pretty awful," he predicted unnecessarily. They had nothing resembling a lavatory.

Not long after, the ventilation hole darkened again and a voice told them to take their second meal. Brill passed out the cups and they were returned with water. After the jailer left, they were surprised to hear noises outside. Then a new voice came to them, oily and mocking:

"How do you like it, Major Wright?"

"Fine up till I heard your voice," Wright said flatly.

"Do you think you can stand it much longer?" asked Moque derisively.

"Longer than you could in any case," Wright countered.

"Come to your senses," Moque said with a serious note in his voice. "Stop playing the martyr, Wright, and accept my offer. Are you going to bury yourself and suffer a horrible death just for a few empty vows and principles? Listen, Wright, if you join up with me, I'll make you co-partner in the organization. I've never offered another man that, but I'm willing to share with you because I know between us—"

"Tell it to the man in the moon," Wright interrupted.

For a moment there was a strained silence. Then Moque's voice came again: "You haven't been in there long enough yet. The silence and the darkness and misery will drive you mad, but before that you'll weaken and beg me to release you. I can wait, major—"

His mocking laughter trailed away from the prison. But suddenly Murch

screamed and shouted for him to come back.

"What do you want?" queried the pirate chief, returning.

"Let me out of here! Let me out of here!" cried Murch hysterically. "I'll do anything. I'll join you! Only take me out!"

"Damn you!" Brill leaped for him, but Wright's hand held him back.

"Don't touch me!" shrieked Murch, thoroughly unnerved and broken, cowering fearfully against the wedge.

As Moque told him to wait a minute, Brill whispered fiercely to Wright: "Let me go. I want to choke some sense into that brainless traitor. Murch, I never thought you were a coward—"

"Shut up," Wright said peremptorily, tightening his hold on Brill, who was trembling with blind anger. "Let him go—poor fellow."

Outside, Moque blew a whistle. Pattering sounds approached the cell and suddenly a blinding beam of light shot into the prison as the wedge was tilted away. With a joyful sob, Murch stumbled out of the prison and fell at the pirate chief's feet. Then the wedge fell back into place.

Moque's mocking voice came through the ventilation holes to the remaining two prisoners: "You won't last long, either, Wright!"

CHAPTER V

A Moon Pocket

BRILL spoke when all sound outside had died away: "Murch a coward and traitor! I've known him for years. Never suspected he was yellow."

"Can't blame him," Wright said. "This sort of thing is pretty awful."

Wright's voice had become vibrant with emotion. Brill began to fear the iron major would succumb to the pres-

sure. He did not know that what bothered Wright was not his own fate but a growing fear that the system was soon to feel the grinding shock of Moque's mailed fist.

The next few hours till the jailer came with food were feverish and fraught with tenseness. After they had eaten, Wright paced the floor in a short path.

Brill, unable to think of anything to say, nervously began picking up little rock fragments and tossing them toward the back wall. The noise helped to keep away the dreaded silence.

Suddenly the shuffling of Wright's feet stopped. Brill heard him step to the back wall and tap against it with a rock. As Wright changed position, the sound also changed from dull crashes to hollow rumbles.

"Brill," he said finally, "the back wall at this spot must be comparatively thin—possibly thin enough to break through!"

"But how can that be?" the pilot said, puzzled. "This cell is cut in solid rock."

"The moon is porous," Wright said. "Without knowing it, the men who fashioned this cell almost broke through into a natural pocket in the rock. Now, if we take some of these bigger rocks and throw them with all our force at this thin partition, we'll open this cell to

the pocket."

"For what purpose?"

"To suck air out of this crater and disperse it into vacuum! This pocket, Brill, is very near the surface, no more than a quarter mile. Somewhere, somehow, in the long ages past, it must have opened to the surface and lost its gaseous contents to the surface vacuum."

"Then—then—" faltered Brill, feeling the blood drain from his face, "we will die on the spot!"

"Yes," Wright said calmly. "But so will Barly Moque and all his men, for the air will suck out of the crater in just so many seconds, through this cell and pocket, and whirl out into the limitless vacuum of space."

There was silence for a moment. Then Wright added: "You see, Brill, that we *must* do it!"

"Yes—I see," whispered Brill hoarsely.

Without a word, they picked up large boulders after a moment's search, boulders that they could not have huddled on earth with its greater gravity. They stationed themselves near the hollow-sounding spot at the back wall.

Wright threw his first, while Brill waited tensely, expecting to hear a sharp whistling hiss. But the rock rebounded with a deafening thunder.

"Hurry," Wright urged. "They might hear and investigate."

Brill bunched his young muscles and



"Let me out of here!" screamed Murch hysterically

heaved the houlder. It also bounced back harmlessly, scraping past his ankle and bruising his skin.

For his second toss, Wright moved back a pace. Lifting the boulder high, he dashed it furiously at the invisible wall. There was an ominous cracking noise along with the thunder of collision—and no boulder bounced back!

"Major! It broke through! But the air—it's still here!"

Wright went to the back wall and felt with his hands. "Went through all right, Brill. And the air didn't leak out. That means then that this pocket is connected not with the surface, but with the crater!"

After a hurried conference, they decided they would explore the pocket and attempt to find where it joined with the crater pit. But for long minutes they stood at the ventilation holes to see if the pirates had taken alarm at the noises. Apparently they had not.

"We'll bug the left wall," said Wright, "and follow it in the hope that it joins the grotto cavern outside the cell. If it goes straight more than a hundred yards, or if it curves away from the crater, we'll come back and try the right."

They clambered through the jagged hole which barely permitted a man's body. "Let's go," Wright said.

Hugging the wall, they advanced slowly and carefully. It was perilous work. Anywhere their footing might become insecure. Wright was the acme of caution, never moving forward till he felt for a surface to step upon and a wall to lean against.

"Double damn this infernal darkness!" Brill said when he bruised his knee against an outjutting knob in the wall of rock.

Unmistakably the wall began curving back upon itself.

"It ought to connect with the grotto," Wright said. Suddenly they found themselves able to see.

From ahead came a faint glow, just enough to outline dimly their surroundings.

"Careful!" Wright warned softly. "Don't grow reckless. Just forget you can see and follow me. Somewhere around this bend where the light comes from must be either the grotto or the crater pit itself."

They resumed their groping—a bit more surely now—towards the source of the light. It was merely a slit in the rock, some ten feet long and quite narrow. Wright, looking through, saw they were at the end of the grotto and saw the wedge which yet sealed off their erstwhile prison from the open air. Past the wedge, out through the grotto's open threshold, he could dimly see one of the sheet-metal structures that went for housings in the crater.

Brill looked at Wright questioningly.

"Now what?" Wright expressed his unvoiced query. "Well, Brill, since we've gotten this far, we'll tempt fate further. We'll sneak out of the grotto here and hug the crater wall and somehow—time only will tell—get to the space ships. That's a three-quarter mile stretch, with a hundred men between. The only thing that makes such a hare-brained thing possible is the fact that the sun-lamps, being set off the floor, do not light directly the total fringe of the crater. So we'll be in shadow, and more, they think we're safe in our prison, which adds to our chances.

"But we'd better put on all the speed we can. That fellow that brings food to us will be showing up in a short time, and give the alarm. Are you with me, Brill?"

"Through thick and thin, sir!"

CHAPTER VI

Stalemate

IT was a tight squeeze through the slit, especially for the bulky major, but it was no time to be squeamish over scratches and cuts. They pushed themselves through forcefully. Hugging one wall, they traversed the grotto till they stood in the shadows of the crater wall.

Wright looked carefully out upon the flat level of the pirate stronghold. Numerous figures scurried about between the buildings, but by far the majority were out of sight inside the structures. The bright glare of the sun-lamps, set in niches high above, illumined clearly all the buildings and the space ship landing, but cast merely a dim reflected gloom along the circumference of the crater pit. It was in this half gloom that Wright had suggested they make their way to the ships. Cutting directly across the lighted area was sheer folly.

A steady murmur filled the air with an occasional sound of hammering and pounding, so that their footsteps would not be heard. And if luck were with them, and if no pirate peered carefully into the shadowed skirt of wall, they had a good chance of accomplishing their aim.

"Come on," Wright urged suddenly, his scrutiny over. "Time is precious. Keep up against the wall and if any man comes near, flatten yourself to the rock and stop breathing."

In this manner they left the grotto and crept into the crater proper, skirting its dark fringe. This course would take them past, but well to the rear of, several large buildings, from the open windows of which gleamed sharp beams of light. As they made their way past the first, not a hundred yards from its door, several figures emerged sud-

denly.

Wright hissed a warning and promptly both of them flattened to the wall and stood immovable as though being part of its rocky texture. The pirates, conversing loudly, never thought of looking ahead to the shadows and walked around the corner, much to the relief of the two watchers.

When the men were completely out of sight, Wright moved forward again. They passed two other buildings without alarm. A half hour of careful progress brought them very near the edge of the open stretch which served as a subterranean landing field for the space ships. Only one more building must be passed. Then a few hundred yards and they would reach the first of the fleet.

Just when Brill was eagerly congratulating themselves on having succeeded, an echo of shouts rose from back near the grotto, and figures began to pour from the buildings. A moment later the sound of a bell clanged loudly throughout the crater pit.

"We're discovered!" Brill cried, jerking erect from his crouch.

"No," corrected Wright, "but they've just found out our escape from prison. Brill, we've got to run for it—"

Even as they leaped forward, they were espied by several pirates. In a moment bullets sang to them and splattered into the rocks at their back. Wright knew their only hope was to avoid being cut off from the space ships. If they could but beat the pirates to them—

"Look!" Brill gasped, slowing up. "We're trapped!"

A group of pirates had streamed from the direction of Moque's office and they were racing to head them off. Wright saw at a glance that no amount of speed could save them for they were blocked from a direct course by the last build-

ing between them and the fleet.

"Damn!" Wright said, darting eyes all about for a possible loophole of escape. He saw none. They were trapped fair and square.

Then his eyes widened. A figure was waving to them from the doorway of the building to their side.

"It's Murch!" Brill screamed. "He's calling to us—"

Intuition sent them running toward the building. Murch had a pistol in his hand, but intuition again warned Wright that he would not point it at them. Then they came close to the former *President Roosevelt* engineer.

"Major Wright!" shouted Murch boarsely. "Quick, up that stairway, you and Brill—leads to the roof—jump off and beeline to the space ships—your only chance—"

Wright hesitated as the frantic Murch, whose face was lined and haggard as though he had suffered in hell since they had seen him last, tried to push him to the stairs. "And you, Murch?"

"Never mind me!" screamed the engineer madly. "You and Brill go—I'll cover up the rear here—they'll be here in a few seconds—good God, go!"

Wright hesitated no longer and leaped up the stairs three at a time. Brill followed, but not before he grasped the engineer's hand in a last friendly farewell.

Murch's voice came to them as they reached the top: "Photo-electric beam opens the air-lock—shoot straight up from the center of the crater—"

Then Brill, who was last, heard a sudden tumult, heard a dozen pistol shots. Then a wild shriek as Murch, mortally wounded and berserk, flung his powerful body at the pirates to stay them for another second or two.

Wright and Brill found themselves

on the flat roof of the building, some fifty feet off ground. Without hesitation Wright leaped over the edge and landed like a cat on the rocky floor, the jump equal to no more than ten feet on earth. Brill followed, tumbling as he landed, but was jerked to his feet by the major's strong hand. Before them a hundred yards were the space ships. No other person was near enough to hinder their advance.

Like huge grasshoppers in the moon's light gravity they leaped toward the first ship. Bullets followed them from the roof they had just left. They splattered viciously on the rock at all sides of the fleeing pair, who ran on grimly. But the pirates seemed unable to hit a target moving so swiftly as the major and his companion, though Brill was pale at the ominous sound of whistling bullets past his ear.

Then they were there. Wright tore open the hatch of the first ship without ceremony and shoved Brill in, then leaped himself. A searing pain on his thigh came coincident with the metallic splash of lead on hard metal. Wright laughed. The best the pirates had been able to do was graze his flesh.

"You're the pilot," Wright cried, hanging the hatch shut. "Take her straight up through the center, like Murch said, so the photo-electric relay will let us out of the crater."

As Brill jumped to the pilot seat, Wright placed himself before the lower rear gun.

Under gravity-engine power, Brill lifted the ship off the ground, having no trouble with the standard controls, and swung to the center of the crater. A few seconds later a second ship followed, manned by the pirates.

Wright had the advantage of altitude and sent a white-hot infra-bolt downward. It fused the pilot port and

burned one hand of the pilot so that he jerked spasmodically and dropped the ship with a terrific hang back to the crater floor.

Passing the line of sun-lamp beams, Brill shot their ship into the comparative gloom that extended from that point to the next lock above. But when they approached the air-lock, it failed to open. They looked at each other blankly.

"Must have turned off the photo-electric relay," Wright said coolly.

"Then we're trapped!" exploded Brill, setting the ship to a float.

"Not exactly," Wright returned grimly. He bent to his gun and sent a livid bolt down at a pirate ship that loomed up from the crater floor. A second bolt did what the first failed to do and sent the ship scuttling back.

"You see," Wright explained, "we have all the advantage here. We are above the zone of lights. Therefore, we can see them clearly, but they can see us only dimly, if at all. Furthermore, I can shoot bolts down with impunity, but they must be careful or they will fuse their air-lock, missing us, and thus defeat themselves. It's more like stalemate than a trap."

For five minutes—minutes during which Brill sweated in apprehension while Wright bit his lip again and again—there was no action from below. What was Barly Moque hatching?

"Hold her here," Wright said. "We'll see if Barly dares shoot bolts at us when he could so easily miss and damage the lock."

Suddenly Brill gasped. "Major Wright—the lock is opening!"

Wright contracted his brows in a second of quick thought. Then he looked below. The whole fleet, it seemed, was gathering slowly, in groups of five.

"All right, Brill, send her through.

Barly Moque has decided to chase and fight us out in the open."

Brill sent the ship into the lock chamber, and then out into the open when the upper seal yawned. They speared out over the shadowed surface of the moon. Overhead the sharp stars looked quietly on.

"Clever move Moque made," Wright said grimly. "But first let him catch us."

He looked at the space chart and ran through a rapid mental calculation. "Turn seventy degrees to Lunar surface, five degrees from Ecliptic, and let her rip at top speed. That's a general course to get on the Earth side of the moon. Then we'll swing straight for Earth."

As Brill obeyed instructions and sent the ship leaping in acceleration, Wright looked down at the lock and saw ten ships emerge and give chase. In groups of ten they spewed from the crater till it was apparent that Barly Moque was using his entire fleet in the attempt to recapture the prisoners.

CHAPTER VII

The Bottle

GRADUALLY the pursuers drew nearer as the moon began to swing away and dwindle. Wright motioned Brill away from the controls and took them over himself. "I'll show you a trick of the Ether Patrol for getting speed quick. You use the gravity and rocket motors as complementary forces—like synchronizing two waves to make a bigger one."

Under Wright's manipulation their ship drew ahead again, but very slowly. "Apparently Moque taught his men that trick too," the major said, seeing they clung to the trail tenaciously.

Over his shoulder he spoke to Brill: "The radio, Brill—point six, six meters. That's for the Ether Patrol. Send out an SOS for all you're worth."

Through the void of space Major Wright sent his stolen ship, pursued by ruthless pirates whose one aim was to stop the ship that threatened to reveal their secret hideaway. Brill sent out a full-power SOS on the wave-length that was used by the Ether Patrol. From the rear vision mirrored port he watched the pirates.

"Major," he said finally, still tapping the SOS in code, "the pirates are gradually pulling up."

Wright grunted. "They must be using two pilots at the control board of each ship, which gives them an advantage. If we had another man here we could do the same. But stay at the radio, Brill. That's more important."

The situation became tense in the next half hour. The pirates drew steadily nearer. Soon they would be within range of their guns. Both Wright and Brill felt uneasy.

Then Brill cried in joy. "The Ether Patrol—I've contacted them!"

Wright sprang to the radio and sent the pilot to the controls.

"Hello—Major Wright speaking. Am being pursued by pirates—they have a base on the moon—*Mare Mauve* is the location, I think—on the Other Side. Anyway, blast this way immediately—look for rocket trail—yes, all right, I will try to escape these chasing me—attack if I'm not there but don't wreck the air-lock. Just capture or blast their remaining ships—yes, they outnumber us—N.P. Unit?—No, we can't wait for them—good luck, men!"

Wright leaped back to the pilot seat. "My own command of thirty ships, Brill! When I failed to report to the President Roosevelt, Captain Gilbert

notified Ether Patrol Headquarters and my unit immediately went to the spot and have been scouring around between Earth and moon and even around the moon. They are only two hours away. They will meet us at the *Mare Mauve* or else trail the rocket blasts. And then we're going to have a reckoning with Moque the Mocker!"

"But if you stop or turn around here," Brill said, "those ships out there will be waiting for us!"

"Watch this," Wright returned.

Under his guidance, the ship suddenly shuddered as the nose rockets burst out. At the same time a powerful side blast pushed them off the line of their course. The pirate ships careened past far above, out of gun range, front rockets blasting.

"I wouldn't dare do that with any ordinary ship," Wright said, "but these ships of Moque's are as sturdy as ever a ship was made."

When the pirates duplicated the maneuver and had likewise applied deceleration, Wright had gained an appreciable distance. Furthermore, he was now on the moon side of them. A half hour's deceleration and the ship shot backward from a practical stop in space—back toward the moon!

The distance between them varied but little on the return trip. In an hour the moon loomed again large and filled their sky.

"There they are!" pointed Wright suddenly.

Coming down from a higher altitude, Brill saw a line of thirty rocket blasts—Wright's own command! As Brill again took over the controls, the major contacted them by radio.

"Join me at altitude five hundred miles," commanded Major Wright, speaking with a peculiar infection of pride in his voice. "We will then de-

scend in a body and contact the pirates by radio. If they do not surrender, we will battle them. Let's go, men!"

To Brill he said: "They outnumber us two to one, but the Ether Patrol, All-space Unit Six, admits of no fighting force its equal. We'll show these pirates a thing or two."

The pursuing outlaws had evidently caught sight of the Ether Patrol also, and had recognized it, for they suddenly veered from their course and shot downward toward the crater stronghold, to be swallowed under the Lunar surface.

Contact was made with the pirates, as prearranged. Barly Moque's answer was delivered in a fierce tone: "I'll fight you, Major Wright, as I fought you ten years ago. But *this* time I have ships equal to yours and trained fighting men. I defy you and dare you to attack!"

Wright snapped off the radio with a savage gesture, cutting off Moque's mocking laughter. He contacted his fleet.

"Formation—circle, revolving at five radii. Keep radios open for my orders. *Down at the enemy!*"

From the air-lock below again spewed forth the pirate ships. They took up a spreading formation and floated defiantly, close to the surface. The Ether Patrol's circle descended in slow revolution.

Suddenly, when the attackers had descended to within a mile of the waiting pirate craft, a huge infra-bolt sprang from somewhere below and smashed one of Wright's ships to falling pieces. A second later another white-hot bolt hurtled upward and sheered off the entire engine compartment of another attacking ship.

"Break formation and retreat!" Wright shouted to his fleet. With lightning swiftness, the Patrol shot upward.

Poised some ten miles above the Lunar surface, Wright contacted his officers, debating with them their next move. The conference resulted in a new formation. The fleet lowered in a widely separated expanse and increased speed. Then it swung like a dinner plate, end over end. Their second revolution brought them near enough to the pirates to use their guns, and as each section of the fleet arced down and away, a barrage of infra-bolts flew to the outlaws. In turn, the latter had adopted a weaving motion to disconcert their gunnery, and returned the fusillade.

A worried look came to Wright's face after the skirmish. He saw five of his ships missing, whereas the pirates had lost but two! He and Brill had not been in the actual maneuvering. Wright knew that without a full gun crew of three it would have been folly to enter the affray. From his position above he had seen the destruction of his five ships. Somehow, that did not strike him right, all factors considered.

Once again hovering at ten miles with the fleet now reduced to twenty-three, Wright was contacted by Barly Moque.

"So, Major Wright, you have found Moque the Mocker no idle boaster! Where is the vaunted superiority of the mighty Ether Patrol! Two skirmishes and you have lost seven ships. Bah! It is slaughter. Have you the nerve, Major, to attack again?"

"To the last ship!" Wright boiled into the microphone.

But as he was about to snap orders to his men, he brought up short and whirled to Brill. "Did you notice anything peculiar about those infra-bolts that got our ships?"

"They looked mighty powerful to me," Brill said. "Maybe they have new guns—"

"No, but they do have a giant pyro-gun of extended range on the ground beside the crater lock!" Wright said with a curse. "Why didn't I suspect it before? That's why Moque is so eager to have me attack!"

He thought swiftly. It was suicide to attack with a super-range ground gun against them. He snapped on the radio. "Moque, you've got a pyro-cannon down there."

Moque's answer was first a growl, then: "Since when are you the soul of caution? The daring, invincible Major Wright complains because he's getting beaten for the first time! I thought you had nerve and—"

"Stow it, Moque," Wright cut in. "Your ace in the hole played out. But I'm still spoiling for a fight with you. Now listen, I'll bargain. If I wanted to I could merely stay here and wait for reinforcements. The N.P. Unit of fifty ships will be here in a few hours. If they aren't enough, we'll call several more units and finally crush you by sheer weight of numbers. Your ground gun won't help you much if a hundred ships attack at once.

"Here's the bargain. You've got sixty ships at present, and I have just twenty-three. If you'll come up out of range of that ground gun and duel me in a true space battle. I'll fight you to the last ship. If you win, you have the chance to win all!"

Barly Moque's answer came after a pause: "All right, Major. We'll fight it out. If I win, I'll radio the N.P. Unit and throw them off the track and the universe will be ignorant of my secret. Prepare yourself, Wright!"

The pirate fleet, sixty strong, once again zoomed up from the surface with flaming rockets, in a saw-tooth formation. Barly Moque had one chance to save himself and his grand scheme—hy

destroying Major Wright and his handful of ships.

The Patrol ships looped in tight arcs past the saw-tooth outlaw fleet and belched infra-bolts. The pirates responded with heavy fire, but their gunners were disconcerted by the swiftness of the Patrol's maneuvers. This skirmish took five ships from Moque and only one from Wright.

The saw-tooth then made a large circle and again bore down swiftly on the gyrating, dancing ships under Major Wright's command. Again barrages and broadsides of infra-bolts bridged the void, most of them dissipating harmlessly into space, missing their mark. But once more the highly trained Patrol gunners had proven their superiority in such battling. Moque lost six to Wright's two.

The pirate chief next tried a cone formation that was to turn inside out from its point and engulf the much smaller opposing fleet like an octopus. But at the last moment, a dozen of Wright's ships careened away from the fleet and poured a devastating fire on the pirates as their terrific speed carried them directly into the convergence of most of the Patrol's infra-bolts.

Moque lost ten ships—Wright only three.

Then Barly Moque decided a mass attack was his best bet and suddenly his entire fleet came upward in a phalanx. The Patrol ships scattered like melting snow and came at them from all sides. It became a series of duels, then, each seeking out an enemy and trying to outmaneuver and outsmart the other.

Major Wright turned grimly smiling eyes to Brill as they hovered high above, watching. "In duelling, Brill old boy," he exclaimed, "the Ether Patrol is worth ten times its number of

pirates!"

And so it proved to be. It took just a half hour to convince the pirates that they were defeated. A pitiful remnant of five ships finally broke away and dipped in the acknowledged way of surrendering in space.

But Wright saw a ship arise from the shadows of a ravine on the Lunar surface and scuttle to the air-lock. It entered the crater.

"Quick, Brill!" cried Wright. "Barly Moque waso't in the battling any-more than I was. He was hiding in the ravine and directing the formations. Now he has slipped into the crater. Down, Brill. He might be hatchiog something again—"

An automatic relay, which later proved to be an affair of mirrors, worked the air-lock from the outside, and they descended into the crater.

Wright had Brill halt the ship above the zone of lights while he looked cautiously downward. All seemed in order. The sun-lamps were burning and lit up an absolutely deserted crater floor.

Then Wright saw two figures emerge from a building and race across the flat toward another building.

"Put her down fast, Brill!"

Wright picked up a pistol that hung in a holster on the wall and jumped from the ship when it landed humpily. At the same moment a figure leaped from Moque's office and raced away. The major needed no second glance to tell him it was Moque himself. He raised the pistol deliberately, pulled the trigger. The figure crumpled to the floor and rolled over. Then it lay still.

Wright, followed by Brill, dashed over to it. Then he gaped. It was not

Barly Moque but another man dressed in his clothes!

Brill started stupefied. "That build-ing, Major—several men ran there! Maybe it's a—ugh—"

Brill stopped, choking. His horrified eyes fastened on Wright, whose skin had turned feverishly red.

Both knew without saying what had happened—the air was being drained out of the crater. It would quickly become a vacuum!

Brill oever knew how he reached the ship, but he remembered a strong arm pulling him into the hatch. Then a stah of sweet, blessed air in his lungs revived him. He caught Major Wright's eye and smiled weakly. Another few seconds and their blood vessels would have hurst. As it was, both of them had bloody noses and bloodshot eyes.

"Well, at least," Brill said, "we're sure that Moque died. His idea, I guess, was to get you, even at the sacrifice of his own life."

Wright had a doubtful look in his eye as he said: "Brill, I'm going to have this crater aerated again. I'm going to see whether all the men down here—including Moque the Mocker—died when the air supply vanished, or whether—they *didn't* die!"

Their ship arose past the locks to the Lunar surface, above which hovered the twelve Patrol ships that had survived the battle.

"One thing is sure, though," Brill said suddenly. "There's nothiog finer than the Ether Patrol!"

Wright smiled. The look that was now in the young pilot's eye was the same he had had himself twelve years before.

By LIEUT. JOHN PEASE

The Invisible Bomber



A mysterious bomber suddenly wrecks havoc on a Government proving ground. Secure in his secret, Phil Winter delivers an ultimatum to the President of the United States.

"BUT, Colonel, wasn't it fortunate that we had all knocked off for lunch just before that bomb landed on our howitzer?"

"Yes! Yes!" the Commandant testily replied, scowling sternly at the young officer who stood writhing at attention at the other side of the Commandant's desk. "But the fact remains, Captain Melton, that you've just muffed a perfectly good chance to pin something onto Phillips Flying Field. Here I've been warning them again and again not to let their bombers fly over the water-range on the way back from the panels.*

And now that they've finally gone and dropped a bomb on the most valuable experimental gun in the whole of

Aberdeen Proving Ground [Aberdeen, Md.], you stand there like a ninny, and admit that neither you nor any of your gun-crew remembers seeing the plane that did it."

"But there *must* have been a plane, Sir!" Melton interposed.

"Of course there must have been a plane. But what kind of a plane? I can't very well call up the Flight Commander and say: 'Something blew up one of the howitzers at my water-range, and it must have been one of your

**Water-range:* The emplacement from which test guns are fired into the waters of Chesapeake Bay. *Panels:* Screens of lath and cheese-cloth, each about the size of a man, set up in a circle, into the midst of which a bomb is dropped to determine how many panels it can smash, thereby denoting its wartime effectiveness.—Ed.

planes.' I've got to be able to say: 'One of your Bellanca's' or 'One of your Curtis Bombers did it.'"

"But I've brought you some of the bomb-fragments which we picked up around the crater, Sir." He pointed to a basketful of bits of metal. "One of the fins is intact. Why not check it against some of the blueprints upstairs."

"I get the idea," said the Commandant, smiling for the first time.

The measurements indicated that the fin was probably from a 100-pound Mark IV bomb. A peremptory phone-call to the Flying Field developed the fact that a Lieutenant Sanders had been dropping 100-pound bombs at the panels that morning, and had flown back just before lunch.

Sanders *claimed* to have emptied all of his racks at the panels, and to have carefully avoided the water-range on his return flight; but the Commandant grimly remarked to Captain Melton, "I wouldn't take an Air Corps man's word under oath. Undoubtedly he dropped the bomb accidentally as he was flying over your battery, and probably it had a defective fuse which delayed the burst until after he'd flown on out of sight. That would account for the fact that none of your men saw any plane at the time of the explosion."

THAT evening, as Captain Melton was sitting reading in his room in the Bachelors' Building, there came a knock on the door. The door opened and there entered a young man of about Melton's age, with a distinctly military air in spite of his civilian clothes.

"Cadet Phil Winters, hy all that's holy!" Captain Melton exclaimed, jumping up and warmly clasping his friend's hand. "I haven't seen you since you inherited all that money in

your senior year, and resigned from the Point. It was a shame, too! You stood at the head of our class, and would have gone a long way in the Army. What have you been doing ever since?"

"Physics research and aviation," Winters succinctly replied. "For example, this noon I flew over your battery, and dropped a 100-pound bomb on it."

Melton gasped. Then sputtered. "You dirty pup!"

Unperturbed, the civilian continued, "You didn't see my plane, did you?"

"Er—no."

"Of course you didn't," laughed Winters. "You couldn't. It was invisible."

"But, but . . .?"

"Because I have an invention which will make America invisible—I mean, invincible. I *had* to do something sensational to attract the attention of the authorities!"

"But why pick on us?"

"Because, old fellow, I happen to know that you have a drag with the Secretary of War. Friend of your uncle's, Colonel Hatch, wasn't he? Phone him right now. Tell him about the bombing. But not about me, yet. Hint that there's something of international significance to it. Guardedly, mention the Japs. Suggest that he put a bush order on your Commandant, and that he direct you to proceed to Washington at once, *with* the bomb fragments, for a hearing before a special board of inquiry."

"But what is your invention? I can't very well phone the Secretary of War unless—"

"You'll say nothing about my invention until we reach Washington, and then it'll be I who'll do the talking!"

After considerable argument, Captain Melton finally gave in, called the Washington residence of the Secretary

of War, and made the suggested arrangements. Ex Cadet Winters spent the night in a spare room in the Bachelors' Building, and the two friends took the early train the next morning.

The Secretary warmly greeted his protegee, and accepted Winters as a friend and classmate of Melton's; but became frankly worried and annoyed at Winters' ingenuous admission of having bombed and destroyed valuable government property. However, his indignation changed to interest when Winters insisted, and Captain Melton corroborated, that the homing plane had been absolutely soundless and invisible. He became annoyed again when Winters flatly refused to reveal his secret to anyone but the President of the United States.

The Secretary of War argued, but the inventor remained obdurate. Finally the Secretary gave in, and arranged an immediate conference at the White House.

As they left the State-War-and-Navy Building, Captain Melton admiringly whispered to his friend, "Well, you certainly are working your way up in the world!"

THE President received them in the Blue Room. Captain Melton opened the conference by giving a vivid account of the sudden destruction of his howitzer at Aberdeen the day before, the narrow escape of himself and his gun-crew, the total absence of any plane, and Winters' confession—or rather boast—that he had been responsible.

The President's kindly face clouded, as he ran his eyes up and down the inventor. "Young man," he sternly declared, "this is very serious."

There was a glint in Winters' eye, as he replied, "Mr. President, it has put

me in touch with you inside of twenty-four hours; no lives have been lost; and the property damage is trifling, compared to the value which my discovery will be to America. For I have discovered that the universe is *laminated*!"

The President and the Secretary of War exchanged hurried glances.

Winters stiffened with annoyance, as he continued, "Did you ever read 'Flatland', Mr. President? It's a fanciful yarn about a two-dimensional state of existence, with no up and down; only north and south, east and west."

The President nodded and smiled a slightly puzzled smile. Yes, he had read the book, but what did that—?

Winters continued, "Suppose there were another flatland a few millimeters away from the first. The inhabitants of either would never even guess at the existence of the other. There could exist an infinite number of these flatlands, piled one on top of another, like sheets of paper or strata of rock structure. You could even move the whole pile steadily upward at the same rate of speed; and yet, in spite of the fact that each two dimensional space would successively occupy the position formerly occupied by some other two-space, this would not at all mean that the peoples of any one plane of existence would ever experience any plane of existence other than their own."

"I think I follow you," the President interjected in a rather doubtful tone of voice. "But just what has this to do with homing an 8-inch howitzer at Aberdeen Proving Ground?"

"I'm getting to that. We human beings live in a *three* dimensional space, of which time has sometimes been called the fourth dimension. But did it ever occur to you, Mr. President, that we do not *extend* in time. We never experience any other time than the present.

Our so-called space-time existence is thus seen to be a mere three-dimensional layer, or lamina infinitely thin in the time direction. There could exist another three-dimensional space, just a second or two away from ours, and we would never know it."

"But don't we move through time?" the President objected, warming to the subject; and now it was Captain Melton and the Secretary of War who interchanged eyebrow-lifting glances.

"Yes, Sir," Winters replied. "But the fact that our space is moving in time, doesn't ever put any of us into any other space which may be moving along just ahead of us."

"But what has that to do with bombs?" The Secretary of War somewhat testily interjected.

"If a flatlander could elevate himself ever so slightly above his two-dimensional lamina of existence," Winters explained, "he would be out in an absolute void, occupying no space whatever, as he knows space. He would be invisible to his former world, and it to him. Similarly if one of us could shove himself ever so slightly forward in time beyond our three-dimensional level of existence, he would be out of space entirely, in a visionless void. I know. I have been there!"

He paused dramatically.

"What!" exclaimed the three others.

"It takes tremendous electrical power, but it *can* be done. After years of experimentation I finally accomplished it about six months ago in my laboratory just across the District line in Kensington. First I tried it with small objects. They disappeared. But several hours after the electric field had been shut off, they reappeared. Then I risked myself within the apparatus. Gentlemen, I cannot begin to describe the sensation of being absolutely no-

where, in darkness as intense as the blackened inside of a hollow sphere. But I too eventually reappeared."

"How do you account for these reappearances?" asked the President.

"It's like pushing the lever of a controller just beyond a notch. The tendency is to slip back into the notch."

"And if you were to push it beyond the mid point between two notches?" the President hazarded, a quizzically intense look on his broad features.

Winters smiled. "I see that you are getting the idea, Sir. It would probably slide forward into the next notch. Experimenting with small objects in my electric field, I have found that, after an excess of current, they do *not* return. Undoubtedly there is another state of existence just ahead of ours in time, and that is where they have gone. Some day I plan to ship myself all the way forward to that state of existence, taking with me enough electrical equipment to insure my return; but in the meantime I am being very careful to limit my current."

"Where do you buy your current?" the President inquired.

"From the Potomac Electric Power Co. Why?"

"Oh, nothing, nothing. Go on."

"Early this spring I enlarged my apparatus so that it would hold an airplane. I devised a reverse-field capable of picking up light waves from the immediate past—thus I can see the present world when I am out in the void of time which lies just barely ahead of us. And I enclosed the bomb-rack of my airplane in a reverse field, so that I can loose the bomb into the present world. Thus equipped I can fly around unseen and unheard in the void of time, and yet see and destroy objects in the present world. That, Gentlemen, is how I bombed Captain Melton's howitzer."

The Secretary of War and the President stared grimly at each other.

"With that invention," the Secretary solemnly declared, "America would be safe against foreign attack."

But the President sadly shook his head, and a tired look passed across his kindly face. "With that invention," he declared, "this cockeyed world would be utterly unsafe for any nation. One of my dearest ambitions is to keep the world at peace."

"But Winters is giving it to America!" Captain Melton interposed.

"Not giving it—selling it," Winters corrected. "And yet my price is a very reasonable one: One million dollars cash, and the deposit of a million more in government bonds, the interest on which is to constitute my salary as chief consulting expert of the new Air Service which you will develop."

"Pretty steep terms," suggested the President, his eyes narrowing. "What if we reject them?"

"Then, much as I regret it, I shall have to peddle my invention abroad."

"I was afraid of that," the President dryly remarked, an inscrutable smile playing about his firm lips.

The Secretary of War laughed harshly. "But, of course, gentlemen, this is all absurd. Why are we wasting the President's valuable time with all this talk of cowwebs and moonbeams. No one could do what this young fellow says he has done."

"He bombed my battery without any visible plane!" Captain Melton interjected.

"Yes," the President asserted thoughtfully. Then smiling a friendly smile, he turned to Winters with, "Young man, it's a deal. I will assume the responsibility of signing a contract with you on behalf of the United States. There are contingent funds available

for unemployment relief, which we can divert to this purpose. I will give you a check for \$100,000 down to bind the bargain, the contract to be conditional on a demonstration of your plane to the satisfaction of the Secretary of War and myself." He held out his hand, and clasped the hand of the inventor across the table. But there was a sad distant look in his kind eyes. "Does anyone else know of your invention?"

"No one else than I know its details," affirmed Winters positively. "You three gentlemen are the only others who even know of its existence."

"But how can we hush up the investigation at Aberdeen?" Captain Melton interposed.

The Secretary of War grinned. "There is on my desk a request from a Lieutenant Sanders of Air Service that I overrule General Westover in his refusal to transfer Mr. Sanders to Honolulu. You have my permission to tip off Mr. Sanders confidentially that, if he will admit dropping the bomb, it will not be held against his record, and I will approve his transfer."

"Excellent!" exclaimed the President, rubbing his hands. He then took a small portable typewriter out of a drawer and placed it on the desk, with the explanation: "This is what I use to type personally my messages to Congress, when I wish to make certain that there shall be no leak. There will be no leak in *this* case, Gentlemen."

So the contract between Philip Winters and the United States of America was typed and executed. An appointment was made for a meeting at Winters' hangar, located a mile from the Aberdeen Proving Grounds, a week later. The check for \$100,000.00 was requisitioned, and the President promised to bring the check with him to Aberdeen.

A week later the four men met at Philip Winters' hangar as arranged. The President, accompanied by the Secretary of War and Captain Melton, entered the hangar. The Secret Service guards remained outside. The President delivered the check to Winters, who took his copy of the contract out of an inside pocket, placed the check in it, and returned the contract to the pocket. The President keenly noted this move, and nodded appraisingly to himself.

Then the inventor pointed to a large airplane, surrounded by a maze of electric wires, mercury-vapor lamps, huge lenses, and shining condenser-plates. Hung beneath the fuselage was a 100-pound bomb, surrounded by a miniature of this same electrical apparatus. A periscope on the plane was similarly shrouded. On the wall of the hangar was a switchboard.

The President glanced at his watch, cleared his throat, and said, "Mr. Winters, one of the terms of our contract is that you will make your take-off and drop your bomb at times to be set by me, so as to avoid any trickery by confederates of yours. You will please set that control-clock and your watch by mine."

Winters did so.

The President continued, "It is now five minutes before three. Can you take off exactly at five minutes past?" Winters nodded. "Then do so. Just before you take off I will give you your instructions as to when and where to drop the bomb."

Winters set a dial beside the control-clock, closed a leaf-switch, swung open the doors of the hangar, spun the propeller, and clambered into the cockpit. Throttling down the motor to a purr, he leaned out over the side, and shouted, "All ready, Mr. President.

What are your wishes about the bomb?"

"Fly one mile straight east, just within the confines of the Aberdeen Proving Grounds and release it there. Not later than three fifteen o'clock."

"Right, Sir," Winters glanced at his wrist watch, and waved his three visitors back away from the plane. Then fixed his eye on the clock on the wall.

As the hands reached 3:05, there came a click, followed by a blinding sizzling flash. Motor-generators hummed, sparks zipped, the mercury lamps glowed, and a dense black fog formed within the maze of wires, completely obscuring the plane. Even the sound of its motors died to nothingness.

Then there came another click. The snapping ceased, the motor generators slowed to a stop, and the mercury lamps paled. The black fog gradually cleared, disclosing an empty maze of wires where the airplane had stood.

The President's shoulders were slumped, and he seemed very tired, as he stalked out of the hangar and toward his car.

"Aren't you going to wait for the explosion?" asked the Secretary of War in surprise.

"There will be no explosion," the President listlessly replied.

"What do you mean?"

"You shall see." He leaned heavily against the side of his car, and waited.

Three fifteen; no explosion. Three twenty; no explosion. Three twenty-five; no explosion. Three-thirty; no explosion.

"Well," said the President, "let's go home."

"What *could* have happened to Phil?" Captain Melton exclaimed.

The President transfixed the young officer with a steady gaze. "He *could* have passed over the hump to the next

notch—to the next three-dimensional space just ahead of ours in time. If so, then the menace of his invention to the peace of the world is at an end. And, as he has his contract and his check with him, the Government will never have to fulfill the contract, the check will never have to be paid, and we three can forget the entire episode."

"But, Sir, couldn't Phil substitute himself for the bomb, and use its electric field to send himself back into our time?"

"I thought of that too, but I doubt if the engines of his airplane would produce sufficient power for such a long time-trip as he would now find neces-

sary. Besides I took particular note of the coils which surround his bomb; they are not large enough to hold a man."

"But how could Phil have pushed himself so irretrievably far forward in time? He took great precautions never to use too much electric power."

"And I," said the President with an air of finality, "took great precautions to send for the head of the Potomac Electric Power Company, and give him strict instructions to quadruple the voltage on Mr. Winters' line, from five minutes past three o'clock until twenty minutes past three this afternoon!—We planned it that way," he added, with a ghost of a smile.

«What Should Science Fiction Be?»

SINCE 1926, that type of literature known as science fiction has gone through an evolution that is nothing short of amazing in itself. Prior to that year, the only scientific fiction was the work of the pioneers, Verne, Wells, Service, Rousseau, and a few other handy and daring writers who possessed imagination. How avid the reading public was for imaginative works is proved by the reputation as "classics" these first stories gained, and possess to this day. Who can forget "The Time Traveller," "A Trip to the Center of the Earth," "The Ship of Ishtar"?

Now we have passed twelve years of science fiction as a monthly portion of the fiction presented to the reading public. It has grown until it is no longer something daring, but something everyday, commonplace, and accepted without question. Even the movies film fantastic fiction, each effort proving more and more popular. Thus, it is safe to assume that science fiction will continue to grow. But how?

It is quite evident that imagination alone is not the answer. It is becoming increasingly difficult for the author to amaze his readers. And in trying, some of them have gone too far. They've assaulted the reader with a barrage of rays and incredible science that has left him with a distinctly bad taste in his mouth and a growing resentment at the thought that someone is actually trying to "make him believe that tripe."

When the old "classics" appeared, the readers knew instantly that they were good. They truly enjoyed it, and clamored for more. Aside from the old adage that the customer is always right, it's certain that homo sapiens knows what he wants.

Thus, AMAZING STORIES wishes to present the present problem to its readers. Just what, in your own opinion, do you like, in science fiction, and what do you want? The editors have their own opinion as shown by our selection of stories featured in this issue. But do you agree?

If there is anything you think ought to be done to improve science fiction, if you have any idea as to what it ought to be; if you think there is anything wrong with the present type—we want to know it.

With this issue we've begun to set up a standard of performance by which we will expect our writers to abide. But this standard is by no means complete. AMAZING STORIES is published for your enjoyment, and thus, a voice in that standard is quite necessary to achieve that purpose.

Therefore, we invite you to write your own opinion of science fiction, and what it ought to be, so that we can set up a standard of excellence which will assure the entertainment value of the stories we present for your enjoyment.

—THE EDITORS.

DISCUSSIONS



AMAZING STORIES will publish in each issue a selection of letters from readers. Everybody is welcome to contribute. No holds barred. Bouquets and brickbats will have an equal chance. Inter-reader correspondence and controversy will be encouraged through this department.

A FLAW

Sirs:

I got my first copy of AMAZING STORIES way back in 1916. Since then I haven't missed an issue.

Such things as size, binding, format, etc. I leave to others. The content is all that matters to me. So far in spite of a few relapses, it has been generally favorable.

There was a flaw, however, in the April number. Edward Carlisle's "Annus Mirabilis" reads: "On Friday February 12, Jack was visiting—" According to my calculations there will be no Friday, February 12 in either 1974 or 1975. February 12 falls on Tuesday in 1974 and on Wednesday in 1975. The story would have to be moved up to 1971 to hit a Friday, February 12th.

For the information of Author Carlisle, I will gladly furnish him with the day for any conceivable date under either the Julian or Gregorian system.

*Richard W. Rightmire,
Buffalo, N. Y.*

THINGS TO AVOID

Sirs:

The best series in my opinion are the Professor Jameson Stories which I look for in every issue. My criticism of the magazine is that there are not enough short stories and that some of the stories are either dealing with the "far distant future" or the "unknown past" and as such can't be based on present day facts.

*Wm. Milliken,
Los Angeles, Cal.*

We quite agree with you on both points. Hereafter AMAZING STORIES will feature many more stories in each issue, more short stories, and we will insist that every story be based upon known scientific facts—being projected into the future or the past on strictly accurate scientific evidence.—Ed.

AN ART CRITICISM

Sirs:

AMAZING STORIES has always had a distinctive style that I like. Your stories are better written, better thought out, and not so extravagantly improbable as some. They improve with second or third reading. It is this characteristic of your stories I believe that has given you the title of "animator."

By the way, is your artist Morrey under contract? I'm not saying that he's a bad artist, but

he slips up once in a while—too often in fact. It might be a good idea to vary his illustrations with those of another artist, to supplement his works. His drawings in the February issue are not very good, everything seems to be viewed through a thick haze of charcoal dust and objects are rather vague and amorphous in outline. As for his people, their faces and sometimes their figures seem to be a bit distorted and unnatural.

I read "Exiles from the Universe" by Coblenz. It was well written. What's more, the science did not intrude unduly on the literary side of the story.

*Ralph C. Hamilton,
Worster, Ohio.*

As you no doubt recognized from the new table of contents, AMAZING STORIES is now under the wing of its new owners, Ziff-Davis Publishing Company, publishers of *Popular Aviation*, *Popular Photography*, and the new *Radio News*. With its new publisher, new editor, AMAZING STORIES will have all the vast facilities of these other important technical magazines at its disposal.

The Ziff-Davis art staff—as this our first issue introduces—will create an entirely new style of illustrations for the AMAZING STORIES. Clear, bold, scientifically accurate drawings will be adopted, profuse illustrations employed. Rather than permit detailed scientific explanations to "intrude unduly" on the story, we will continue the new policy of carrying explanatory footnotes.—Ed.

MONTHLY VS BI-MONTHLY

Sirs:

I have read AMAZING STORIES for over seven years and have enjoyed most of the stories published in it.

My one grievance is that it is a bi-monthly magazine. Two months is too long to wait for each installment of a serial. When are you going to get the monthly back again?

*Thaddeus Dikty,
Fort Wayne, Ind.*

AMAZING STORIES will become a monthly as soon as enough readers approve of the present editorial policies. For the present, no serials will be featured; all stories will be complete in each issue.—Ed.

TERRIBLE COVERS

Sirs:

It's very rare that I like one of your covers or

inside illustrations. Look at that February '38 cover. Bilge! Terrible. A cover with an outdoor scene should always be the rule.

Paul F. Weber,
Middlesex, England.

We can't promise you an outdoor scene every month. That would get monotonous. Suppose we just let it rest on what the story calls for and give you variety. We hope you'll like the cover of this issue. It is a sensational new development in publishing circles being the first time a direct color photograph ever appeared on a magazine of this type. It is costly and difficult to produce, so we hope you like it. And our sincere thanks to our brother publication, *Popular Photography*, for their invaluable aid in staging and planning this startling innovation.

FRIENDLY ADVICE

Sirs:

I have found out, via the scientifiction grapevine that *AMAZING STORIES* has been sold. Thusly, I cannot criticize you for the good or bad points of the last issue of *AMAZING*. Suffice it to say that it was better in some points and worse in others than the general run of the issues. The rest is up to YOU.

To my opinion there is only one thing that you can do to really make a great improvement, and that is the art work. Pep up the pictures, make more distinct covers, and have the edges more even. Aside from that, there is really very little, in my opinion, that you can do to make the magazine better. Now it suits me just fine.

Of course, I realize that it is useless for ME to try to tell a new editor what to do, for you undoubtedly had your program all lined up long before you bought the magazine. All I'm doing is making a plea that you don't break the standards of *AMAZING STORIES* by putting such brainless, pointless, befogged ravings which one of your rivals terms "thought-variants" into *AMAZING*.

That's all, and I eagerly look forward to the next issue to see what improvements are made, for the April issue was set up in the old place under the old regime. Just sort of remember, you are taking over a magazine that's the best in its field, and all that it needs is a little improvement in the art work to jump up the circulation.

T. Bruce Yerke,
Hollywood, Cal.

A PROMISE TO WRITE

Sirs:

A few days ago I received your "Bulletin to Contributors" re *AMAZING STORIES*, and upon reading it could scarce restrain a whoop of elation. It seems almost too good to believe that we will once more have a real science-fiction magazine on the market.

[Author Bruechel refers to a Bulletin which was rushed out to all the best writers in the science fiction field as soon as the purchase of *AMAZING*

STORIES was concluded. This Bulletin outlined in detail the type of stories being sought by your present editors and incidentally announced that the rate of payment to our authors was being DOUBLED effective of once.—Ed.]

The policy your bulletin outlines regarding stories comes very close to my own ideas on the matter. Years ago (1926-31) I was an avid science-fiction reader, and contributed a few stories to *AMAZING STORIES* myself. But for some five years now I have seldom purchased or read a "science-fiction" magazine, because most of the stuff failed to appeal to me.

Usually these stories had little or no instructive value—the reader gained no new knowledge about astronomy, physics, chemistry, or other science. The basic "scientific" idea was not logically developed; the writers simply assumed that time-travel, gravity-nullification, or some other colossal feat was possible, and let it go at that. No attempt at justification of the idea. But the worst offense of all was the fact that most of the so-called "science" in these stories was nothing more than a lot of preposterous, meaningless drivel about "phenomena beyond our ken." All sorts of magic, mysticism, indescribable monstrosities, nameless Intelligences from Ultra-Space, strange rays and unknown forces, fantastic ravings about insoluble mysteries—but rarely a good, constructive, definite idea that the reader could "get his teeth into." A story is not "science-fiction" merely because it contains a certain amount of obscure, pseudo-scientific gibberish which not even its own writer can understand or believe.

To mention an example of this puerile rot—some months ago I read a story in which the author, cheerfully ignoring all that astronomers have learned through decades of careful study, proposed the idea that comets are sentient beings which use their tails to guide their courses through space. Well—no amount of argument can convince me that this is "science."

AMAZING STORIES never went quite so far beyond the bounds of common sense as do its contemporary "science-fiction" periodicals, yet even so it suffered a great decline from its high standards of the late 1920's. The type of stuff published by our present-day "science-fiction" magazines is beyond my range, I will admit. I can't write convincingly of something I myself don't understand or believe possible—and so for the last five or six years I have refrained from writing, hoping that some day a market would appear to which my stories would be suited.

Apparently the new *AMAZING STORIES* is that market—and I'll certainly try to hit it.

Frank J. Bruechel,
Milwaukee, Wis.

A PILOT OFFERS FREE RIDE

Sirs:

I have just placed one of the best numbers you

ever published back in my rack after having read it from alpha to omega. It was good from the cover, by Morrev, to the end of "Discussions" which, by the way, seem to be improving lately.

As for myself, I think that the stories are the most important part of the magazine, and I for one prefer articles and fiction dealing with the abstract mathematics, cosmic travel and those pertaining to time and extra dimensional theories since I have somewhat of a preference for mathematics myself. Of course I don't wish for an overloading of these stories since a great many of your readers neither understand nor like stories of the type just mentioned.

By the way, I have a very small kick to make. It happens that flying is my only hobby and I hold a pilot's license. In the story "Annus Mirabilis" Jack bravely pulls the stick back into his lap and, instead of whipping up into a stall, he (for some reason which I can't explain) falls into a dive and further along he comes out of the dive by pushing forward on the same stick. To me, this sort of aerobatics is nothing short of a miracle.

Furthermore, I have yet to see the man who could come out of the dive described in the story and lightly hop out of the ship. The fact is, that without the necessary trusses, an ordinary man would rupture every blood vessel in his body, and would be doing well if he could crawl out on all fours. If anyone wishes a demonstration it would please me very much to be able to give a very life-like example here in Salt Lake City.

D. K. Robier,
Salt Lake City, Utah.

As you very truly remark, in your letter, the effect of the controls would be amazing indeed, were it not for the fact that Jack at that moment was ruddering with the elevators on a 90° bank, or thereabouts, with reversed controls. In short, his rudder became the elevator with which he actually initiated the dive.

In straight normal flight, of course, pulling back the stick would produce anything ranging from a zoom to a stall while the reverse stick movement would result in the dive—contrary to the statement. But as you state, pulling her out of that dive with about 300g would go a long way toward a blanked out wreck.—Ed.

WOW! OUCH!

Sirs:

After reading those disgustingly flattering letters in your Reader's Section, I am called upon to dash off this epistle. I must say that your stories, your editorials and your pictures are much below the standards set by other magazines.

First, I must say that ever since I read your editorial for the December 1936 number I haven't felt like reading another. In this article you made some mention about the discovery and naming of the metal "Tungsten." You said that for some unknown reason the metal was called "wolfram" which you state means "wolf's foam." If you

consult any good German dictionary "rahm" does not mean "foam" but rather means "cream." In the second place the metal *W*o was not called "Wolfram" but "Wolfram" which is something quite different. "Wolfram" is an old Germanic name which refers to the sacred wolves and ravens of Wotan the chief of the gods. The "wolf" is naturally the first part of the name and the "raven" was changed to "ram."

For another thing the name "tungsten" which means "tung" stone and "tunge" is a kind of thick soup. So you see that the common English name is no improvement over the original. Another point to consider is that the international symbol for the metal is *W*. (sometimes *Wo*).

There, also, is room for improvement in your covers especially in the use of color. However, no one has any good covers and I guess I can stand yours.

Wolfram Stenzel,
Bayside, L. I., N. Y.

It looks like you win this round.—Ed.

IN THE THIRD DIMENSION

Sirs:

Can you ease my mind a bit over the following problem? It is a generally accepted fact that space is curved. If one goes on and on in any direction for innumerable ages, one will eventually arrive back at the point where one started. Right? Then space may be likened to a sphere, so that no matter in what direction one travels—the end is always the beginning.

QUESTION—If space is the surface of a sphere as described above, what is (a) INSIDE the sphere? (b) OUTSIDE (surrounding) the sphere?

This is very akin to an idea which I have never been able to grasp. "Space is finite—and curved," the scientists say.

Then what in the name of Ogg (whoever he is) is BEYOND space? More space?

David McIlwaine,
Liverpool, England.

Space cannot be likened to a sphere. To illustrate the correct conception we must consider the well-known "flatlander" who has only two dimensions, width and breadth. A flatlander, placed on the surface of a sphere could not visualize the "curve" of his "straight" line extended on the surface of the sphere until it came back to its starting point.

We three-dimensional beings, placed, like the flatlander, on the "surface" of a fourth dimensional sphere (it really isn't a sphere) cannot visualize the actual curve of the "straight" line we extend until it returns to its starting point.

Einstein postulates that space, time, size and motion are all relative, depending on the observer. Therefore, space is not a reality, it is a property of that something (which you assume to be a sphere) which cannot be described three dimensionally.—Ed.

SCIENCE QUIZ

IF you know your Science you'll have no trouble on this Quiz. We've made it a bit tough on purpose so if you get 13 correct answers, you're really better than average. Fifteen or more correct answers puts you in the "Good" class. Eighteen is excellent. Twenty—you've either looked at the answers or you're brilliant.

1. The stratosphere begins at about: 1, 10,000 feet; 2, 90,000 feet; 3, two miles; 4, 35,000 feet; 5, thirty miles.

2. One of the following is not an acid: 1, milk; 2, ammonia; 3, vinegar; 4, grape-juice; 5, tomato-juice.

3. Which one of the following would be most helpful in astronomical studies: 1, metronome; 2, sterilizer; 3, black-jack; 4, theodolite; 5, centrifuge.

4. The cube of three halves is: 1, $1\frac{3}{8}$; 2, $2\frac{3}{8}$; 3, nine sixths; 4, $\frac{3}{8}$; 5, $3\frac{3}{8}$.

5. Mehitabel, our family cat would be classed as a: 1, hivalve; 2, rodent; 3, category; 4, feline; 5, reptile.

6. If somebody said to you "What unusual nabaster," you should answer: 1, "Smile when you say that, stranger!" 2, "Yes, but it's comfortable to sit in"; 3, "As rocks go, it is odd"; 4, "Well, I prefer ragtime, myself"; 5, "It is pretty shrubbery."

7. Only one of the following is necessary in the art of photography: 1, tripod; 2, lens; 3, film; 4, view-finder; 5, exposure-meter.

8. The only month in which it is possible to have no full moon is: 1, January; 2, June; 3, December; 4, February; 5, August.

9. A microscope is to a microbe as a telescope is to a: 1, lens; 2, observatory; 3, germ; 4, astronomer; 5, star.

10. We have to thank which of these busy little creatures for building up Bermuda: 1, beavers; 2, coral; 3, termites; 4, publicity men; 5, Snow White's seven dwarfs.

11. If you were frantically looking for a yellow semi-precious stone you would pick: 1, turquoise; 2, sapphire; 3, garnet; 4, caviar; 5, topaz.

12. The earth's orbit around the sun comes nearest to describing a: 1, ellipse; 2, circle; 3, parabola; 4, hyperbole; 5, helix.

13. We can thank which one of these gentlemen for the steamboat? 1, Capt'n Henry; 2, Whitney; 3, Morse; 4, Fulton; 5, Edison.

14. In an attempt to impress you, he says, "This amazing macrocosm!" referring to: 1, a microbe; 2, spaghetti; 3, the universe; 4, Bob Burn's bazooka; 5, statik.

15. The opposite of zenith is: 1, R.C.A. Victor; 2, nebula; 3, South Pole; 4, Hades; 5, nadir.

16. When you take up the study of etymology you turn to: 1, stamp collecting; 2, insect chasing; 3, heavy drinking; 4, economics; 5, word tracing.

17. All but one of the following are elements: 1, silver; 2, salt; 3, mercury; 4, bismuth; 5, copper.

18. The moon will soon be at perigee, which means: 1, consistency of cheese; 2, nearest to earth; 3, at its full; 4, farthest from earth; 5, in eclipse.

19. One of these is not a pseudo-science: 1, alchemy; 2, mesmerism; 3, phrenology; 4, clairvoyance; 5, phonetics.

20. If we measure off a triangle whose sides are relatively 3, 4 and 5 it will be what kind of a triangle? 1, marital; 2, equilateral; 3, right; 4, obtuse; 5, acute.

True or False Test

1. In summer the days grow shorter and the nights grow longer. *True.... False....*

2. There is no snow in the region of the equator. *True.... False....*

3. The star by which we determine longitude is Polaris, or the North Star. *True.... False....*

4. The earth is nearest the sun in summer. *True.... False....*

5. The sun always sets exactly in the west. *True.... False....*

6. Sheet lightning and fork lightning are the same. *True.... False....*

7. It is impossible to boil water in a vacuum. *True.... False....*

8. Brass is an alloy of copper and zinc. *True.... False....*

9. Venus is one of the brightest stars in the sky. *True.... False....*

10. A fathom equals six feet. *True.... False....*

11. A turtle belongs to the reptile family. *True.... False....*

12. Penguins are found in Alaska. *True.... False....*

13. Platinum is lighter than gold. *True.... False....*

14. A bullet is always turning when it leaves the muzzle of a rifle. *True.... False....*

15. It would be possible to have a telephone system on the moon's surface. *True.... False....*

16. The first airplane was flown by the Wright Brothers. *True.... False....*

17. Longitude 70° west and latitude 40° north would be a good place to build a house. *True.... False....*

18. It is a moonlit night and tomorrow there will be a solar eclipse. *True.... False....*

19. Pasteurization of milk involves its being boiled until sterile. *True.... False....*

20. A hexagon is a two dimensional figure with six sides. *True.... False....*

[Science Quiz Answers will be found on page 144]

QUESTIONS and ANSWERS

This department will be conducted each month as a source of information for readers. Address your letter to Question & Answer Department, AMAZING STORIES, 608 S. Dearborn St., Chicago, Ill.

Q. *Has an electron ever been measured?*

A. Yes. The most recent is that employed by Dr. K. T. Compton, Massachusetts Institute of Technology. His measurement is by weight, and he has discovered the weight of an electron to be nine-tenths of a billionth of a billionth of a billionth of a gram, or much lighter than previous estimates.

Q. *How many of the known elements have been discovered in the sun?*

A. During 1937, Dr. Charlotte E. Moore, of Princeton University, discovered iridium, osmium, and thulium in the sun, making sixty-one known solar elements thus far identified.

Q. *What is the Red Spot of Jupiter?*

A. The Red Spot of Jupiter is supposed to be a storm, similar to those which cause sun-spots on the sun. Last year, a new spot was discovered on Jupiter by the Lowell Observatory at Flagstaff, Arizona. This new spot is announced as being the size of North America, and is located in the same hemisphere as the more permanent Red Spot. Astronomers think these storms occur in an outer shell of clouds composed chiefly of ammonia and methane.

Q. *What is a catalyst?*

A. A catalyst is a substance which is seemingly inert and yet by mere presence dictates what actions shall take place in a chemical solution. The peculiar feature is that the catalyst itself is unchanged in the process and may be used over and over again. For example, when inverting sugar to glucose an acid must be present yet the acid undergoes no change in the process.

Q. *What is meant by "Widmanstätten figures" in meteorites?*

A. A crystalline structure, peculiar to meteoric nickel-iron alloys, forming a lattice-work pattern revealed by polishing a sawn surface and treating it lightly with acid.

Q. *What is testosterone and what does it do?*

A. Testosterone is a discovery of Ruzicka, who in 1935 produced it synthetically from cholesterol. It reacts sexually, producing changes which act differently according to the various derivatives of testosterone. Some varieties produce exactly opposite effects. Thus one variety will effect a partial change to male characteristics in a female,

or another will accentuate the female characteristics. Much is yet to be learned from testosterone and its possible application.

Q. *How are the speeds of heavenly bodies moving directly toward, or directly away from the earth measured?*

A. By means of the spectroscope. If a luminous body containing, say, sodium, is moving rapidly toward the spectroscope, it will be found that the sodium lines in the spectrum have moved slightly from their usual definite positions toward the violet end of the spectrum. The amount of shift indicates the speed of the moving body.

Q. *What is a tropism?*

A. An obligatory movement which is made in adjusting physiological equilibrium to gravity, pressure, currents, moisture, heat, light, electricity, and contact. A moth, flying past a candle has one eye more illumined than the other, resulting in an inequilibrium, so the moth automatically adjusts its flight so that both eyes are equally illumined. It does not intend to fly into danger, but is guided by an obligatory tropism.

Q. *What would happen to a ship travelling at the speed of light?*

A. According to the Lorentz-Fitzgerald contraction, a moving body shortens in the direction of its motion, thus, a ship moving at the speed of light, which is considered to be the absolute in motion, would be reduced to nothing. However, the theory of relativity accounts for the apparent annihilation of the ship. What actually happens we do not know, but to our senses, the shortening would be absolute.

Q. *If according to scientists, a traveler through space would see nothing but a black void between celestial objects, why does the sky appear blue to our eyes?*

A. Because the particles composing the atmosphere which surrounds earth act as color filters in reflecting sunlight back to our eyes. They absorb all of the color spectrum except the blue.

Q. *Just what is meant by absolute zero?*

A. It is theoretically the point at which all gases solidify and all molecular motion ceases, and exists at 459.6 degrees below the Fahrenheit and 273.15 degrees below the centigrade zero points. It has never been attained but Dr. Wander Johansson

nes de Haas of the University of Leyden announced in Feb. 1935, that he had reached a temperature of one five thousandth of a degree (Kelvin) above absolute zero.

* * *

Q. What is the brightest known celestial body in the universe?

A. A new supernova, discovered by Dr. Zwicky of the California University of Technology in Aug. 1937 at a distance of about 3,000,000 light years. It has a luminosity 500,000,000 greater than the sun.

* * *

Q. Are all of man's fears developed after birth?

A. Only two fears are supposed to be inherent in babies, the fear of falling and the fear of loud noises, all others are supposed to be instilled in human beings by others.

CORRESPONDENCE CORNER

AMONG the readers of AMAZING STORIES are many who would like to correspond or exchange magazines with their fellow readers. From time to time when space permits we will be glad to list names and addresses.

David Stoller, 1113 Fifth Ave., Los Angeles, California would like to correspond with foreign readers.

Here's quick service for David Stoller. We have a couple AMAZING STORIES fans from abroad that are seeking fellow-fans over in these United States with whom to correspond. I. M. Edwards, 10 William St., Semaphore South, South Australia, Australia; Sydney J. Bourde, Jr., c/o The Science-Fiction Association, 27 Borough Road, Kingston-on-Thames, Surrey, England.

Thaddeus Dikty, 2425 Lúke St., Fort Wayne, Ind., has some back copies of AMAZING STORIES to sell. So do: A. Ross Kuntz, 2541 Dunsmuir Ave., Los Angeles, Cal.; Robert Peterson, 1321 Garfield St., Laramie, Wyo.; Joseph Mercurio, 637 Baltic St., Brooklyn, N. Y.

On the other side of the magazine market place, several readers are anxious to buy or swap back issues. Here are some interested prospective buyers: V. Harold Vineyard, General Delivery, Cape Girardeau, Mo.; Robert C. Garvin, Hospital Station, Binghamton, N. Y.; Ralph C. Hamilton, 920 College Ave., Wooster, Ohio.

Next we have some readers who would like to correspond with others, but are especially interested in certain branches of science. On CHEMISTRY: Will Milliken, 1634½ Maple Ave., Los Angeles, Calif. MATHEMATICS and ESPE- RANTO: Richard Rightmire, II, 22 Cottage St., Buffalo, N. Y. ASTRONOMY: Abraham Oshinsky, 117 Van Buren St., Brooklyn, N. Y.

OBSERVATORY

(Continued from page 8)

But, perhaps, this is just a modernized edition of the old Matthews Death Ray scare aroused many years ago but which gradually died out when the inefficiency of the ray was determined. It was claimed, when the Matthews Death Ray first gained newspaper scare-head eminence, that this super-penetrating ray could be projected for miles and that it would penetrate any known material, killing all vegetable and animal life that it contacted. As a matter of fact, it could be projected only a few inches and that it was only capable of giving a guinea pig a severe headache.

Our latest death ray, according to the dope received from abroad, is an expansion of the X-Ray idea by which the Alpha and Gamma rays are given fresh energy by combining them with radio waves so that their effective range and radius are increased. Let us hope that this is not true, for these rays have all the destructive energy of bullets as anyone will testify that has had X-Ray burns inflicted by an X-Ray tube at close range.

* * *

A few serious thoughts: As we took over the management of AMAZING STORIES, we stepped into a mighty big pair of shoes when we stepped into those of Dr. T. O'Connor Sloane, who was Editor for so many years. And it is with humble hope that we can fill them to as satisfying a degree as he did. It was in his able hands that the magazine earned the enviable title of "The Aristocrat of Science Fiction." May we uphold the tradition that he has set for science fiction's oldest magazine!

CONSTRUCTION is rapidly advancing on the great two hundred inch telescope being erected on Palomar Mountain in California. The next two years will see the completion of the great eye that will open up the heavens. The giant lens weighed twenty tons when it was shipped in a specially built railroad car from Corning, New York, now rests in the Optical Shop of the California Institute of Technology in Pasadena. Here four tons will be ground away as it rests on the table of the large grinding machine. Eight young men are busy shaving bits of glass from the face of the 16½ foot diameter of the mirror. Not a single visitor is admitted to the laboratory, for the astronomers say that a single hard dust particle accidentally brought in, might ruin the perfect surface of the world's most valuable piece of glass. The tedious and painstaking process of polishing down will have taken about four years in all.

What wonders will await the eye of the first astronomer who will eagerly search the new boundaries of space? Approximately eight times the volume of space now available for study will be opened to the new telescope. Dr. Millikan

will be in charge of the six million dollar instrument and the world awaits with interest the result of his probes into the universe.

* * *

ONE OF the phrases you meet most often in stories and articles concerning modern science research is "fourth dimension." No one ever gave a clearer or plainer description of what is meant by this much abused term than the young H. G. Wells in one of the stories that first distinguished him, *The Time Machine*. It is worth repeating here for its clarity and worth framing too.

His character asks, "Can an instantaneous cube exist?—Can a solid cube that does not last for any time at all have a real existence?—Any real body must have extension in four directions, it must have length, width, thickness and duration. There are really four dimensions, three of which we call the three planes of Space, and a fourth, Time. There is, however, a tendency to draw an unreal distinction between the former three dimensions and the latter, because it happens that our consciousness moves intermittently along Time from the beginning to the end of our lives. Really this is what is meant by the Fourth Dimension—it is only another way of looking at Time. There is no difference between Time and any of the three dimensions of Space except that our consciousness moves along it!"

We don't believe that even Professor Einstein could improve on that statement.

* * *

MORE THAN 3,000 comets have been recorded in the last 2,000 years and Kepler, the famous astronomer said that they were more numerous in the universe than the sands of the sea. Some of the laws which control these mighty and mysterious visitors of Space have been discovered by Science, but to the ordinary man they have been the cause of much terror and dismay.

When Halley's Comet appeared in 1456 at the same time that the Turks were sweeping over most of Europe, it produced such genuine fear and horror, that Pope Callixtus issued a papal bull in which he excommunicated both Turks and Comet.

Comets travel in elliptical orbits, and so far away are their aphelion or most distant positions, that these weird visitors are completely forgotten long before they swing back to our vision. But modern astronomy with perfect precision can predict almost to the day and hour when a comet lost in outer space will revisit our skies. Halley's Comet had not been seen since 1835 and yet its return in 1910 was predicted within two days. The tail of Halley's Comet was photographed at Johannesburg in 1910 and measured over 70,000,000 miles in length. The differences in color between one comet and another are the result of differences in chemical constitution. If the elements are mostly gaseous the comet is bluish in color and where it is more solid in consistency, the color tends to yellow.

There are vast numbers of people who still

believe that the next advent of a comet will bring the end of the world—that is, if mankind still exists.

* * *

WE THINK that you will get a huge kick out of our back cover. We believe that it will help you to realize what distance really means in this universe of ours. Zeros running all over the page and terms such as "light years" are almost impossible for our meagre consciousness to grasp. If you like it, we'll try to figure up some more features along this line.

* * *

JULES VERNE, one of the first if not the first to write Science-Fiction stories, met with much ridicule and disbelief on the publication of his tales of adventure. But their popularity became world wide and many of the machines which he created mentally and which were rejected as impossibilities, are the actual facts of today. Among his anticipated discoveries were the air-ship, the submarine and the automobile.

* * *

AT THE rate that atom smashing machines are being constructed in different laboratories around the country, it will be a lonely atom indeed that hasn't had its insides laid bare for public inspection. But seriously, we can soon expect revelations of great importance as the result of these probes into the mysteries of existence. The new atom bombardment machine being constructed in the General Electric laboratories at Schenectady will soon begin its searchings into the makeup of matter.

* * *

WE HOPE you like the many new features introduced in this issue. Notably, our series of Puzzles and the Science Quiz. These should tax your science knowledge and give you and your friends a real yardstick to measure your comparative I. Q.'s. These departments and features are definitely not the exclusive property of your editors. Readers are most welcome—and encouraged—to submit questions of their own which they believe will stump their fellow readers.

* * *

IN CLOSING this month, we want to thank sincerely our fellow editors in the Ziff-Davis organization for their invaluable aid in getting out this issue. The editorial staffs of POPULAR AVIATION, RADIO NEWS, and POPULAR PHOTOGRAPHY extended their entire facilities and will continue to do so in giving you the finest, the most accurate Science-Fiction magazine that was ever published.

We hope you will enjoy this, our first issue, as much as we enjoyed compiling it. And in any case, be sure to let us hear from you. Tell us what you liked, what you didn't like. We promise to abide by your collective wishes and give you just the kind of AMAZING STORIES you have always wanted.

—THE EDITOR.

ANSWERS TO SCIENCE QUIZ

(See page 140)

- 35,000 feet.
- Ammonia.
- Theodolite.
- Three and three-eighths.
- Feline.
- Alabaster is a white marble-like mineral.
- Film.
- February is the only month in which it is at all possible to have no full moon.
- Star.
- Bermuda is built upon a formation of hard calcareous skeletons of coral, a certain marine polyp.
- Topaz.
- Ellipse.
- Robert Fulton.
- The universe.
- Nadir.
- Etymology is that branch of philology which treats of the origin and derivation of words.
- Salt is not an element.
- Perigee, that point in the orbit of the moon when it is nearest the earth.
- Phonetics is a science in its own right.
- Right triangle.

ANSWERS TO TRUE OR FALSE

- True. After the vernal equinox in June the days begin to decrease in length.
- False. Perpetual snow is found on Mt. Kenya in Africa, which is on the line of the equator.
- False. Latitude is determined by the North Star.
- False.
- False. The sun sets due west only on September 21st and March 21st.
- True.
- False.
- True.
- Venus is a planet, not a star. False.
- True.
- True.
- False. Penguins are found only below the Antarctic circle.
- False. Gold weighs 1203 lbs. per cubic foot. Platinum weighs 1336 lbs. per cubic foot.
- True.
- False. There is no atmosphere on the moon's surface and sound waves could not be carried to the transmitter.
- False. Langley is given credit for the first sustained flight in a heavier than air flying machine.
- False. This point is located in the Atlantic Ocean.
- False. A solar eclipse cannot occur on a day following a moonlit night.
- False. Pasteurization raises the temperature of milk to approximately 145°, holding would bring it past 212°.
- True.

ANSWERS TO MATHEMATICAL PUZZLES

(See page 109)

1. The metal band will be lifted about one foot above the surface of the earth all around its circumference. The proportion of the circumference of a circle to its diameter is 3.1416 (or π) to 1. So if we increase the circumference of this great metal circle around the earth by two yards, we therefore increase its diameter by approximately two feet, or one foot on each side of the earth.

2. As a result of subdividing our three-inch cube of wood into one-inch cubes we will have 27 one-inch cubes. One will be all white. Six will have one black side. Twelve will have two black sides. Eight will have three black sides.

3. The spider has to travel only forty feet to reach the fly and the proof is demonstrated in the following diagram. When the walls were pushed



down (as in a prefabricated house) the lazy but smart spider made the trip the shortest way, in 40 feet, as shown in the diagram:

The square of the hypotenuse of a right angled triangle is equal to the sum of the squares of the other two sides. Therefore $A-C$ or 24 squared is 576, $C-B$ or 32 squared is 1024. Their sum is 1600, the square root of which is 40. Cut out the diagram and fold it if you wish to see the route the spider traveled.



Planet	Time to Travel (at 440 mph)
Mercury	24 years
Venus	24 years
Earth	0 years
Mars	16 years
Jupiter	122 years
Saturn	30 years
Uranus	462 years
Neptune </td <td>723 years</td>	723 years

This Amazing Universe

Our whirling universe is much too vast to illustrate in correct proportions. It would require a sheet 100 miles long! Ignoring relative proportions, this illustrated Chart clearly visualizes the tremendous distances between our Earth and its nearest neighbors. Traveling in the world's fastest airplane (440 miles per hour) it takes 24 year

to reach Mercury
16 years to Mars
122 years to Jupiter
30 years to Saturn
462 years to Uranus
723 years to Neptune

957 years to Pluto