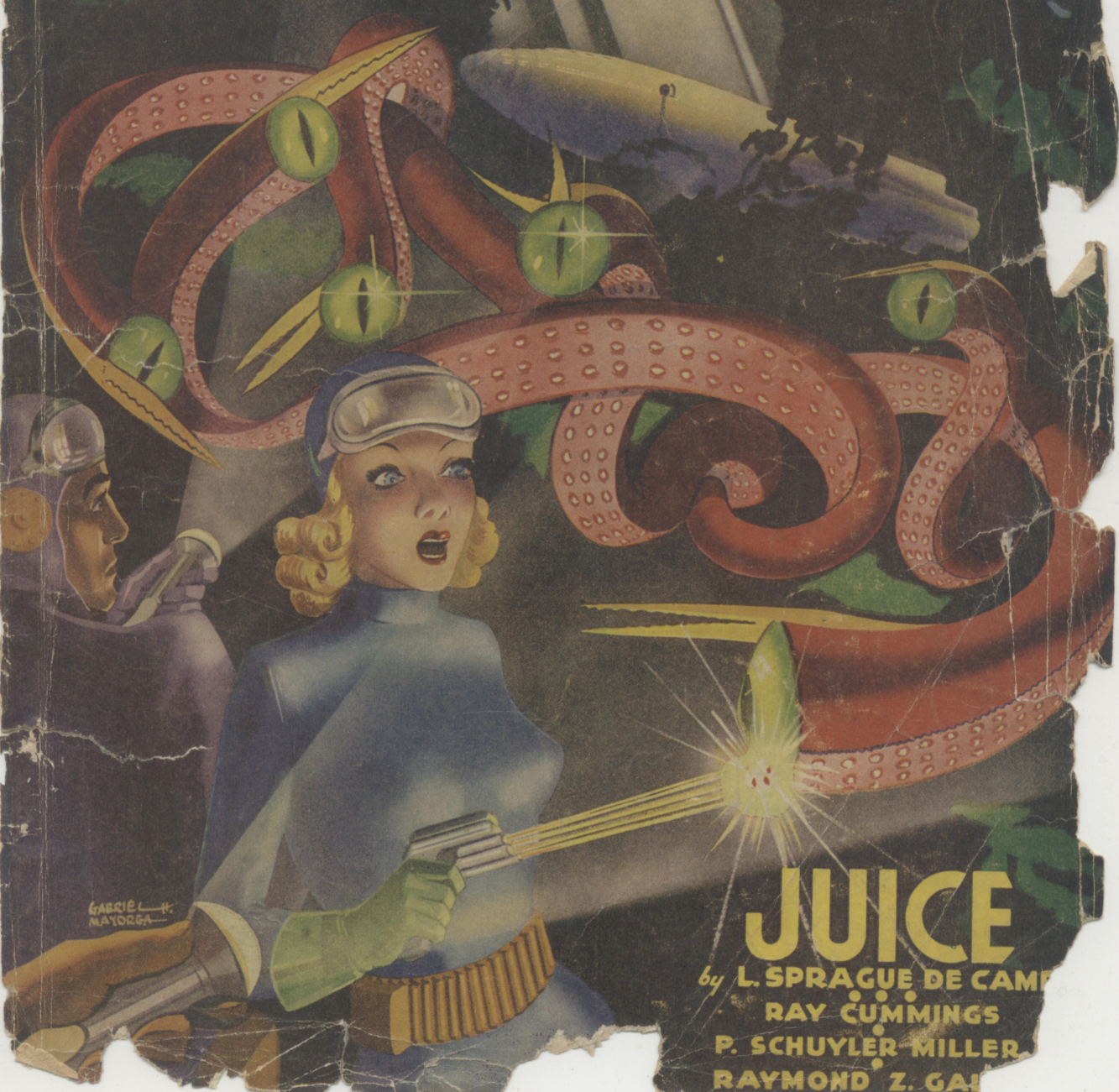


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SUPER SCIENCE STORIES

1/6



GABRIEL M. MAYORGA

JUICE

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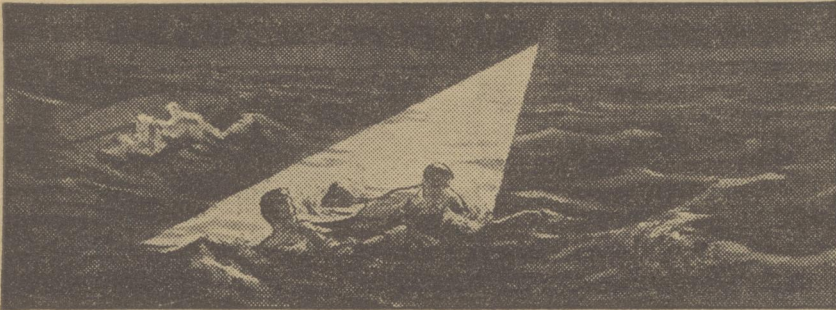
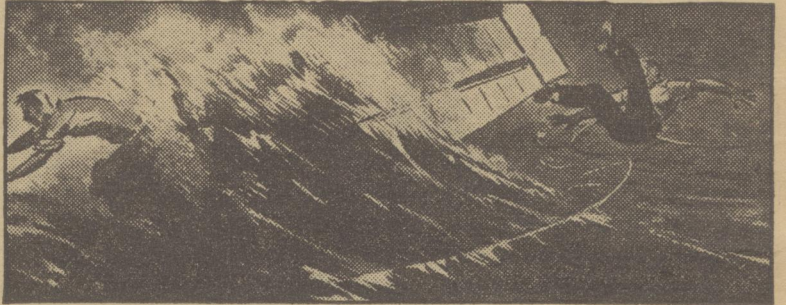
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**SUPER
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VOL. 1

MAY, 1940

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A Science Article

BOOK REVIEWS

SPACE MOVES THRU TIME by Jacob Levy. Published by the author, Chicago, Illinois. 91 text pages, paper cover. 60c.

Mr. Levy, described on the title page as "philosopher and humorist" has undertaken in this book to correct the glaring errors of Einstein, Millikan, and similar sloppy thinkers. The book floats dreamily through the mazes of quantum mechanics and matrix phenomena, astrology and humanism. It abounds in baffling expositions of "theories." We offer an example—one should be enough:

"Mr. K.—A practical psychologist believes that the stimulation of a recollection is caused by a current of electricity that flows from one brain cell into another brain cell!

"Mr. A.—All right!—wise guy!"

—CYRIL KORNBLUTH

AFTER MANY A SUMMER DIES THE SWAN by Aldous Huxley. Harper and Brothers, New York. \$2.50.

It would be sheer futility to try to give any comprehensive account of the scope and plot of this book in these lines. Huxley is renowned for his ability to get an overwhelming amount of thought-provoking concepts into his books.

This, his latest, concerns a quest for the secret of immortality. The search of the eccentric California millionaire for the rediscovery of an Eighteenth Century secret for the indefinite prolongation of human life is in fact the prime theme of the work—the thread upon which all else is strung.

But clustered about this fantastic and superscientific research are dozens of other factors, events, essays, philosophers, etc. Opinions on Hollywood and California, on religion and humanism, on behaviorism and pure thought, and on nu-

merous other fields of knowledge will be found throughout.

Aldous Huxley is best known to science-fiction for his superb satire "Brave New World." Readers who are of a more mature frame of mind and who do not object to an indirect but meaty story will like "After Many a Summer Dies the Swan."

—D. A. WOLLHEIM

THE OUTSIDER AND OTHERS by H. P. Lovecraft. Arkham House, Sauk City, Wis. \$5.00.

The writer of this review had the honor of having met and corresponded with Howard Phillips Lovecraft of Providence while he was alive. The reviewer will never forget him nor will any of the hundreds of others who had that experience. Mr. Lovecraft was, far and away, the greatest weird tale writer of this present age. He was in addition one of the most amazingly learned men that anyone is likely to encounter.

This volume "The Outsider and Others" has been published as a tribute to him from his friends and admirers. It has been supported and sustained by the contributions, financial and physical, of his friends.

The volume is of colossal dimensions. It contains nearly every short story, novelette, and novel ever written by H. P. Lovecraft. Within the covers of this book will be found the greatest works of weird and fantastic imaginative creation that have ever been put on paper. There is included a great quantity of his weird poetry, powerful stuff and brilliant. Topping it off is his famous essay "Supernatural Horror in Literature" which is an education in itself.

"The Outsider and Others" is a *must* for every reader of fantasy.

—D. A. WOLLHEIM

THE PREVIEW

THEY were on the edge of the excavations, the spot where they had hoped to find the secrets for which they had ventured the long way to icy Pluto. From a shaft, sunk several hundred feet through the layers of solid nitrogen to a stone-paved street below, galleries ran off through the ice, leading into the massive buildings, along the ancient streets.

The Jovian Doag led Vallard into the windlass-car. "The biggest discovery of the expedition," he said to himself, half reverently.

Doag and Vallard hurried down the gallery to a point where half a dozen men were hacking away at the wall of ice. In the light of the big arc-lights, half buried in a bank of solidified gas, was a strange transparent cone, perhaps fifteen feet in height with a base of the same diameter. At its top was a tangle of strange machinery, while a queer array of levers, a control-board of some sort, stood in the center of the cone.

And upon the floor lay—two human figures. Two bizarre, fantastic men, of slightly less than human height. They were clad in short white tunics, legs bare, with loose sandals on their feet.

They were strangely terrestrial in appearance, though shorter and more frail than most earth-dwellers. Their skin was very fair, of an almost albino hue, their hair a pale flame color. In dress and appearance they were exactly like the figures painted upon the walls of these ancient buildings. The two dead men were Plutonians of the race that had been extinct for millions of years.

"Jiminy!" Vallard stared. "Preserved by the cold! But why weren't the others?"

Doag hesitated. Then, "Consider," he said slowly. "This cold could not have come suddenly. It must have taken centuries, millenniums. Yet in these ruins we find no trace of heating equipment, the inscriptions mention only warmth, flowers, joy. Since there is every sign of an abrupt end to life in this city, we must assume that this race died out before Pluto had cooled. And—these men are perfectly preserved by the cold."

Vallard jerked up. "You mean. . ."

Doag nodded. "These men must have come here after the planet cooled!"

The incredible story of those men will hold you breathless as you read Frederic Arnold Kummer, Jr.'s engrossing novelette, "The Day of the Comet", which will appear in the July issue of *Super Science Stories*, on sale May 23rd. Watch for it!



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HOLLOW OF THE MOON

By GABRIEL BARCLAY

Four human beings—the first to make the awesome trip through space to another world. A man doomed to die of cancer, a convict, a man who was trying to forget—and a girl. And against them were arrayed the fierce, insentient forces of the Moon!



CHAPTER I

Four Who Were Doomed

THE CREW-QUARTERS of the *Messenger*, the first rocket craft ever to leave Earth for another sphere, occupied a twelve-foot cube. In it were

slung four meshwork hammocks on heavy springs and in each, strapped and netted like a fly caught in a web, was a human being. Those spring hammocks had been life-savers at the start of the Moonward journey, absorbing as they did a great part of the tremendous strain of the needful acceleration to 25,000 miles an hour;

but now they served only as anchors in a weightless, directionless existence. Without their confining meshes the members of the expedition would have floated helplessly in their cabin, unable to stand, lie or move to any purpose.

Professor Crispin, the gaunt old astronomer who was senior member of the party, put out a stringy arm through the corded lattice of his hammock and, catching a grip-iron on the wall, pulled himself close enough to peer into the screen of the periscope.

"It is as I said an hour ago," he remarked calmly, almost wearily. "They aimed us for the Earthward face of the Moon. But we're going to miss it."

"Then why talk about it?" came the vicious growl of huge, black-haired Struver, the chemist, who lay next to him. "Isn't it bad enough just to think about sailing off into space and be damned to us? Tragic heroes of science and all that guff." He almost squealed in sudden hysteria. "We'll get our names on a ten-dollar bronze plate, and the subscribers to the Rocket Foundation will holler themselves sick about millions of dollars being shot away into space! Then, after a couple of years, they'll raise more cash, build another ship, load in more poor devils—"

"Oh, please, Struver," protested a younger voice, from the hammock of Don Craikel, next in line. Through the shrouds of netting he showed lanky, well-knit, blond. "The job called for scientists. We volunteered."

Struver glared across at his rebuker. "Sure we volunteered," he snarled. "I was stuck in prison, to be executed for a murder I never—" he checked himself, then amended nervously: "They never proved it, anyway. I got a pardon by signing on here as chemist."

"They tell me," said Craikel drily, "that they emptied the jails to give Columbus a crew. Well, you were going to die anyway."

"I'd as soon die in the chair, with a full tummy and a good night's sleep, as starve in space." Struver's tone changed to wicked mockery. "We know about your reason, too, Craikel. It seems that some girl had the good sense to refuse the brilliant young naturalist, wasn't that it?"

"Cut that," warned Craikel sharply. "I knew from the first that we had little or no chance of survival, but I certainly didn't contract to endure your insults."

"No?" sneered Struver. "Who'll stop me talking, tough guy?"

"I WILL," said the single female member, from her hammock against the far bulkhead. In the few rays that reached her from the lights above Crispin's instruments, she appeared as slender, rather tall for a woman, with a fine-cut pale face and gray eyes beneath a coronet of braided brown hair. "As medico for the expedition," she continued, "I have charge of the food supply. It's all here in the cabinet under my hand—malted milk tablets, biscuit, lime juice and tinned meat. I can send anyone I wish to bed without supper."

Struver subsided with a sour grace, and Crispin spoke again.

"I did not say that we'd go away into space." He sounded fully as weary as before. "Our craft will miss the Earthward hemisphere, but it is within clutch of the Moon's gravity and we will be drawn in and down. Probably we'll land on the far side. Our chance for life will be as good there as if we had gone straight to the center of the original target."

"You don't sound happy about it," suggested Struver.

"I'm not," sighed Crispin. "Like you, I volunteered because I was sentenced to death—a surer death than the one that threatened you. There can be no reprieve from cancer."

The girl spoke again: "I didn't know,

Professor Crispin. I'm so sorry."

"Thank you, Miss Ford," returned the old man gravely.

Struver, his good humor restored by the prospect of landing after all, raised his voice. "Hey, Fordy," he addressed the far hammock, "what brought you along?"

"I was glad of the chance to come," she replied shortly.

"I know, but why? I came to beat a death rap, Prof. Crispin figured to die of cancer anyway, and Jerry Craikel has a poor, poor broken heart. Now what about you?"

Miss Ford laughed softly. "I'm the only one without a reason," she admitted. "It was just that I was glad to come along." She paused, as if to marshal her words. "You see, I hadn't money left to finish my medical schooling. Even if I had, there'd be little chance to do what I wanted to do as a research scientist. But I knew enough to make needful checks on space-travel effects and to prepare a report."

"I call that screwy," the chemist jeered.

"And I call it gallant," snapped Craikel. "Struver, of course, doesn't understand such things."

"Who's being nasty now?" jibed Struver.

Again Crispin's quiet, tired voice: "As to reports, there will be none. If we land on the far side of the Moon we'll be out of sight of Earth. And those signal flash rockets of ours will never be seen by the observers."

Struver guffawed so loudly that his hammock shook on its springs.

"They gave us enough flashes to spell out three hundred words—and they won't have the satisfaction of reading 'em!"

"Your grudge against the Foundation is fantastic!" exploded Craikel.

"Well, aren't they sending us to our death?"

"Nobody begged you to come along.

Heaven knows, your temperament is better suited to the electric chair."

"Stop that," commanded Miss Ford sharply, "or neither of you will have supper."

Again a silence. Then Crispin:

"I'd feel better if we could land in a place where our friends on Earth could observe what happened." He mused for a moment. "No matter where we come down, we can hardly rise again. Leaving the ship is out of the question, with no atmosphere to breathe on the Moon. In a few days we'll use up the air inside our tanks, long before we run low on food or water. Then death. But our adventure and our end would be worth while if we could signal back, could write the history of the Moon in three hundred words—"

"Huh!" broke in Struver. "I could tell what I think of the whole mess with one four-letter word, beginning with H and ending with L."

Silence once again. And, as before, Crispin broke it:

"We're rounding the Moon now, getting ready to curve in behind it."

"Can you see the other side of the sphere?" asked Craikel.

"Well, yes." Crispin's voice sounded even more hushed and gentle than usual. "Only—the Moon *isn't* a sphere."

CHAPTER II

The Descent

AFTERWARD they found it hard to analyze their emotions and responses to that bit of news. Perhaps if they had all been able to see the Moon's image upon the periscope they would have experienced more violent and at the same time more calculable impressions. But all that Craikel, Struver and Miss Ford had was the verbal description of Crispin, who never seemed amazed or disturbed.

It was he who pictured for them the

Moon, now seen from behind for the first time, as an apple with a great bite gone from it. As their craft was drawn around and down, that depression came into plain view on his screen, for the sun illuminated a good two-thirds of this rear face of the Moon. According to Crispin's estimates, the round hole was fully half the satellite's diameter across—a thousand miles—and he guessed its foggy depth as half that. "A great bowl-shaped valley," he summed up, "bottom toward Earth."

"But what—why—" stammered Craikel, trying to grasp this idea.

"My theory," Crispin announced, as levelly as though lecturing a classroom, "is that this peculiar formation is due to Earth's attraction. In bygone ages, when the Moon was still soft and formative, its own center of gravity moved strongly in the direction of Earth's powerful drag. That center, placing itself near the most Earthward point of the face we know, in turn drew in a portion of the opposite surface."

"And what is at the bottom of the bowl?" put in Miss Ford.

"We shall know that presently," answered Crispin rather grimly. "The lowest point naturally presents the strongest gravitational attraction, and is drawing us down to it."

That gave them pause, until Crispin passed on new observations.

"Prepare yourselves for something amazing," he said, his hushed voice tense. "There is atmosphere at the bottom of the gulf—I see its haze."

All three of his hearers gasped. He continued.

"Atmosphere probably means water. It may mean life—"

"What are you feeding us?" snapped Struver. "Who ever heard of the Moon's gravity being enough to hold an atmosphere?"

"It isn't enough, on the surface," Crispin replied with unmoved patience. "But

this is far below the surface—at a point not much more than half as far from the center of things. Naturally the gravitational pull is greater."

"By heaven, you're right!" cried Craikel. "How much air is down there?"

"I can't judge exactly," was the cautious reply, "but the cloudy haze—it must be gas concentrated into something like our own troposphere—forms a pool at the lowest point, a pool that I imagine is more than a hundred miles across. That would mean a fairly dense concentration of gas several miles deep. Above this pool will be a more rarefied layer corresponding to Earth's stratosphere."

"I'm passing something to you, Professor," came the voice of Miss Ford, and the instrument came from hand to hand until it reached Crispin. As soon as he touched it he cried out in warm delight.

"Capital, one of the new Yardley spectroscopes!" A pause, while he manipulated it. "Friends," he added, "here's good news."

"Yes?" prompted Struver, and "Yes?" echoed Craikel and Miss Ford together.

"Of course I have only refracted light," Crispin elaborated, again calm, "but I judge the atmosphere of this gulf to be similar to Earth's. Oxygen, nitrogen, water vapor, carbon dioxide."

"CARBON dioxide!" almost trumpeted Craikel. "You know what that means? Not only air and water, but organic life—creatures that breathe!"

"You don't say," growled Struver, apprehension in his voice. "Maybe they're hungry."

"In the meantime," spoke up Miss Ford drily, "let's do some eating ourselves."

She handed out little packets of concentrated food and small jugs containing lime juice mingled with water. They ate with good appetite but Struver, apparently nervous, spilled some of his ration of drink. For a moment it floated like a

silver-green ball in air, then began to settle slowly into a corner of the compartment.

"Look!" called Craikel. "We're already feeling the gravity of the Moon!"

They felt it increasingly, until there was a definite *down* to things—toward the nose of the craft, that had been *up* at the time of their departure from Earth. They turned their hammocks on the spring pivots and listened to Crispin's running fire of description of what he saw in the periscope screen. At last he paused, reached out his long arm and pulled a lever.

"That's to open the parachute," he commented. "I never thought it would be of the slightest use to us."

"We have rockets in the bow tubes, don't we?" demanded Struver. "Why not use them to ease us down?"

"They were for airless descent," Crispin answered. "Since we have an atmosphere we can get down without blasting the ground away."

Many minutes passed. Crispin, saying something about water beneath, manipulated the parachute lever intricately, then sighed with satisfaction.

"We'll land on the shore," he announced. His companions lay still in their hammocks, hearts fairly bursting in anxious wonder.

Finally there was a soft crushing sound and a shock such as startles sleepers in a Pullman car when brakes are applied. The hammocks vibrated. Crispin gave one last glance at the periscope screen.

"My friends," he said, with quiet exultation, "we've landed on the Moon."

BEFORE the shock of landing had died away, all four were unlashng themselves from their hammocks. Miss Ford, first to set herself free, dropped to the floor of the compartment, landing with a little bounce.

"I feel like a feather!" she cried.

Crispin, too, was down. He bent his knees experimentally, took a little hop, and nodded his head. "We'll make a full checkup later," he said, "but I estimate the gravity at about one-half Earth's. Maybe less." He crossed to a panel, loosened several clamps, and pulled it open. Craikel and Struver, gaining the floor in turn, looked out over his shoulder. It was an odd scene.

Their first impression was of soft and varied colors—blue, green, violet, salmon, red—as of a sea-garden. Miss Ford exclaimed softly in delight. Then they made out details.

The *Messenger* had apparently dived nose-first into a mass of luxuriant growth. Criss-crossing before their little window of vision and as far beyond as eye could see were thick, soft-looking vegetable cables, like vines or branches in a multitude of pastel stage. The light, too, was soft and many-colored, as from stage lamps. Crispin, leaning out, gazed up and down.

"We're caught in the branches of a forest of some kind," he announced.

"Let's get out," urged Struver. "I want to stand on terra firma."

"You mean luna firma," chuckled Craikel.

"Let's test the vegetation first," said Crispin. Opening a clasp-knife, he gingerly cut a chip from the nearest strand and brought it into the compartment on the tip of his blade. Struver bent over it with narrowed eyes, then opened a locker and fetched out several bottles of chemicals and a microscope with light attached. For minutes he fiddled with the specimen.

"Appears safe," he reported. "Of course, it might have some poison unknown to Terrestrial science."

"Let's chance it," Crispin rejoined. He had opened the arms locker and was quickly serving out a rifle, pistol and bandolier to each. Miss Ford took a black medicine case and a haversack with pro-

visions. Struver fastened a chemical kit to his belt, while Craikel slung over his shoulder a musette for specimens. Crispin carried a heavy-bladed machete.

"Now out!" he cried, almost boyishly, and vaulted lightly through the opening. They saw him swinging groundward from one cable to the next, and in a moment his shout of "all clear below!" came up to them. Struver followed, then Miss Ford. The chemist helped lift her down and Craikel felt a sudden unaccountable resentment as Struver's hands touched the girl. He put the idea from him—he was

through with women—and climbed aloft to furl the tangled parachute. Then he scrambled down, last of the party.

Crispin suddenly drew himself up, planted his feet wide apart on the rich, damp loam of the jungle floor, and lifted his machete like a ceremonial sword. He spoke solemnly: "I, George Crispin, do hereby take possession of this satellite and



all habitable territory upon it in the name of the United States of America."

Craikel and Miss Ford came to salute, but Struver made an impolite sound of scorn. "Much good may this place do the U.S.A.," he growled, "How about getting out into open country?"

"A good idea," agreed Crispin, unruffled by the big fellow's sneering manner. He chopped away several dangling strands with his blade, moved into a clearing beyond, then paused. "Look, we have a trail."

AND there was a trail, or rather a tunnel, among the stems. All moved toward it, then paused indecisively.

"The stems looked gnawed," pointed out Craikel. "Some creature made this passage—and a big creature it must be."

"But if it's vegetarian it's probably harmless," argued Crispin. "Anyway, the shock of the *Messenger's* impact among the branches must have scared any living things away. Let's follow it."

They moved into the tunnel. It was fully fifteen feet across and almost as high. As Craikel had pointed out, the stems to either side were gnawed or bitten off, as if a monstrous beast had eaten its way like a worm through a cabbage. Crispin, as leader, moved in advance while Craikel and Struver walked at either elbow of Miss Ford.

For several minutes there was no sound or motion near them. Then, as they left the ship well behind, a murmur of life became audible. Little creatures flew or floated above and around the explorers. Craikel yearned to capture them. Twice, at a distance, came an elephantine crashing among the vegetation.

After an hour's cautious tramping the trail led upward, as though the jungle grew on a slope, and the light became brighter.

"We're coming into the open," commented Struver. Even as he spoke, Cris-

pin halted abruptly and snapped his fingers in warning.

Some yards ahead the tunnel came to an abrupt end, with clear light beyond. And in the very opening of it was a huge, moundlike obstruction. The Terrestrials hung back for long seconds, waiting for it to move. It did not, and they advanced warily.

"An animal," whispered Struver after a moment. "A monstrous turtle!"

"But dead," added Craikel. He was right. Not only was the massive bulk silent, but invested with lifeless immobility. More confidently they approached it.

As Struver had said, there was something turtle-like about the great domed body that all but filled the passageway from side to side and upward to the roof. The integument was hard, too, like a carapace. Beneath it were many legs, a dozen at least, crumpled flaccidly under the great weight. Crispin pushed around the right side to the front.

"It's a natural mowing machine," he called to his friends. "Big, round head, with jaws like chopping knives—"

Craikel, trying to skirt the opposite flank of the carcass, found the tangle of stems too close at that point. The inspiration came to test his Earth-born muscles against the Moon's lesser gravity. He turned toward the big, curving body and sprang.

He seemed to float upward, upward, like a feather blown from beneath. In surprised delight he gained the top of the carapace, eight feet or more from the ground, balancing on his toes.

Then he saw why the thing was dead.

A ragged, raw hole showed in the center of the back. A tangle of fleshy cables bulked through. Entrails? But they moved sluggishly. Moved toward him.

Even as he half-stumbled, half-slid back to the ground in unmanned horror, he saw the Thing moving slowly clear of

its foul resting-place. A frill of tentacles, each tipped with a curved claw—a fanged mouth in the center, like the horrid heart of some devil-nurtured flower—

Then he was among his companions, who gazed in shocked surprise at his pale face.

“Come on,” he mumbled sickly, and without ceremony pushed past the huge dead beast, out of the jungle and upon a great plain of lichen-like sward, purple-brown in color.

CHAPTER III

On the Plain

CRAIKEL'S panic communicated itself to the others and they fairly scampered after him, fully fifty yards over the crunching lichen of the open country. Pausing at last, they gathered around the naturalist to hear him tell of what he had seen, in a voice that quivered despite his efforts.

“That jungle seems to have unhealthy citizens,” observed Crispin.

Beyond them the plain spread for miles, with foothills in the distance and beyond them cliffs and heights crowned with mist. Crispin, pointing out the absence of

horizon, reminded them that they were situated, not on the curve of a globe but on the bottom of a huge bowl.

“Well, what next?” demanded Struver.

“Why not get to that rocky point?” suggested Miss Ford, nodding in the direction of an uneven pyramid of what seemed like granite, not more than a mile away. “We can climb it and observe the country.”

“Well said,” approved Crispin, and they turned their faces toward it.

There was less sound of life on the plain. A light breeze seemed to rustle the fleshy growth underfoot, but there was no movement of great bodies, as in the jungle. Far overhead hung several angular patches, but what they were nobody could see, not even with Crispin's glasses.

In ten minutes—they moved swiftly against the lesser gravitation—they reached the rocky hill. It was nearly a hundred feet high and steep in places, but they made shift to scramble up. Craikel, helping old Crispin, found time to wonder at his distaste over Struver's officious assistance of Miss Ford.

At midpoint of the climb they crossed a trickle of water that went downward at an angle, and on the little table-like surface at the top they found its source



A SKEPTIC IS CONVERTED

ANN: I dread taking this awful-tasting medicine. It leaves me weak as a kitten.

RUTH: You're foolish to take a cathartic like that. Try my stand-by... Ex-Lax.



ANN: Why, this tastes just like fine chocolate! But will it really work?

RUTH: Yes, indeed! Ex-Lax is effective—yet it doesn't upset you.



LATER

ANN: Thanks to you and Ex-Lax, I feel wonderful this morning.

RUTH: I *knew* you would! In our family we all use Ex-Lax! It's so dependable.

The action of Ex-Lax is thorough, yet *gentle*! No shock. No strain. No weakening after-effects. Just an easy, comfortable bowel movement that brings blessed relief. Try Ex-Lax next time you need a laxative. It's good for every member of the family.

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—a spring that bubbled like champagne in the midst of a lush patch of the same purple-brown lichen that covered the plain.

"Your eyes are younger than mine, Craikel," said Crispin. "Take my binoculars and observe what you can."

The naturalist complied.

"I don't see over the jungle," he reported after a moment, "but I can see around it for a bit. As I judge, it's well downhill from us, and apparently occupies the bottom of the basin."

"Easy to see why," commented Crispin. "The lowest point in the depression is naturally the warmest, and the dampest as well. The water has collected there in a little sea, with the jungle around it representing the lunar tropics. This plain is comparable to the more temperate zone. Perhaps the heights are arctic."

"And the whole thing many miles across," added Craikel. "More than a hundred—wasn't that your estimate, professor?"

"Why not a map?" put in Miss Ford, rapidly sketching on a bit of paper.

"Splendid!" applauded Craikel. He paused to admire the girl—he had never before noticed how distinctively lovely was her strong yet fine profile, like a classic medallion bending over her work.

Struver, on his knees beside the spring, glanced up. "While you're fooling with those observations, I've found something worth while," he boasted. "This water's apparently good to drink."

Crispin dipped up some in a collapsible cup, drained it and pronounced it excellent. Craikel filled a cup in turn, offering it to Miss Ford.

At that moment a shadow fell upon them—a black, moving shadow from overhead. All four faces turned skyward.

SOMETHING dark and huge, like a monstrous kite, was swooping down upon them.

"Look out!" screamed Struver, and flung himself flat. Quick as light Craikel had pulled the girl down, his cup of water drenching them both. Only Crispin stood erect, his gaunt old body tensing like a bundle of wires. The thing descended like a falling blanket. From it extended a long, lean whiplash, a spine-pointed feeler, aiming for the professor's chest.

He did not flinch. His right hand flashed up, the machete singing in air. An unearthly voice yelped overhead, yelped like the ghost of a fox. The severed feeler dropped on the rock beside the spring. Like a wounded snake it writhed and thrashed.

Craikel, rising to one knee above the prostrate girl, fired with his pistol, fired again and again until the magazine was empty. The monstrous kite-thing overhead quivered and squirmed in midair, then collapsed and fell with a thud almost upon them.

Other kite-creatures — dozens — were descending from above like great dark flakes of some noisome snow, but at the downfall of their leader they seemed to falter, to hesitate in midair, Miss Ford, catching up her rifle, fired it at the nearest. Craikel, feeding another clip into his pistol, began to blaze away into the thickest part of the swarm. Crispin also caught up the rifle he had laid down.

It was Struver who saved them. His impulse had been to seek safety rather than to fight, and he had found that safety—a rift in the rock. At his yell the others glanced around to see him vanishing into it, and gladly they followed. Barely had they slid into the shelter before the kite-creatures descended around them like crows around carrion.

But now the explorers had the advantage. Half a dozen of the fluttering kites died almost at the muzzles of the four rifles. One or two sting-bearing feelers got close enough to stab in at the crevice, but the watchful Crispin slashed

them off before they found their mark.

Thus the battle raged for perhaps a hundred and twenty seconds. Then the surviving attackers soared away and upward, turning over and over like leaves in the wind.

The Terrestrials did not venture forth at once. Instead they examined their refuge—a slanting crack some eight feet deep and three feet wide, its bottom filled with damp mould.

Craikel wiped his forehead. "That was close," he muttered.

"What were they trying to do?" asked Miss Ford, loading her weapon.

"To eat us, I think. Look at these specimens we just shot down." Extending the butt of his rifle, he drew one close. "They're carnivorous, right enough. Each has a big hooked beak like a vulture, see?" He pried open the beak with the muzzle of his pistol. "One grip and wrench of that apparatus would carry away your arm."

Further investigation of the carcasses showed them to be at least ten feet across by a dozen long, and almost as flat as a great piece of sole-leather. However, Craikel's scientific probing showed that there was a great stomach-like organ that might be greatly distended by feeding. At the center of this stomach on one side was the powerful beak, at the center on the opposite side the feeler. This latter organ, fifteen feet in length and as thick and flexible as the tail of an ox, was tipped with a barbed spine six inches long and as sharp as a needle. Struver, examining it, said that it was probably poisonous. Crispin was deeply interested.

"Almost as nasty a monster as the thing you encountered on the back of the big turtle-creature, Craikel," remarked the professor.

"Apparently they're used to preying on something helpless," added Miss Ford. "We were more of a tartar than they

were used to. Perhaps they'll be more careful and more deadly next time!"

THE kite-creatures had been repulsed, but not routed. When Craikel ventured forth to drag another carcass near the shelter, the entire flock came pouncing upon him, like hawks upon a rabbit. They were unthinkably swift, and only the quick volley of his comrade's rifles gave them pause and allowed him to gain safety again.

"They mean to keep us cornered," commented the girl, tightening her braided hair across the top of her head. "At least we have a supply of food. Will they hand around for long, Mr. Craikel?"

"I can't tell," Craikel replied, "and see here, why be formal? We've just been fighting side by side? Can't we use first names? I'm Jerry."

"Very well," she agreed demurely. "I'm Elspeth." It was the first time any of them had heard her Christian name, and Craikel thought it pretty. Struver snickered.

"While we're all being chummy and unbuckled, call me Ross," he volunteered. "I like being sociable. Say, Elspeth," and he savored the intimacy of using her name, "how about supper?"

"Very well," she replied, and produced their customary fare—tinned meat, milk tablets, biscuits and limejuice. Craikel made another dash into the open for water and scurried back with a full canteen while the kite-creatures lowered above him. The explorers made a hearty, even cheerful meal on the plain food. Crispin surprised himself with his own appetite.

"Never felt better in my life," he protested. "That water—"

Struver looked at him as though in sudden inspiration. "You like it?" he suggested eagerly. "It seems to ease up your cancer pain?"

"It does that," replied Crispin enthusiastically, and Struver nodded. Then he turned his attention to a black encrustation on the rocky wall of their cavern.

The other three examined the two specimens of kite-creature. Craikel investigated with scalpel and forceps the mouths, the roots of the feelers and at the junctions of tissues. Particularly was he interested in tiny disks of transparent-seeming horn that plentifully besprinkled both sides of each monster.

"They're like lenses," he pointed out. "What can they be for?"

Crispin examined them in turn, then focussed his binoculars on the hovering swarm high overhead.

"Look at the way they fly," he invited the group.

Craikel and Elspeth Ford both looked. "It's queer enough," admitted the naturalist. "When they want to mount up they keep turning over and over. Why?"

"And when they descend they keep steady," added the girl. "One side up, one side down."

"But they don't flap, as with wings," summed up the professor. "What's the secret, Craikel? Could these natural lenses you've been wondering about have something to do with it?"

"That's what it is!" almost yelled Craikel, so sharply that both Crispin and Elspeth Ford jumped.

"**S**OLAR energy, assimilated and employed by nature," he continued in high excitement. "They gather it through the lenses on one side, then turn that side under and apply the energy to push them upward. When the supply thins out they turn the other side, now charged, under." His voice rose even higher in his excitement. "Like climbing on rungs of sunlight—"

"You're right, boy!" whooped Crispin, becoming infected with the amazing idea.

"Nature always outstrips science. And now if we can only diagnose—"

Struver snorted from the shadowy corner where he crouched apart. "I'm doing some discovering, too," he said in a meaningful voice that made them all turn.

In one big hand he held out some black crumbles. "Pitchblende, or something like it," he announced. "What you said, Professor, about feeling healthy after drinking the water made me wonder if it wasn't radioactive in some way. So I began to test this rock."

"Well?" said Craikel, his tweezers busy with one of the horn lenses of the largest kite-creature.

"Why, we're rich!" exploded Struver. "This stuff is filthy with radium, richer far than anything I ever heard of on Earth. We'll be millionaires, kings even!"

"You forget," interposed Crispin drily, "that we're marooned in this hollow of the Moon."

Struver scowled, then looked blank.

"And it's getting cold," supplemented Elspeth Ford, shuddering a trifle. Craikel glanced at her apprehensively, and she smiled as if to reassure him.

Crispin gazed outward and upward.

"Shadows have grown long, all right," he reported. "The sun must be leaving our crater. Look, the kite-creatures are drifting away toward the bluffs."

"Hunting their lairs," guessed Craikel. "If they need sunlight to energize them, they'll be helpless at night."

Struver said nothing. His narrowed eyes were poring over the handful of pitchblende specimens. For a moment he seemed ready to throw the stuff away. Then he poured it into his pocket and began to chip more from the rock.

Twice in the hours that followed the Terrestrials sought to venture from their shelter. Each time several kite-creatures dropped down to chase them back. Finally, weary and disheartened, the three younger members of the party crouched in

the cavern to doze while Crispin kept watch. They woke to his nudging hands and serious voice.

"Get up, get up," he urged. "We've got to start back to the ship."

Elsbeth Ford yawned rather prettily, then shivered more violently than before. "It's grown colder," she complained.

"Just so," agreed Crispin. "It's almost night, and apparently it gets quite chilly. The kite-creatures are all gone. We'd better get back to the *Messenger* while there's still light enough to see our way."

CHAPTER IV

Retreat by Twilight

THE air was genuinely frosty as the quartet left its hiding, slid down the face of the rock and headed jungeward across the plain.

"It must be the shallowness of the atmosphere," remarked Crispin. "It releases the heat mighty quickly."

Elsbeth Ford thrashed her arms to and fro to keep them warm. "I'll make a note of that for my medical report—though there's nobody to report to." She glanced toward the jungle. "Look! Dinosaurs!"

Great bodies were moving from the jungle into the open. Their size and rounded backs showed them to be of the same species as the dead gnawer they had found at the outer end of the tunnel.

"Vegetable eaters, and undoubtedly harmless," Craikel soothed her. He had begun to enjoy soothing her. "They dare venture out now because those murdering kite-creatures have gone to roost."

The great wall of vegetation showed many tunnel-mouths as they approached and the denizens of those tunnels waddled awkwardly across the lichen by dozens. But one opening, directly in front of them, was partially blocked by a motionless bulk.

"That's the way back to the ship," said Crispin, pointing. "Let's take it."

"But is that nightmare still on the turtle-thing's back?" Craikel wondered, trying not to appear nervous. "I wouldn't care to cross its trail again."

"Scared?" Struver chuckled spitefully. He glanced at the illuminated dial of his wrist watch. "We've been gone a full twenty hours. The thing, whatever it was, must be miles away. Take a chance, Craikel."

Elsbeth Ford encouraged Craikel with her gray eyes and he, remembering how he had just spoken so confidently to reassure her, felt ashamed of himself. In silence the group reached the opening among the stems.

"It looks dim," remarked Craikel, unhooking an electric torch from his belt. He pressed the switch and a gush of light penetrated the shadows around the great dead thing before them.

All four of the explorers gasped, with one horrified voice.

The silent dome of tissue crawled with shapes, like a legion of immense spiders upon a Gargantuan egg. Craikel, flooding them with light, saw at once that they were of the same repellent race as the sluggish monster he had startled on that very back some hours ago. But these were not sluggish. They crept and postured to and fro, each a tangle of sickly-hued tentacles with taloned tips. From their central portions, each as big as a bushel basket, eyes gleamed in the glow of the torch, gleamed green and defiant.

"Octopi," breathed Elsbeth, and clutched her rifle tighter.

"Of a sort, perhaps," replied Craikel, still the naturalist despite his overwhelming disgust and dread of the things. "They must be nocturnal—come out at night to eat what they can find, and drive the turtle-backs into the open—"

Beating down his horror, he took a step forward, then another. Before the

glare of his torch the foremost pair of vermin began to shrink back, while several others, high up on the clawed and ripped back of their pray, swung monkey-like into the upper jungle.

"They're arboreal," Craiken said at once, "and afraid of light. Anybody else got a torch?"

"I have," responded Crispin, and produced a second flashlight. The two men moved still nearer, though it took all their courage to drive themselves. Elspeth Ford and Struver followed cautiously behind. As Craikel had guessed, the many-armed climbers could not stand the impact of light. They all retired, either behind the shelter of the dead turtle-back or up into the branches. Skirting the carcass gingerly, the four passed it and gained the tunnel beyond. It was quite dark there.

"Keep close together," directed Crispin, speaking calmly but seriously. "Craikel, lead out. Mind you keep your light everywhere at once. Struver and Miss Ford next, with rifles ready. I'll bring up the rear."

THEY moved toward the interior of the vast thicket, a compact little torch-light procession. They did not speak and their feet made only a slight noise on the mould. Before many minutes they heard rustlings overhead.

"They're following us," muttered Struver thickly.

Craikel flung upward the questing beam of his torch. Half a dozen sprawling, wriggling forms clambered hastily up, away from the evident discomfort of the light. But in the tunnel ahead, now illuminated, came the sound of a soft plop, then another and another. Bringing his beam quickly forward and down again, Craikel revealed several of the climbers moving forward to meet them like immense, stealthy crabs.

Elspeth Ford gave a little sob, then thrust her rifle-muzzle past Craikel's el-

bow and fired point blank at the nearest. It crumpled abruptly, but its writhings showed that it still lived. The others scampered backward on the tips of their armed tentacles, then paused as if to prepare for a rush.

"Shoot again!" cried Craikel, lifting his right hand. His snapshot missed. Struver, aiming carefully, had better luck. His heavy bullet sheared a tentacle from one of the things, and it hurried back out of sight, the fight taken out of it.

"Watch everything," called Crispin behind, and his own weapon spoke, the creatures were attacking from the rear as well.

Despite the growing cold, perspiration started on the brows of the Terrestrials. They moved slowly—snail-slow, it seemed—between phalanxes of stems and under a criss-cross of boughs that were laden with lurking, rustling enemies. Twice more the climbers tried to close in, to be driven back by volleys and frantic flourishings of the torches.

Suddenly Craikel gave a joyous cry. "The Messenger!"

Above them and just beyond the stems to one side hung their craft, exactly as they had left it, with the dying light filtering through the broken roof of the jungle to touch it into feeble gleams. Gingerly but gladly they made their way to a point directly beneath it.

"I'll reconnoitre," said Crispin.

"Not you," flung back Craikel. "I'm the best climber. Let me have the machete, in case of a scuffle up there. Here, Elspeth, take my torch." He thrust it into her hand. "If all's clear above, I'll sing out."

Elspeth's face, very pale and lovely, came close to his in the light of the torch. "And if all isn't clear above?" she prompted softly.

"I won't sing out," he responded, trying to speak gaily.

He slung his rifle by its sling across his

shoulders and loosened the pistol in his holster. The machete, so light-seeming on the Moon, he clasped in his strong teeth like a pirate with a dirk. Then, nimbly as a monkey, he swarmed upward. In thirty seconds he reached the darkened oblong of the open port.

"All cl—" he began to call to his companions below.

At that moment half a dozen cable-like tentacles whipped around him.

THE clutch of the attacker had been hasty, and included stems before and behind Craikel. These took the brunt of digging talons, which otherwise might have disembowelled him at first encounter. As it was, he was clamped as in a vise, his right arm so pinioned that he could not draw his pistol.

His left hand flashed up to the machete in his teeth. Clutching the weapon, he struck out at random in the darkness and felt the edge bite. A rank, almost bitter smell assailed his nostrils, and his captor quivered.

"You filthy swine!" he yelled wildly, as though the monster understood him. "I'll split you in two!"

More climbers were rustling in the branches around him. They were closing in to the kill. He slashed again, but only lopped a branch. The coils around him drew tighter. Involuntarily he emitted a gasping cry.

"Jerry!" rose the tremulous voice of Elspeth Ford from beneath. "What's happening?"

He did not answer, but smote frantically a third time. One of the tentacles around him relaxed—he must have chopped it off.

"Craikel!" yelled Crispin, on the ground. "Is anything wrong? Shall we—"

"Defend yourselves!" Craikel managed to scream back. He wound his left arm around a stem, thrust out a foot to push against a slimy bag of body, tried to force himself free. It was hopeless. The creature was stronger than he.

Gulping respiration sounded almost in his face. The thing's body was forcing itself upon him. He sensed, rather than saw, toothed jaws in the gloom. Drawing back his left hand to shorten his stroke, he jabbed with the blunt point of the machete. The teeth closed raspily on the steel, and he felt the stout blade vibrate. Below him came a sound of violent motion.

Were the climbers trapping him by cutting him off there?

"Jerry!" Again it was the voice of Elspeth Ford, much nearer. Next moment a beam of light came upward, to fall about him like a bath.

"Stay away," he warned her, then said no more. Her light had revealed his enemy to him. Its green, malevolent eyes were close to his, its fangs gaped open



to tear him. But his machete struck once again, and this time it went home. The great squashy body burst under the impact, gushing juice like a ripe fruit. The imprisoning tentacles sagged away.

Elsbeth had reached a fork of the stems beside him. The other climbers were scrambling forward to the attack, even in the face of the light they hated, but both Craikel and the girl brought into play their pistols. Under the first shots one of the approaching horrors let go all holds and fell with a crash of foliage and a final splattering thud to the ground, while another slipped, caught hold again and hung silent as if paralyzed. The others drew back out of sight.

"Come on up!" yelled Craikel down to Crispin and Struver. "We've got them buffaloed for the moment!"

The two men quickly mounted upward, but the climbers made an assault upon them that was quelled only by the pistol fire of Elspeth and Craikel above. A talon tore Crispin's shirt and Struver narrowly missed capture. Coming together, the four Terrestrials managed a wary retreat into their ship. A final rush of their frantic foes was checked by a concerted volley of their guns. Then the panel was in place and the explorers drew a weary, thankful breath.

"I've forgotten how cold it was," murmured Elspeth, and once more Craikel pondered how lovely she was when she smiled.

Quickly Crispin turned on the electric heater and the lights. Then they sat down, the four of them, with their backs against the bulkhead, to recapitulate their findings.

"First of all," said the old astronomer, "we must get used to the idea of living here. As I have already said, I compute this habitable saucer to be a little better than one hundred miles in diameter. That makes an area of around eleven thousand miles—a little more than the island of

Haiti and a little less than Belgium. And it's varied with sea, jungle, plain and mountain, with temperatures ranging from torrid to frigid. Not too monotonous a prospect."

"I don't like the neighbors," grumbled Struver. "In the open it's kite-creatures, in the jungle it's climbers."

Craikel spoke to the chemist, but his eyes were on Elspeth Ford. "You can dodge those neighbors. The climbers are nocturnal, as I judge. The one I saw on top of the dead turtle-back had apparently attacked and killed its meat just at dusk, when the poor old waddler was trying to get out on the plain. The thing was just twitching when I saw it, was almost torpid. So we can stay on the plains at night and in the jungle during the daytime, when the kite-creatures are active."

Struver nodded a rather glum agreement, then produced his pitch-blende specimens and regarded them ruefully. "This stuff would make us rich on Earth," he mourned.

"We're rich here," said Elspeth. "We own a world, don't we?" Her gray eyes challenged the big chemist, who grinned at her.

"If you say so, baby. And you're the queen." His tone grew insinuating. "When are you going to pick your king?"

"Really," and she laughed, as if to pass his remark off as a joke, "must I do that?"

Struver's heavy face grew serious. "I'm afraid you must," he said.

He made as if to rise and move toward her. Craikel felt his own muscles tighten, his blood stir in protest. He, too, almost rose. But Elspeth laughed again, and her laughter dismissed the subject.

"Meanwhile," continued Crispin, speaking casually but watching the two younger men closely, "we must remember that only by strong cooperation can we survive."

CHAPTER V

Eden

CRISPIN'S three listeners, watching his face, suddenly saw it change expression. The wise old eyes dilated, the lips cracked apart to a sudden excited grin.

"Why didn't I realize it before?"

"Realize what?" demanded Elspeth at once.

"The rockets, the rockets we saved!" The astronomer was almost capering in triumph. "Stay here on the Moon? Not we, we're going home!"

Struver almost roared his incredulous challenge as he heaved his big body erect. "What's the joke? Isn't it kind of silly?"

"It's fate, man, it's fortune—beyond science!" flung back Crispin jubilantly. "First of all, we're caught high among the stems, and part of them can be cut away, gradually lowering and turning the ship—"

"So that its nose points upward again," added Craikel, suddenly understanding. "But fuel, sir? Where's that coming from?"

"We have it. The forward load, which was meant to brake our descent on the airless surface." Crispin spread his hands in explanatory gestures. "It's only a slight supply, of course, but we're light-weights here, besides the absence of most of the original fuel weight we started with. We can switch that stuff to the rear rockets."

Struver shrugged his massive shoulders and shook his head. "We'll go tearing off in the opposite direction from Earth," he argued. "Be worse off than ever."

"Not by a long shot," Crispin assured him. "As we come up clear of this hollow, we'll cut the blasts. The gravity of the Moon will drag us back, of course—we'll retrace part of the curve we followed to get here. Then, just as our nose points

Earthward, we'll fire our final blast, the signal rockets which we also retain. And we'll be on our way back, with a parachute landing at the finish."

"By God, you're right!" yelled Struver, comprehension dawning at last. He, too, began to jig and hop in delight, then he swung toward Elspeth. "Honey, I could kiss you!"

She took a backward step to elude his grasping hand, and Craikel, suddenly boiling into a rage, moved between them.

"None of that, Struver," he warned between tight lips.

"No?" The chemist's broad face pushed close to his. "How would you like it if I declared you out of your share in the radium mine?"

"You can't declare anybody out," Crispin interposed.

"Why can't I declare anybody out?" he demanded of Crispin. "I found the stuff, I have every right—"

"Wait a minute," broke in the older man. "Do you remember a certain ceremony through which we went when we first landed! I took possession of the Moon in the name of the United States."

"So what?"

"So the radium mines go with it. It's up to the government and the Rocket Foundation to—"

"To rob me!" howled the outraged chemist, and struck out with his fist. Crispin went down like a skittle-pin.

CRAIKEL whirled away from Elspeth in time to see the stricken astronomer collapse. Even as he did so, Struver leaped forward and the two grappled. Craikel, the lighter, fell beneath in the scuffle.

"So we'll settle things this way," panted Struver, striking with clumsy power at his adversary's face.

Elspeth screamed, caught his elbow and tried to drag him away. A sweep of the big man's arm flung her clear across

the cabin, but she had gained time for Craikel to move in and attack again.

Lighter but more active, the naturalist avoided a second grapple. He smote Struver a chopping blow under the ear, ducked under a clutch, and sent a stinging left jab to the face. Struver moved forward, Craikel sidled back a step, then another. His heart chilled. He was pinned against a bulkhead.

An evil grin split Struver's marked face. "Got you cornered!" he blubbered through bruised lips.

Abruptly he changed his hold to a bear-hug, and his hands behind Craikel began to grope for the catch of the lock-panel.

"Out you go!" he jeered. "There's a reception committee out there—the climbers—want to shake hands with you—"

A rush of frigid air swept over them. The panel was open. Behind him Craikel could hear the rustle of approaching tentacles among the stems.

Something moved on the floor. Crispin, still half-stunned, was trying to rise. Struver swore and launched a kick at him.

And in the moment that the chemist stood on one foot, Craikel summoned and exerted his strength. A grip and heave, and Struver was struggling shoulder-high, was whirling over Craikel's head like a sack of grain being tossed into a hopper. Elspeth screamed. There was an echo—Struver's deeper voice, in mortal fear. He flew through the opening, smashed among the creeping vines and withes outside.

Craikel jerked the panel shut, but not soon enough to screen away a last glimpse of the chemist kicking and thrashing in the grip of the creatures outside. One more scream rang out, then silence.

Crispin was sitting up, holding his bruised jaw. Elspeth, pale-faced, almost fell into Craikel's arms.

"FOR the last time," Craikel was saying firmly, "Elspeth and I aren't going along."

It was broad lunar day again, and the sunlight filtered through the broken foliage of the jungle. It struck angular lights on Crispin's baffled old face. Craikel, lounging against a big stem, was smiling but obdurate, and Elspeth, standing close to him, thrust her arm through his and clasped his hand. She looked at the *Messenger*, now nose upward.

Crispin thrust his hands into the pockets of his breeches. "This is all very romantic, my young friends," he protested, "but you must come back. You're throwing away the worship of all Earth. When we get back—"

"When *you* get back," amended Elspeth.

"Yes," Craikel chimed in. "Go it alone, sir. Tell the story and reap the glory. You deserve it anyway, and you'll enjoy it for years."

Crispin grinned. "For years!" he repeated. "Once I thought my very days and hours were numbered. That's all changed—no more cancer."

"The lunar water, or air, did it," said Elspeth. "I've not had time so far to do more than thank God for your recovery. Now I can do real research into the why and wherefore."

Crispin sighed.

"Once more I marshal my arguments," he offered. "Dangerous beasts."

"We have weapons," replied Craikel at once. "Anyway, we'd rationalized the business when we thought we must stay here forever. We can alternate between the jungle, where the climbers are torpid by day, and the plain, where the kite-creatures cannot move by night."

"But the night is cold," persisted the astronomer.

"Fire," flung back Elspeth, "and a good cabin of stone or wood."

"Loneliness!"

Both young people laughed aloud. "You dare think we'll be lonely!" cried the girl.

Crispin sighed again, and this time it was in resignation.

THEN I ride back alone. I suppose I should congratulate you two—but it'll be a boresome ride for me."

"We're sorry about that," said Elspeth, "but come and visit us again."

Impulsively she stepped close to the old man and kissed his furrowed cheek. He started as though stung, then his lips curved into a tender smile.

"God bless you both," he said gently. "On your way, then. And before many weeks I hope to be back. The radium ore will finance a new trip, and my story will inspire others to accompany me. Not broken spirits this time, but the right sort—the sort the Moon will need for its new people."

Craikel pressed his right hand and Elspeth his left. Then the astronomer took hold of a vine preparatory to climbing aloft. The two younger people stooped to pick up their packs and rifles.

"Give us ten minutes to get out of your rocket-blast range," requested Craikel, "then take off."

Crispin began to climb toward his ship. Elspeth and Craikel trudged briskly away.

For minutes they traversed the jungle in silence. Then, like the detonation of a far-off battery of great guns, came the rumble of rocket blasts. The ground shook beneath their feet.

Swwiiiiish! It was the roar of the departing space-vessel.

For a moment they stood listening. Craikel eyed Elspeth a little anxiously.

"Sorry you stayed?" he suggested.

She turned up a radiant face. "Jerry, I was never so happy in my life!"

THE END

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By **RAYMOND Z. GALLUN**

ANOTHER reporter, hey? And you want the straight stuff about me and the Guardian Angel? Sure, pal, sit down nice and comfortable. My drink is Scotch.

It's a sorrowful tale. Lots of times I feel like a damn fool, thinkin' about all the chances I missed, bein' too doggone reckless. . . .

I was low the day it started. Gasket Lengrin, that wet-rag boss of mine, said I looked so blue you could use me for paint. To be frank, woman-trouble was what it was. And hurt pride. Daisy Katz, the cute Blonde down the line from the Eureka-Superb Reconditioned-Car Lot, which is our establishment, had gone an' got terrible mad at me.

She was kind of broad with her words: "You are not a death-defyin' hero after all, Humpty Collins!" she has told me. "You are just a gosh-awful dumb tangle-foot who will try any crazy thing not once but again and again, and come out on the short end every time! Not only have you stepped on my feet dancin', but I have heard stories from different people. Of course I could see before that you ain't handsome. You are fat as a hippotomus. Not even countin' the scars, you got a face that would make the bottom-side of an old barrel look pretty. I might be willin' to disregard these facts, but not when I find out you are a terrific braggin' wind-bag, an' so clumsy that it's just the stiffness of your knees that keeps your legs from tyin' themselves into knots when you walk!"

Ouch! Daisy was sore enough to eat tacks, all right! Her mean words hit me so hard, it didn't do no good, even, to remind myself that I am a smart guy, in spite of what anybody says. Oh, you don't have to take my word for it! Ask my most conscientious critics. There ain't a man in this town that can make a weary old automobile perk up and sing, as quick or as good as Humpty Collins!

Well, I go to our little corrugated-iron office on the car-lot, hoping Gasket will cheer me up. But he just laughs and wise-cracks. As I'm leaving again, he hollers after me:

"On your way to the River, don't forget to stop at Randy's Place, Humpty!"

This is real good advice. Gasket knows that two sniffs of a cork are generally about enough to make me happy, no matter what. Which is not a thing to be ashamed of, but genuine efficiency.

I DON'T get to Randy's though. I just drive and think. It is a most gorgeous Spring day.

Out in the country I see a flash of fire in the sky, an' hear a sound like a circle-saw cuttin' through an old oak fencepost full of nails. Then there is a big puff of dust in a fresh-harrowed field near the road, as if somebody threw a big stone, and it landed there. After that first puff, though, a funny thing happens. A few seconds later there is a smaller puff, and then another and another and another, as if a extra-fast rubber ball is bouncing to a stop.

I am very much interested. I park my old jalopy in somebody's driveway, and I climb over the fence. I run forward to see what it is.

I have a hunch I know what has happened. A lot of meteors have been fallin' from the sky lately. Accordin' to the papers this is because Morrison's Comet has come about as close to the Earth as it is gonna get, an' there is a lot of loose rocks an' stuff sorta taggin' after it.

But I see, too, that this ain't no regular meteor that has made these puffs of dust and dirt, which have now stopped. I ain't never seen the common kind of fallin' star bounce along like this.

I keep running real fast. Pretty soon I come to the place where the first bounce has occurred. It is an ordinary hole in the loose ground, and it is not very deep. A little ways on, there is a second hole, not so large. Then there is a third and a fourth. Maybe ten altogether, strung out in a row.

At last, practically lyin' right on the

surface, with almost no hole around it at all, I find the thing! It is a most curious object, and it ain't half burnt up like the other meteors. To tell the truth, it is not damaged a bit. Because I am very excited, I pick it up quick, and afterwards I am extremely surprized that it is not hot enough to scorch my fingers. It is just a little warm.

I examine it careful. By now, of course, I have entirely forgot to be sad about the blonde, because what I have discovered is extraordinarily fascinating. It is black, like old crankcase drainings. And what do you think this remarkable object has turned out to be?

It is a doll. Yep, that's a fact! A doll like maybe I'd give my little cousin, Bernadine, for Christmas. Only this would not be good taste, because she'd think it was deformed, and it might scare her awful. Besides, it has stiff joints more like a statue to put on a shelf. It has six arms, and each arm had two elbows. But it has a pair of nearly ordinary legs. It is maybe eight inches high, and its face is real sharp and cruel-lookin'. It has long, pointed ears, and its eyes is red and shiny, being either rubies or dime-store glass jewels, I don't know which.

That is all you can see about this doll or statue. But then I began to feel something which is most unusual. Holding what I have found in my hand, I seem to have lost plenty of my two hundred and forty pounds weight. It has gone down to I think about fifty pounds.

On account of that I have so much less to carry along with me when I walk, I am indescribably pleased. I want to tell Gasket Lengrin about my good-fortune right away. So I start to run again, back toward where I have left the car. My feet fly along, light as a fairy's. Everything is okay until I have my legs across the barb-wire fence. Then, in my haste, I lose my balance. Wup I go, down into the bushes on the other side.

IMMEDIATELY I am sure I have gone and torn my new ice-cream trousers again. But when I take steps to learn the extent of the disaster, I am happy to find that there is nothing wrong with my pants, except that there is a lot of field-dirt in the cuffs. I shake the dirt out, and I consider even more interesting facts.

I am not bruised by my fall. The bushes I have landed in are wild roses, but I have not been pricked by the thorns. And I remember that when I hit the ground, I did not feel any jolt at all. I have come down right on my head, but there is no bump on it. It has seemed that there is a lot of invisible rubber protecting my cranium.

I sit there, ponderin' an' ponderin', and after a while I get an idea. I have always believed that I am a round peg in a square hole. In the past I have been very ambitious, an' now I am almost sure that I am going to be famous before long.

I arise. I put this peculiar-looking doll or image I have discovered, in the inside pocket of my coat, just to get it out of my hands. I peer around. Nearby, along the fence, there is a red granite boulder.

I go over close to that big rock. I double up my fist and get myself set. I swing back hard to pick up power. Then I let my arm shoot out and down toward the rock. Every bit of my strength is back of that drive, and I am a very strong person.

It is remarkable indeed what takes place. I don't break any bones like I would ordinarily expect. My knuckles don't even touch the granite. Because there is something in between, that I can't see.

I try again. It is like I have a big boxing glove on my hand, only much softer. My fist bounces off the rock as though it was made of rubber. And the bounce is so powerful I am knocked over backwards. I fall down into the ditch along the road.

But again I am not hurt at all!

So, as I climb to my feet, I am fairly flabbergasted. But it is all pure joyfulness. Because I am just a very good ordinary mechanic, and do not understand Einstein, I realize now that while I have this funny doll on my person I cannot be injured no matter what I try.

This fact gives me many pleasant thoughts about how I am going to become great, like the parachute jumpers at the Pottsville Fair. And when opportunity knocks, I am not slow to take advantage.

Double-quick I get into my car and drive like hell in the direction of town. On the way I run over some chickens and lose a front fender grazing an arterial-stop sign, but I don't give a damn. All the time I am in ecstasy, cooking up better and better stunts to experiment with, now that I am a superman.

Before I am halfway to town, I think of a stunt that is a real peach. I figure immediately that it will make any magician's eyes pop. It is real gruesome and scary—a regular thriller. But of course I am sure, the way things are, there ain't even a bit of harm in it. It ain't like smoking next to a gasoline can, for instance.

I GO to Mrs. Schroeder's house, where Gasket an' I live. Out of the clothes closet in our room, I take my deer rifle, which is a monstrous old Krag. With this gun and a softnose, high-speed bullet, I have once shot a skunk, and have left nothing but the tail and an awful smell in the air.

I open up the breech, just to be certain I won't pull no boners. Nope! Not a chance! Right there in the ejector-claw, I see the brass of a fresh cartridge gleamin'. It has a soft-lead slug that is hollow at the tip to make it splay out better, and tear a lot more effective, when it hits whatever tries to stop it. It looks extra

ugly and purposeful. This gun of mine is loaded sure as thunder.

I already have decided that Gasket Lengrin is a fine audience to try my stunt on for the first occasion. So I drive to the car-lot. I find Gasket still in the office. Being in charge of the sales-an'-general business-departments of our firm, he is working over the books. He glances up as I enter, and right away I notice he is slightly worried. Me carrying that Krag, and being real happy in spite of no liquor and no Daisy Katz, sorta gets him.

But this, I know, is swell psychology. It is a good deal like the psychology the barkers in the sideshows use when they are buildin' up horror and interest in the wonders of the world. I figure then that after I am great too, and have my different acts perfected, I am going to use it all the time on people, maybe in Madison Square Garden, which is a wonderful place where all the big things are pulled off.

So Gasket is my guinea-pig now. I advance on him, grinning nonchalant, and hold the Krag toward him, stock first, to let him see the danger is all mine.

"Shoot me, Gasket," I orders real calm. Anybody can tell that I am dead-serious, and am not foolin' a bit.

The result of them words demonstrates that I have employed the correct tactics to arouse interest on the part of the audience. Gasket don't say—"You oughta been shot long ago, Humpty"—like he would of done if he was bored. He don't grunt "Huh?" or nothing. He just stares. His eyes stick out like hard-boiled eggs on the half shell. His face, which is thin and red, kinda wilts and turns pale. His mouth opens as though he was setting a trap for flies. Gasket is so darned interested that he can't help himself nohow.

For that matter, I am quite convinced that he thinks I have gone nuts, and may change my mind and assassinate him.

However, he finally gets up out of his chair. The fact that he tips it over doing this, shows he ain't got adequate control of his muscles.

"Now you take it easy, Humpty," he says, his voice gentle but hissin' through his teeth because he is breathin' so hard. "There ain't ever been a woman worth enough to commit suicide over, let alone asking a pal to become your own murderer—"

"Shoot me, Gasket," I repeat, cutting in on him, and ignoring his arguments.

He talks and stalls some more, getting nervouser and nervouser. So I make believe I am disgusted with his brand of friendship, which balks at doin' a favor. He is so upset he don't even take the gun out of my hands, which I have the same as asked him to do, anyway.

"Okay, chump," I tell him. "I shall do the shootin' personally."

THIS is the tensest, most super-grand moment of the act. Before Gasket can try to stop me, I set the stock of the Krag on the floor. I bend over so that the muzzle is just maybe five inches from the center of my chest. I don't want the distance to be too short, because that might cause the gun to blow up, and it is expensive.

I lean over and press the trigger with my thumb. Just then I am a little uncertain, myself, thinking that I am possibly too hasty concluding that I am safe. But now it is already too late, for I have pressed real hard.

I am not reassured immediately, for when the rifle goes "Whang!" the sound is kinda far off, like I am shot through the heart and am actually dying. Just for a teeny moment there is something greenish and thin and hazy all around me. Under my arm, where the image which I have picked up in the harrowed field is reposing in my inside pocket, there is a sort of click. But I hear a whistling snarl-

ing buzz sailing off into the corner. The slug that old Krag has coughed up has glanced right off me and torn a great big piece out of the door of the broom closet.

But I am completely intact, as I expected to be in the first place. I feel sort of cooled down, though; and the way poor old Gasket has taken it all—being now rather woozy with confusion, thinking I should be down on the floor with a hole in the middle of me that you could drive a truck through, though possibly still kicking horrible-like—makes me feel sorry for him. So I spoil the final part of my stunt, which is to keep the mystery hid.

Instead I drag the image out, and show it to Gasket, and tell just how it has come into my possession, and what has taken place since.

He listens, and in some respects he is relieved; but in others he seems more excited than ever. He starts to swear, calling me anything but a gentleman, partly, I am sure, because he has swallowed my gag fishpole and fisherman.

He finally gets his breath.

"You crazy, cockeyed hunk of half-alive fox-meat!" he yells. "Just because this—this miracle, here—saved you from a few minor bumps, is no reason to conclude that it would armor you against a forty-five calibre bullet! That you ain't been killed is no flattery to your judgment. It is just that you have been lucky enough to have guessed right about the powers of this—this—"

His face redder than a bull-flag now, Gasket mumbles and grumbles, hunting for words to describe my black doll. While he is hunting, I reach the conclusion that he has spoken much wisdom. He is a good fellow, and he has my best interests at heart, though often he is caustic. So I resolve to be more cautious in the hereafter.

Meanwhile Gasket has hit on the name

he wants, and it is very excellent. "Guardian Angel!" he pipes triumphantly.

THEN he ain't mad anymore for a minute or so. His expression is a picture of wonder as he gazes at the ugly black mug and red eyes of the doll which I have now put down on his desk.

"Damnation!" he remarks reverent-like, as though he is beginning a prayer. "Think of it, Humpty! The Guardian Angel wasn't even made on this planet! Some wonderful being from out among the stars must have lost it, perhaps while flying in one of these rockets we hear about. The Angel got attracted by Morrison's Comet, and dragged along to the solar system—"

All at once Gasket snaps his fingers. "Humpty!" he shouts. "We gotta wire the Smithsonian Institute right away! You have made a discovery that the biggest scientists in the world must investigate pronto!"

I have been afraid my partner will suggest some such unpleasantry, so I have already put the Guardian Angel back into my pocket. I do not want any stuffed shirts spoiling my glory. As I have pointed out, I am now determined to be cautious in what I do; but I have reconsidered certain matters. Moreover, I am impatient.

"Nix, Gasket," I tell him. "Not yet, anyhow." And I start for the door, being already a little absent-minded thinking of the new experiment I am going to make. It is a reasonable experiment this time; but the war-whoop Gasket Lengrin lets out, indicates he mistrusts my intentions.

"Come back here, you—you—" he chokes.

I don't catch any more of what he says, because I am now practically in my car. This time I am headed for Schmidt's farm, which is on the Galesburg road.

The truth is I have taken a few flying

lessons, because that is one method to become a daredevil. But Captain Riggs, the ex-army man who has been my instructor, has told me I will never be a good pilot.

However, I have since made an airplane of my own, which is in a pasture out at Schmidt's farm. It is not a very good airplane, but it is the best anybody can put together on twenty dollars capital. I built it from wire and oilecloth and wood and glue, and an old motorcycle engine which I overhauled. I am a very fine ordinary mechanic, as I have said; this is a fact.

I have flown this plane once, a couple of months back; and that is why my schnozzle is crooked and the lobe of my right ear is gone. I have rebuilt the plane.

Now, since I have risked my life in it before, without the Guardian Angel, I think that to try again while I am so well protected is no violation of my resolve to play safe.

I REACH the pasture where my ship is situated. When I tune up the motor, the sound is very sweet and gratifying. I ascend into the cockpit. I take off, and everything is very nice and unusual. I fly straight, and I have only a little trouble keepin' the wings level and the nose on the horizon. Then, after a couple of miles, I try to turn around, and I get tangled up in my efforts to work the controls correctly.

The nose of my crate goes down; the wires and struts creak and grunt. If it were not for the Guardian Angel, I should be reminded of a funeral in which I am going to be the corpse; for I am almost a thousand feet in the air now, which would be all right if I was convinced that the wings did not plan to fall off or nothing.

Abrupt and contrary, my luck turns awful bad. It must be the strain of all the crazy twists my ship is going through

while I try to straighten her out, because all at once I see a jet of gasoline spraying out around the motor. The gas smells very sweet, and makes rainbow colors in the sunshine; but this does not help



me to patch up the fuel-line, which has broken itself.

I am not given a chance to shut off the spark and prevent a conflagration. Quicker than you can spit out a hot potato, fire comes boiling out all around up ahead, and the motor fizzles to a stop by itself. The flames creeping—I better say jumping—back at me make a noise like a big blowtorch growling into the teeth of a hundred-mile wind.

With most awe-inspiring rapidity, I am right in the middle of Hell and Hallelujah! It is red and mean, and the smoke is very thick and dirty. It stinks of burnt oilcloth.

There is only the good old Guardian Angel next to my ribs. He does not resemble a gentleman, I am aware, with his cruel physiognomy and his devil's eyes; but again he proves to be a regular pal. I hear a "Click, click, click," under my arm, and then I don't smell no fumes any-

more. I don't feel no heat. And there is a green haze wrapping me like a cocoon. It is very dim, and I am sure it could not be noticed from a distance, and I can see through it without any trouble.

So I try some more to get what is left of my burning plane on an even keel, and land. I have been sorta gyrating back toward the pasture which is my airport.

But now, because I have no power left in my motor, I stall the ship and go into an awful round-and-round tailspin. Then, on account of the wear and tear and abuse, and because the struts are getting charred and weak, the whole darn kaboodle quite on me. It comes to pieces, like an unstarched shirt that has been soaked in acid.

THERE I am, hundreds of feet off the ground, with a lot of fiery fragments whirling so fast it makes my head swim seeing them. The pilot seat is still strapped to me, but what good does that do? I am falling terrible rapid, and I am not equipped with a parachute.

I have said that while I have this little black image on my person, I weigh only about fifty pounds. But as far as I can tell, this don't cut down my speed much. So I am doubtful that the Guardian Angel is going to save my skin after all.

I have just about time to think about making a will, which naturally is just a waste of effort. Then I hit the ground in a field not so very far from my pasture. I do not know immediately whether I am still a mortal or not, because there is something sort of heavenly in the sensations I experience.

If I am really squashed flat I do not know it so far.

The green haze which wraps me gets a little thicker for a moment, and I hear a buzz from the Angel, as though it is stepping up its protecting power. And if I notice any concussion at all, on coming into contact with Terra Firma, it is like

dropping into the softest feather-bed you ever slept on.

Then I bounce. Up I go, maybe fifty feet. I fall again, and bounce some more. Then I am at rest, upside down, with the pilot-seat over me like a bucket.

When I get myself extricated and unstrapped, I know that I am still plain Humpty Collins, an' not a spirit; for right there confronting me is Gasket Lengrin, shooting off his mouth again. He has guessed that I am destined to try the airplane when I leave the car-lot, and so he has followed me to the scene.

There is an argument on my hands, but with all the data in my favor it is easy to win. "Quit crabbin', Gasket!" I shout. "I have just dropped very far, and have not even broken a shoelace! I am going to test out just one more stunt. By then I will have a contract with some big advertising company. And you are my manager. That is better than giving my Guardian Angel to some intellectual old professors who will only hem and haw and think over it. So keep your shirt on and your mouth shut!"

Gasket sighs and gives in. "All right," he breathes, kind of weary; but I guess he grasps my point. He don't even ask what my final test consists of. Which is probably on account of that he is now almost as sure as I am that the Angel is one perfect safety device. He don't know that I'm thinking of dynamite. A hundred pounds of the best dynamite.

YEP, my optimism and ambition have reached this stage. I have forgot all about being careful. I do not know what a dumb cluck I am.

Since it is late, I postpone the grand finale till the next day. But I start a whispering campaign, because I want the most magnificent thrill to be semi-public. I don't give details, I just drop hints here and there.

"Tomorrow afternoon at two, out at

Schmidt's farm," I tell old John Winbush, a terrific flannelmouth, "I am going to do a piece of dare-deviltry which will ring down the ages."

People have heard about my latest airplane difficulty, and they know I have made some kind of marvelous escape; so I am sure I will have a crowd.

All goes fine. I get the dynamite without any trouble, since I have done blasting work in the past. I put it in a big carbide can. I fix the cap and a very short fuse. When the time comes, I walk out onto my recent landing field, carrying the explosive and warning everybody back. No one suspects what is in the container, or what my intentions are, though they are all waiting and eager for some kind of Roman Holiday, free for nothing.

I put the can down and sit on it. Then I light the fuse. I have not long to wait for action. That dynamite blows up marvelous.

I am in a big cloud of dirt, having been shot maybe a hundred feet off the field. So far, all is well, for the Guardian Angel is busy. The sound of the explosion, even, is muffled, to protect my eardrums. I fall, I bounce, I land; and all the time I am thinking that the whole world will soon bow down to the greatest dare-devil that ever was born.

It is a swell show. I am grinning and walking casual toward Gasket, who is cussing me out once more, as he runs in my direction. He has plumb forgot to watch his language, even though I see that there is a lady with him, and that she is the blonde, Daisy Katz. She don't care what he says, though; and I imagine she don't notice his awful words at all. She is running along beside him, and is acting generally as flabbergasted as the rest of the crowd, except Gasket himself, who has his voice at least, because he can understand why I am not blown to smithereens.

I begin to taste the sweet cup of glory.

Here I have all these people completely bamboozled and on their ears. Am I joyful? Boy! I have never had such a thrill! But as it turns out, I get just a sip of the nectar of importance. Then I get another thing, which is oil out of an altogether different barrel.

For no reason at all that I am able to think of, the Guardian Angel, hid inside my coat, lets out a kind of singing sound, like a simmering teakettle. Then it makes a noise that is half burp and half growl.

Immediately I begin to itch, not just in one place but all over. But I try to ignore this, and keep my stage-presence. I can't take the Angel out of my pocket, because that might give my secret away; and I can't scratch, with all my acquaintances looking on, because that would be impolite.

A speech, I think, is in order; so I make the conventional opening. "Lay-deez an' gentlemen!" I bellow. I intend to tell them that I am the one living person with an indestructable body, and thus mystify them some more. However, I am not able to get the words out, not because I am bashful but on account of the plain truth that this itching I spoke of has become something fierce. Every second it becomes worse an' worse. It is pretty near unendurable.

Trying to stand still, I grope toward my inside coat-pocket, thinking I'll take the Angel out casually, and set it on the ground at my feet. You see I am sure that the Angel is responsible for my present difficulty.

NOW, however, my troubles have really begun. I can't get my hand inside my coat, even! There is something elastic and tough and invisible obstructing its passage. I squirm and poke with my arm, but it is no use.

So I am very badly worried indeed. Now my whole body has begun to feel very hot, in addition to the increasing dis-

comfort I have already mentioned. I feel like I want to jump out of my skin.

"Speech!" somebody hollers as the throng mills around me. "Speech!"

So, since I have a lot of pride and courage, and think I must save my self-respect, I try over. "Lay-deez an' gentlemen!" I start.

"Eeeyow!" I finish, as the itching reaches the unbearable point. Honor is gone and forgotten. I am making a joke of myself, but I don't care a busted washer. All I want is relief—blessed relief! I run toward the fence, beside which there is a horse-trough.

But I can't run fast. There is something that seems very stiff, all around me, which is odd, since it is just that green haze. It has become more visible than ever before. I stumble and fall to the ground, all doubled up.

It is Gasket who carries me to the horse-trough, and dumps me in. But the water doesn't help a bit. It does not even touch me, on account of I am encased as I have described.

Gasket don't know what else to do, so again he busts loose with his vocabulary. His voice is extremely thin an' faint to my ears, but I understand him well enough.

"You are a million kinds of a nitwit!" he screams at me. "First you try to shoot yourself. Then you fly an airplane that should of never been built. Then you deliberately go an' set off a charge of dynamite, big enough to wreck a skyscraper, directly under you! The Guardian Angel strove very hard to keep your skin together; but in so doin' it has gone an' ruined its works. Now it is out of kilter, an' is payin' you back! You have ruined the greatest wonder of all science, you sponge-headed, cackle-brained walrus, you—"

Well, it ain't nice to repeat the remainder of what Gasket said, even here in Randy's Tavern.

Daisy Katz, who is right close to the horse-trough where I am wallowing, also has a piece to speak. "You clumsy, stupid, insignificant so-an'-so!" she hollers.

BUT I don't pay any attention to the rest. I am too occupied with my own private misery, which is beyond words. It is a thousand times as bad as being in a sweatbox full of fleas, combined with a case of acute lockjaw.

"Oooh!" I groan. "Gawsh!" I gasp. For a second that is a year long, it feels as though the whole universe is pressing down upon me. I am not light anymore, but heavy as a hundred elephants. I hear the Angel sputter an' snarl.

Then something goes "Poof!" and it is all over except that I am exhausted. I climb out of the water. My coat has been all ripped and burned by a flash of flame, and the Angel falls from my ruined pocket. I pick it up, and it looks the same

except that where its lips was is now a smoking gap. This way its face ain't mean anymore, but kind of surprized an' sad. Like it was hurt.

Well, Gasket gets me home. An' Daisy Katz purchases some lotion for my sore hide. It is funny, but she is very kind now that I am no longer a hero.

I have become a changed man. I now believe in the simple life instead of fame and glory. I will stick to fixing old cars. I am a square peg in a square hole.

Those professors from the Smithsonian Institute have got the Angel. But it is just a hollow statue now. All its insides were blown out. Which makes them grey-beards kinda sore at me.

Guess that's all, Mister Reporter. Thanks for the drinks. They drive away my sorrows and make my joys complete.

Daisy Katz? Well, I am kind of astonished myself. Me an' her are getting married next Thursday. . . .

THE END

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ARCHIBALD DOUGLAS, Sc.D., Ph.D., B.S., read the telegram with unconcealed annoyance.

"ARRIVING CITY LATE TODAY STOP DESIRE CONFERENCE COLD LIGHT YOUR LABORATORY TEN PM (signed) DR. M. L. MARTIN"

He was, was he? He did, did he? What did he think this lab was; a hotel? And did Martin think that his time was at the disposal of any Joe Doakes who had the price of a telegram? He had framed in his mind an urbanely discouraging reply when he noticed that the message had

been filed at a mid-western airport. Very well, let him arrive. Douglas had no intention of meeting him.

Nevertheless, his natural curiosity caused him to take down his copy of *Who's Who in Science*, and look up the offender. There it was. Martin, M.L., bio-chemist and ecologist, P.D.Q., X.Y.Z.,



By LYLE MONROE

N.R.A., C.I.O.—enough degrees for six men. Hmm—Director Guggenheim Orinoco Fauna Survey, Author; *Co-Lateral Symbiosis of the Boll Weevil*, and so on, through three inches of fine print. The old boy seemed to be a heavy-weight.

A little later Douglas surveyed himself in the mirror of the laboratory washroom. He took off a dirty laboratory smock, removed a comb from his vest pocket, and put a careful polish on his sleek black hair. An elaborately tailored checked jacket, a snap-brim hat, and he was ready for the street. He fingered the pale scar that stenciled the dark skin of one cheek.

Not bad, he thought, in spite of the scar. If it weren't for the broken nose he would look like George Raft.

The restaurant where he dined alone was only partly filled. It wouldn't become lively until after the theatres were out, but Douglas appreciated the hot swing band and the good food. Toward the end of his meal, a young woman walked past his table and sat down, facing him, one table away. He sized her up with care. Pretty fancy! Figure like a strip dancer, lots of corn-colored hair, nice complexion, and great big soft blue eyes. Rather dumb pan, but what could you expect?

He decided to invite her over for a drink. If things shaped up, Dr. Martin could go to the devil. He scribbled a note on the back of a menu, and signalled the waiter.

"Who is she, Leo? One of the entertainers?"

"No, M'sieur, I have not seen her before."

Douglas relaxed, and waited for the results. He knew the come-hither look when he saw it, and he was sure of the outcome. The girl read his note and glanced over at him with a little smile. He returned it with interest. She borrowed a pencil from the waiter, and wrote on the menu. Presently Leo handed it to him.

"Sorry"—it read—"and thanks for the kind offer, but I am otherwise engaged."

Douglas paid his bill and returned to the laboratory.

HIS laboratory was located on the top floor of his father's factory. He left the outer door open and the elevator down in anticipation of Doctor Martin's arrival, then he busied himself by trying to locate the cause of an irritating vibration in his centrifuge. Just at ten o'clock he heard the whir of the elevator. He reached the outer door of his office just as his visitor arrived.

Facing him was the honey-colored babe he had tried to pick up in the restaurant.

He was immediately indignant. "How the hell did you get here? Follow me?"

She froze up at once. "I have an appointment with Doctor Douglas. Please tell him that I am here."

"The hell you have. What kind of a game is this?"

She controlled herself, but her face showed the effort. "I think Doctor Douglas is the best judge of that. Tell him I'm here—at once."

"You're looking at him. I'm Doctor Douglas."

"You! I don't believe it. You look more like a—a gangster."

"I am, nevertheless. Now cut out the clowning, sister, and tell me what the racket is. What's *your* name?"

"I am Doctor M. L. Martin."

He looked completely astounded, then bellowed his amusement. "No foolin'? You wouldn't kid your country cousin, would you? Come in, Doc, come in!"

She followed him, suspicious as a strange dog, ready to fight at any provocation. She accepted a chair, then addressed him again. "Are you really Doctor Douglas?"

He grinned at her. "In the flesh—and I can prove it! How about you? I still think this is some kind of a badger game."

She froze up again. "What do you want?—my birth certificate?"

"You probably murdered Dr. Martin in the elevator, and stuffed the old boy's body down the shaft."

She rose, gathered up her gloves and purse, and prepared to leave. "I came fifteen hundred miles for this meeting. I'm sorry I bothered. Good evening, Doctor Douglas."

He was instantly soothing. "Aw, don't get sore—I was just needling you. It simply tickled me that the distinguished Doctor Martin should look so much like Sally Rand. Now sit back down"—he gently disengaged her hands from her gloves—"and let me give you that drink you turned down earlier."

She hesitated, still determined to be angry, then her natural good nature came to his aid, and she relaxed. "OK, Butch."

"That's better. What'll it be; Scotch or Bourbon?"

"Make mine Bourbon—and not too much water."

By the time the drinks were fixed and cigarets lighted the tension was lifted. "Tell me," he began, "to what do I owe this visit? I don't know a damn thing about biology."

She blew a smoke ring and poked a carmine finger nail through it. "You remember that article you had in the April *Physical Review*? The one about cold light, and possible ways of achieving it?"

He nodded. "*Electroluminescence vs. Chemiluminescence*: not much in that to interest a biologist."

"Nevertheless, I've been working on the same problem."

"From what angle?"

"I've been trying to find out how a lightning bug does the trick. I saw some gaudy ones down in South America, and they got me to thinking."

"Hmm— Maybe you got something. What have you found out?"

"Not much that wasn't already known. As you probably know, the firefly is an almost incredibly efficient source of light—at least 96 percent efficient. Now how efficient would you say the ordinary commercial tungsten-filament incandescent lamp is?"

"Not over two percent at the best."

"That's fair enough. And a stupid little beetle does fifty times as well without turning a hair. We don't look so hot, do we?"

"Not very," he acknowledged, "Go on about the bug."

"Well, the firefly has in his tummy an active organic compound—very complex—called luciferin. When this oxydises in the presence of a catalyst, luciferase, the entire energy of oxydation is converted into green light—no heat. Reduce it with hydrogen and it's ready to go again. I've learned how to do it in the laboratory."

"The hell you have! Congratulations! You don't need me. I can close up shop."

"Not so fast. It isn't commercially feasible; it takes too much gear to make it work; it's too messy; and I can't get an intense light. Now I came to see you to see if we might combine forces, pool our information, and work out something practical."

THREE weeks later at four in the morning Doctor M. L. Martin—Mary Lou to her friends—was frying an egg over a bunsen burner. She was dressed in a long rubber shop apron over shorts and a sweater. Her long hair hung in loose ripples. The expanse of shapely leg made her look like something out of *La Vie Parisienne*.

She turned to where Douglas lay sprawled, a wretched, exhausted heap, in a big arm chair. "Listen, Ape, the percolator seems to have burnt out. Shall I make the coffee in the fractional distillator?"

"I thought you had snake venom in it."

"So I have. I'll rinse it out."

"Good God, woman! Don't you care what chances you take with yourself—or with me?"

"Pooh—snake venom wouldn't hurt you even if you did drink it—unless that rotgut you drink has given you stomach ulcers. Soup's on!"

She chucked aside the apron, sat down and crossed her legs. He automatically took in the display.

"Mary Lou, you lewd wench, why don't you wear some clothes around the shop? You arouse my romantic nature."

"Nuts. You haven't any. Let's get down to cases. Where do we stand?"

He ran a hand through his hair and chewed his lip. "Up against a stone wall, I think. Nothing we've tried so far seems to offer any promise."

"The problem seems to be essentially one of confining radiant energy to the visible band of frequency."

"You make it sound so simple, Bright Eyes."

"Stow the sarcasm. That is, nevertheless, where the loss comes in with ordinary electric light. The filament is white hot, maybe two percent of the power is turned into light, the rest goes into infrared and ultra-violet."

"So beautiful. So true," he sighed.

Mary Lou stamped her feet in well-mimicked anger.

"Pay attention, you big ape. I know you're tired, but listen to mother. There should be some way of sharply tuning the wave length. How about the way they do it in radio?"

He perked up a little. "Wouldn't apply to the case. Even if you could manage to work out an inductance-capacitance circuit with a natural resonant frequency within the visual band, it would require too much gear for each lighting unit, and if it got out of tune it wouldn't give any light at all."

"Is that the only way frequency is controlled?"

"Yes—well, practically. Some transmitting stations, especially amateurs, use a specially cut quartz crystal that has a natural frequency of its own to control wave length."

"Then why can't we cut a crystal that would have a natural frequency in the octave of visible light?"

He sat up very straight. "Great Scott, kid! I think you've hit it."

He got up, and strode up and down, talking as he went.

"They use ordinary quartz crystal for the usual frequencies, and tourmaline for short wave broadcasting. The frequency of vibration depends directly on the way the crystal is cut. There is a simple formula—" He stopped, and took down a thick India-paper handbook. "Hmm—yes, here it is. For quartz, every millimetre of thickness of the crystal gives one hundred metres of wave length. Frequency is, of course, the reciprocal of wave length. Tourmaline has a similar formula for shorter wave lengths."

He continued to read. "These crystals have the property of flexing when electric charges are applied to them, and vice versa, show an electric charge when flexed. The period of flexure is an inherent quality of the crystal, depending on

its geometrical proportions. Hooked into a radio transmitting circuit, such a crystal requires the circuit to operate at one, and only one, frequency, that of the crystal.' That's it, kid, that's it! Now if we can find a crystal that can be cut to vibrate at the frequency of visible light, we've got it—a way to turn electrical energy into light without heat losses!"

Mary Lou cluck-clucked admiringly. "Mama's good boy. Mama knew he could do it, if he would only try."

NEARLY six months later Douglas invited his father up to the laboratory to see the results. He ushered the mild, silver-haired old gentleman into the sanctum sanctorum and waved to Mary Lou to draw the shades. Then he pointed to the ceiling.

"There it is, Dad—cold light—at a bare fraction of the cost of ordinary lighting."

The elder man looked up and saw, suspended from the ceiling a grey screen, about the size and shape of the top of a card table. Then Mary Lou threw a switch. The screen glowed brilliantly, but not dazzlingly, and exhibited a mother-of-pearl iridescence. The room was illuminated by strong white light without noticeable glare.

The young scientist grinned at his father, as pleased as a puppy who expects a pat. "How do you like it, Dad? One hundred candle power. That'd take about a hundred watts with ordinary bulbs, and we're doing it with two watts—half an ampere at four volts."

The old man blinked absent-mindedly at the display. "Very nice, son, very nice indeed. I'm pleased that you have perfected it."

"Look, Dad—do you know what that screen up there is made out of? Common, ordinary clay. It's an allotropic aluminum silicate; cheap and easy to make from any clay, or ore, that contains aluminum. I can use Bauxite, or cryolite, or most

anything. You can gather up the raw materials with a steam shovel in any state in the union."

"Is your process all finished, son, and ready to be patented?"

"Why, yes, I think so, Dad."

"Then let's go into your office, and sit down. I've something I must discuss with you. Ask your young lady to come, too."

Young Douglas did as he was told, his mood subdued by his father's solemn manner. When they were seated, he spoke up.

"What's the trouble, Dad? Can I help?"

"I wish you could, Archie, but I'm afraid not. I'm going to have to ask you to close your laboratory."

The younger man took it without flinching. "Yes, Dad?"

"You know I've always been proud of your work, and since your mother passed on, my major purpose has been to supply you with the money and equipment you needed for your work."

"You've been very generous, Dad."

"I wanted to do it. But now a time has come when the factory won't support your research any longer. In fact, I may have to close the doors of the plant."

"As bad as that, Dad? I thought that orders had picked up this last quarter."

"We do have plenty of orders, but the business isn't making a profit on them. Do you remember I mentioned something to you about the public utilities bill that passed at the last session of the legislature?"

"I remember it vaguely, but I thought that the Governor vetoed it."

"He did, but they passed it over his veto. It was as bold a case of corruption as this state has ever seen—the power lobbyists had both houses bought, body and soul." The old man's voice trembled with impotent anger.

"And just how does it affect us, Dad?"

"This bill pretended to equalize power rates according to circumstances. What it

actually did was to permit the commission to discriminate among consumers as they saw fit. You know what that commission is—I've always been on the wrong side of the fence politically. Now they are forcing me to the wall with power rates that prevent me from competing."

"But good heavens, Dad— They can't do that. Get an injunction!"

"In this state, son?" His white eyebrows raised.

"No, I guess not." He got to his feet and started walking the floor.

His father shook his head. "The thing that really makes me bitter is that they can do this with power that actually belongs to the people. The federal government's program has made plenty of cheap power possible—the country should be rich from it—but these local pirates have gotten hold of it, and use it as a club to intimidate free citizens."

AFTER the old gentleman had left, Mary Lou slipped over and laid a hand on Douglas' shoulder and looked down into his face.

"You poor boy!"

His face showed the upset he had concealed from his father. "Cripes, Mary Lou. Just when we were going good. But I mind it most for Dad."

"Yes, I know."

"And not a damn thing I can do about it. It's politics, and those pot-bellied racketeers own this state."

She looked disappointed and faintly scornful. "Why, Archie Douglas, you great big panty-waist. You aren't going to let those mugs get away with this without a fight, are you?"

He looked up at her dully. "No, of course not. I'll fight. But I know when I'm licked. This is way out of my field."

She flounced across the room. "I'm surprised at you. You've just made the greatest invention since the dynamo, and you talk about being licked."

"Your invention, you mean."

"Nuts! Who worked out the allotropic forms? Who blended them to get the whole spectrum? And besides, you aren't out of your field. What's the problem?—Power! They're squeezing you for power. You're a physicist. Dope out some way to get power without buying from them."

"What would you like? Atomic disintegration?"

"Be practical."

"I might stick a windmill on the roof."

"That's better—but still not good. Now get busy with that knot in the end of your spinal cord. I'll start some coffee. This is going to be another all night job."

He grinned at her. "OK, Carrie Nation. I'm coming."

She smiled happily at him. "That's the way to talk."

He rose and went over to her, slipped an arm about her waist and kissed her. She relaxed to his embrace, but when their lips parted, she pushed him away.

"Archie, you remind me of the Al G. Barnes Circus; 'Every Act an Animal Act.'"

AS THE first light of dawn turned their faces pale and sickly, they were rigging two cold light screens face to face. Archie adjusted them until they were an inch apart.

"There now—practically all the light from the first screen should strike the second. Turn the power on the first screen, Sex Appeal."

She threw the switch. The first screen glowed with light, and shed its radiance on the second.

"Now to see if our beautiful theory is correct." He fastened a voltmeter across the terminals of the second screen and pressed the little black button in the base of the voltmeter. The needle sprang over to two volts.

She glanced anxiously over his shoulder. "How about it, guy?"

"It works! There's no doubt about it. These screens work both ways. Put juice in 'em; out comes light. Put light in 'em; out comes electricity."

"What's the power loss, Archie?"

"Just a moment." He hooked in an ammeter, read it, and picked up his slide rule. "Let me see—Loss is about thirty percent. Most of that would be the leakage of light around the edges of the screens."

"The sun's coming up, Archie. Let's take screen number two up on the roof, and try it out in the sunlight."

Some minutes later they had the second screen and the electrical measuring instruments on the roof. Archie propped the screen up against a sky-light so that it faced the rising sun, fastened the voltmeter across its terminals and took a reading.

The needle sprang at once to the two volt mark.

Mary Lou jumped up and down. "It works!"

"Had to work," commented Archie. "If the light from another screen will make it pour out juice, then sunlight is bound to. Hook in the ammeter. Let's see how much power we get."

The ammeter showed 18.7 amperes.

Mary Lou worked out the result on the slide rule. "Eighteen-point-seven times two gives thirty-seven-point-four watts or about five hundredths of a horsepower. That doesn't seem like very much. I had hoped for more."

"That's as it should be, kid. We are using only the visible light rays. As a light source the sun is about fifteen percent efficient; the other eighty-five percent are infra-red and ultra-violet. Gimme that slipstick." She passed him the slide rule. "The sun pours out about a horse power and a half, or one and one eighth kilowatts on every square yard of surface on the earth that is faced directly towards the sun. Atmospheric absorption cuts that

down about a third, even at high noon over the Sahara desert. That would give one horsepower per square yard. With the sun just rising we might not get more than one-third horsepower per square yard here. At fifteen percent efficiency that would be about five hundredths of a horsepower. The screen is a yard square; it gives five hundredths of a horsepower. It checks. Q.E.D.—What are you looking so glum about?"

"Well—I had hoped that we could get enough sunpower off the roof to run the factory, but if it takes twenty square yards to get one horsepower, it won't be enough."

"Cheer up, Baby Face. We doped out a screen that would vibrate only in the band of visible light; I guess we can dope out another that will be atonic—one that will vibrate to any wave length. Then it will soak up any radiant energy that hits it, and give it up again as electrical power. With this roof surface we can get maybe a thousand horsepower at high noon. Then we'll have to set up banks of storage batteries, so that we can store power for cloudy days and night shifts when we're not producing any."

She blinked her big blue eyes at him. "Archie, does your head ever ache?"

TWENTY minutes later he was back at his desk, deep in the preliminary calculations, while Mary Lou threw together a scratch breakfast.

She interrupted his study to ask:

"Where'd'ja hide that bottle, Lug?"

He looked up and replied, "It's immoral for little girls to drink in broad daylight."

"Come out of the gutter, chum. I want to turn these hot-cakes into crêpe Suzettes, using corn liquor instead of brandy."

"Never mind the creative cookery, Dr. Martin. I'll take mine straight. I need my health to finish this job."

She turned around and brandished the skillet at him. "To hear is to obey, my lord. However, Archie, you are an over-educated Neanderthal, with no feeling for the higher things of life."

"I won't argue the point, Blonde Stuff.—But take a gander at this. I've got the answer—a screen that vibrates all down the scale."

"No foolin', Archie?"

"No fooling, kid. It was already implied in our earlier experiments, but we were so busy trying to build a screen that wouldn't vibrate at random, we missed it. I ran onto something else, too."

"Tell mama!"

"We can build screens to radiate in the infra-red just as easily as cold light screens. Get it? Heating units of any convenient size or shape, economical and with no high wattage or extreme temperatures to make 'em fire hazards or dangerous to children. As I see it, we can design these screens to, one—" he

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ticked the points off on his fingers—"take power from the sun at nearly one hundred percent efficiency; two, deliver it as cold light; or three, as heat; or four, as electrical power. We can bank 'em in series to get any required voltage; we can bank in parallel to get any required current, and the power is absolutely free, except for installation costs."

She stood and watched him in silence for several seconds before speaking. "All that from trying to make a cheaper light. Come eat your breakfast, Steinmetz. You men can't do your work on mush."

THEY ate in silence, each busy with new thoughts. Finally Douglas spoke. "Mary Lou, do you realize just how big a thing this is?"

"I've been thinking about it."

"It's enormous. Look, the power that can be tapped is incredible. The sun pours over two hundred and thirty trillion horsepower onto the earth all the time and we use almost none of it."

"As much as that, Archie?"

"I didn't believe my own figures when I worked it out, so I looked it up in Moulton's Astronomy. Why, we could recover more than twenty thousand horsepower in any city block. Do you know what that means? Free power! Riches for everybody! It's the greatest thing since the steam engine." He stopped suddenly, noticing her glum face. "What's the matter, kid, am I wrong some place?"

She fiddled with her fork before replying. "No, Archie—you're not wrong. I've been thinking about it, too. Decentralized cities, labor-saving machinery for everybody, luxuries—it's all possible, but I've a feeling that we're staring right into a mess of trouble. Did you ever hear of 'Breakages Ltd.'?"

"What is it, a salvage concern?"

"Not by a hell of a sight. You ought to read something besides the 'Proceedings of the American Society of Physi-

cal Engineers.' George Bernard Shaw, for instance. It's from the preface of *'Back to Methuselah,'* and is a sardonic way of describing the combined power of corporate industry to resist any change that might threaten their dividends. You threaten the whole industrial set-up, son, and you're in danger right where you're sitting."

He pushed back his chair. "Oh, surely not. You're just tired and jumpy. Industry welcomes invention. Why, all the big corporations have their research departments with some of the best minds in the country working in them."

"Sure they do—and any bright young inventor can get a job with them. And then he's a kept man—the inventions belong to the corporation, and only those that fit into the pattern of the powers-that-be ever see light. The rest are shelved. Do you really think that they'd let a free lance like you upset an investment of billions of dollars?"

He frowned, then relaxed and laughed. "Oh, forget it, kid, it's not that serious."

"That's what you think. Did you ever hear of celanese voile? Probably not. It's a synthetic dress material used in place of chiffon. But it wore better and was washable, and it only cost about forty cents a yard, while chiffon costs four times as much. You can't buy it any more.

"And take razor blades. My brother bought one about five years ago that never had to be re-sharpened. He's still using it, but if he ever loses it, he'll have to go back to the old kind. They took 'em off the market.

"Did you ever hear of guys who had found a better, cheaper fuel than gasoline? One showed up about four years ago and proved his claims—but he drowned a couple of weeks later in a swimming accident. I don't say that he was murdered, but it's damn funny that they never found his formula.

“AND that reminds me—I saw a clipping from the *Los Angeles Illustrated Daily News* that was published early this year. A man bought a heavy standard make car in San Diego, filled her up and drove her to Los Angeles. He only used two gallons. Then he drove to Agua Caliente and back to San Diego, and only used three gallons. About a week later the sales company found him and bribed him to make an exchange. By mistake they had let him have a car that wasn't to be sold—one with a trick carburetor.

“Do you know any big heavy cars that get seventy miles to the gallon? You're not likely to—not while 'Breakages Ltd.' rules the roost. But the story is absolutely kosher—you can look it up in the files.

“And of course, everybody knows that automobiles aren't built to wear, they're built to wear out, so you will buy a new one. They build 'em just as bad as the market will stand. Steamships take a worse beating than a car, and *they* last thirty years or more.”

Douglas laughed it off. “Cut out the gloom, Sweetie Pie. You've got a persecution complex. Let's talk about something more cheerful—you and me, for instance. You make pretty good coffee. How about us taking out a license to live together?”

She ignored him.

“Well, why not. I'm young and healthy. You could do worse.”

“Archie, did I ever tell you about the native chief that got a yen for me down in South America?”

“I don't think so. What about him?”

“He wanted me to marry him. He even offered to kill off his seventeen current wives and have them served up for the bridal feast.”

“What's that got to do with my proposition?”

“I should have taken him up. A girl

can't afford to turn down a good offer these days.”

ARCHIE walked up and down the laboratory, smoking furiously. Mary Lou perched on a workbench and watched him with troubled eyes. When he stopped to light another cigaret from the butt of the last, she bid for attention.

“Well, Master Mind, what now?”

He finished lighting his cigaret, burned himself, cursed in a monotone, then replied, “Oh, you were right, Cassandra. We're in more trouble than I ever knew existed. First when we build an electric runabout that gets its power from the sun while its parked at the curb, somebody pours kerosene over it and burns it up. I didn't mind that so much—it was just a side issue. But when I refuse to sell out to them, they slap all those phoney law suits on us, and tie us up like a kid with the colic.”

“They haven't a legal leg to stand on.”

“I know that, but they've got unlimited money and we haven't. They can run these suits out for months—maybe years—only we can't last that long.”

“What's our next move? Do you keep this appointment?”

“I don't want to. They'll try to buy me off again, and probably threaten me, in a refined way. I'd tell 'em to go to hell, if it wasn't for Dad. Somebody's broken into his house twice now, and he's too old to stand that sort of thing.”

“I suppose all this labor trouble in the plant worries him, too.”

“Of course it does. And since it dates from the time we started manufacturing the screens on a commercial scale, I'm sure it's part of the frame-up. Dad never had any labor trouble before. He always ran a union shop and treated his men like members of his own family. I don't blame him for being nervous. I'm getting tired of being followed everywhere I go, myself. It makes me jumpy.”

Mary Lou puffed out a cloud of smoke. "I've been tailed the past couple of weeks."

"The hell you have! Mary Lou, that tears it. I'm going to settle this thing today."

"Going to sell out?"

"No." He walked over to his desk, opened a side drawer, took out a .38 automatic, and slipped it in his pocket. Mary Lou jumped down from the bench and ran to him. She put her hands on his shoulders, and looked up at him, fear in her face.

"Archie!"

He answered gently. "Yes, kid."

"Archie, don't do anything rash. If anything happened to you, you know damn well I couldn't get along with a normal man."

He patted her hair. "Those are the best words I've heard in weeks, kid."

DOUGLAS returned about one P. M. Mary Lou met him at the elevator. "Well?"

"Same old song-and-dance. Nothing done in spite of my brave promises."

"Did they threaten you?"

"Not exactly. They asked me how much life insurance I carried."

"What did you tell them?"

"Nothing. I reached for my handkerchief and let them see that I was carrying a gun. I thought it might cause them to revise any immediate plans they might have in mind. After that the interview sort of fizzled out and I left. Mary's little lamb followed me home, as usual."

"Same plug-ugly that shadowed you yesterday?"

"Him, or his twin—He couldn't be a twin, though, come to think about it. They'd have both died of fright at birth."

"Have you had lunch?"

"Not yet. Let's ease down to the shop lunch room and take on some groceries. We can do our worrying later."

The lunch room was deserted. They talked very little. Mary Lou's blue eyes stared vacantly over his head. At the second cup of coffee she reached out and touched him.

"Archie, do you know the ancient Chinese advice to young ladies about to undergo criminal assault?"

"No, what is it?"

"Just one word: 'Relax.' That's what we've got to do."

"Speak English."

"I'll give you a blueprint. Why are we under attack?"

"We've got something they want."

"Not at all. We've got something they want to quarantine—they don't want anyone else to have it. So they try to buy you off, or scare you into quitting. If these don't work, they'll try something stronger. Now you're dangerous to them and in danger from them because you've got a secret? What happens if it isn't a secret? Suppose everybody knows it?"

"They'd be sore as hell."

"Yes, but what would they do? Nothing. Those big tycoons are practical men. They won't waste a dime on heckling you if it no longer serves their pocketbooks."

"What do you propose that we do?"

"Give away the secret. Tell the world how it's done. Let anybody manufacture power screens and light screens that wants to. The heat process on the allotrope is so simple that any commercial chemist can duplicate it once you tell 'em how, and there must be a thousand factories, at least, that could manufacture them with their present machinery from materials at their very doorsteps."

"But, good Lord, Mary Lou, we'd be left in the lurch."

"What can you lose? We've made a measly couple of thousand dollars so far, keeping the process secret. If you turn it loose, you still hold the patent, and you could charge a nominal royalty—one that it wouldn't be worth while trying to beat,

say ten cents a square yard on each screen manufactured. There would be millions of square yards turned out the first year—hundreds of thousands of dollars to you the first year, and a big income for life. You can have the finest research laboratory in the country.”

He slammed his napkin down on the table. “Kid, I believe you’re right.”

“Don’t forget, too, what you’ll be doing for the country. There’ll be factories springing up right away all over the Southwest—every place where there’s lots of sunshine. Free power! You’ll be the new emancipator.”

He stood up, his eyes shining. “Kid, we’ll do it! Half a minute while I tell Dad our decision, then we’ll beat it for town.”

TWO hours later the teletype in every news service office in the country was clicking out the story. Douglas insisted that the story include the technical details of the process as a condition of releasing it. By the time he and Mary Lou walked out of the Associated Press building the first extra was on the street: “GENIUS GRANTS GRATIS POWER TO PUBLIC.” Archie bought one and beckoned to the muscle man who was shadowing him.

“Come here, Sweetheart. You can quit pretending to be a fire-plug. I’ve an errand for you.” He handed the lunk the

newspaper. It was accepted uneasily. In all his long and unsavory career he had never had the etiquette of shadowing treated in so cavalier a style. “Take this paper to your boss and tell him Archie Douglas sent him a valentine. Don’t stand there staring at me! Beat it, before I break your fat head!”

As Archie watched him disappear in the crowd, Mary Lou slipped a hand in his. “Feel better, son?”

“Lots.”

“All your worries over?”

“All but one.” He grabbed her shoulders and swung her around. “I’ve got an argument to settle with you. Come along!” He grabbed her wrist and pulled her out into the cross walk.

“What the hell, Archie! Let go my wrist.”

“Not likely. You see that building over there? That’s the court house. Right next to the window where they issue dog licenses, there’s one where we can get a wedding permit.”

“I’m not going to marry you!” she cried indignantly.

“The hell you aren’t. You’ve stayed all night in my laboratory a dozen times. I’m compromised. You’ve got to make an honest man of me—or I’ll start to scream right here in the street.”

“This is blackmail!”

As they entered the building, she was still dragging her feet—but not too hard.

THE END

TRY THE STAR WAY TO SHAVE!

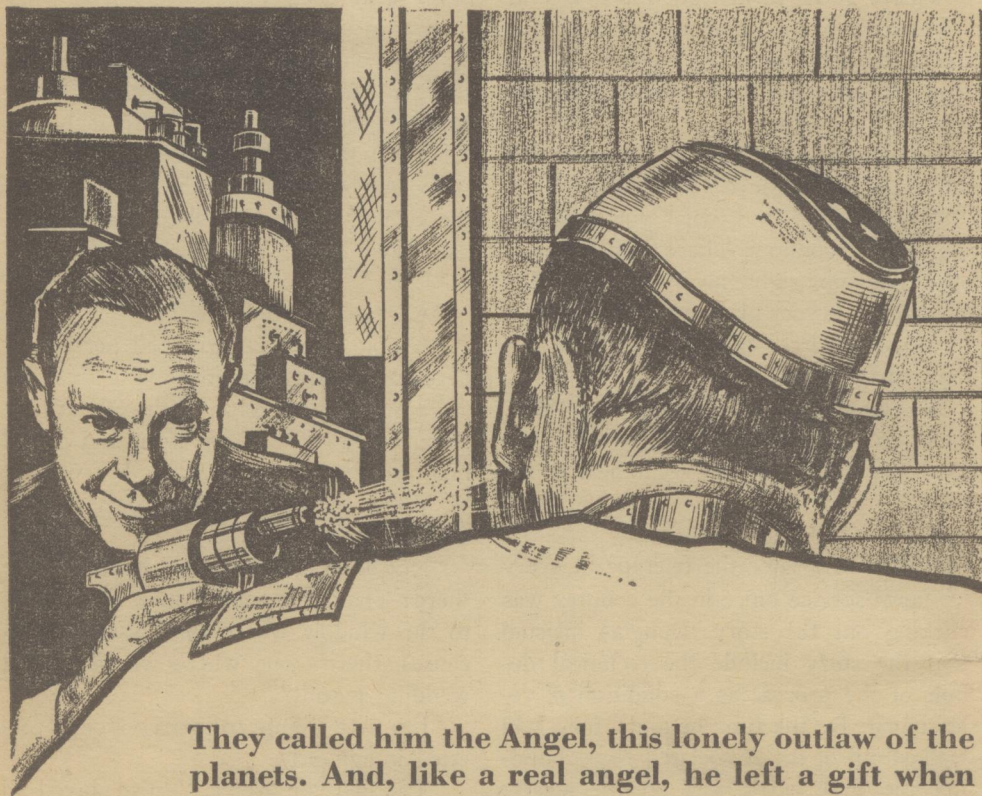
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BEQUEST OF THE ANGEL

By JAMES BLISH



They called him the Angel, this lonely outlaw of the planets. And, like a real angel, he left a gift when he departed.

CHAPTER ONE

Enter Khovansky

"KHOVANSKY'S in town," Major Allison said, his thin fingers fumbling with an intricate little Venerian puzzle.

Owen sighed; he wished to high heaven the major would either toss the puzzle out of the eightieth-story window or slump into gibbering idiocy. Allison impressed him as an ineffectual, doddering old gaffer whose only function in life was digging up trouble for other and more competent men, of whom Owen considered himself one.

"So Khovansky's in town," he said. "Any law against it?"

Allison regarded him rather sadly. He looked irritatingly like somebody's stray lamb when he did that. When he spoke, it was with restraint.

"No. There is no law against it. Nor, you marble-brained idiot, is there any law prohibiting me from committing swift and sudden mayhem upon your loutish person. But I restrain myself. And I don't like Khovansky. He's tied up with Sanderson, and I don't like that either."

He fished a pair of cigarettes from a box of Cerean jade before him and tossed one to Owen, who caught it expertly.

"You know, Johnny," he continued in

that exasperating roundabout manner he favored so much, "you rather resemble Sanderson. You are going to look into this thing for me."

Owen snorted a stream of bluish smoke from his nostrils.

"Yeah. Sure. I get the whole damned set-up. I'm going to take this mug Sanderson's place. And what happens when we both show up in the same place at the same time? Hell, even Sanderson knows he's not twins!"

The major smiled beatifically. "I've taken care of that. Oh, yes, I've taken care of that ever so nicely . . . Sanderson was picked up two days ago, on Mars. He was snooping around in the Military Building in Osto. Y-Ray mirror and everything. Something's afoot, Johnny, something big that will make the last Martian Outlands revolt look like Mrs. McGillicuddy's garden party. Hot-shot as Sanderson is, he's just an unimportant cog—comparatively speaking—in this mess. Not simple planetary revolt, John—System-wide!"

"Nice job you got for me!" Owens tone was one of hurt indignation.

Allison's smile grew even more bland. "I was against the idea of assigning you to this job, but everyone else is busy on something important. We give all our minor details to Slap-happy stumblebums like you. Now listen, you lug, get serious for a moment, will you? Here's the dope . . . as much as we know, that is.

"The Martian Nationalist Party is behind all this. There's a warrant out for Khovansky, their leader, but I've succeeded in getting that squashed. I prefer to let him run around as much as he likes. Leads me to all his associates, if he only knew it. The number of people sneaking around in back alley and insulated rooms, though, has tripled lately. We've gotten hints of a vast machine, the product of long and careful planning, grinding into action. The Patrol is tear-

ing its hair out by the roots over the sudden withdrawal of the various pirate groups. The Outposts, of course, like it, but it's not normal, Johnny. Even the Angel has turned himself out like a light! It's the first time in forty years that the spaceways have been clear—and I'm not happy about it! It scares me, Johnny. . . .

"Now, look—Sanderson is supposed to report to Khovansky, here in New York, in three weeks, when the *Engels* docks from Mars. Here's the address: Number Five, Water Street. That's in Manhattan, down by the river; you can find it easily enough. Khovansky and your pal, Sanderson, have never before met, which makes everything ducky for you. We'll give you a lot of dope to feed to Khovansky; enough of it will be true to make good reading for the Nationalists, so you'll get by on *that* score. I'll give you Sanderson's dossier before you leave here; it contains photos of Sandy, what few of his acquaintances we know of, and a fairly complete list of his habits, past life, and a few other odds and ends that will come in handy. Stop off and see Doc Stern, too, Johnny. He'll fix up the little bit of difference between yourself and Sanderson, and I'll send down a passport for you. You can't tell, they might check up on that too. That's about all I can think of right now, kid. Better snoop around Water Street a bit, get accustomed to the neighborhood. Now scat—and take care of yourself, Johnny."

Owen's reply was one which should never be used to an Intelligent Major (Owen's own phrase, although he maintained that that was a debatable point), even though that officer accidentally happens to be one's cousin.

O WEN squinted through a cloud of cigarette smoke with watering eyes, ineffectively laboring to adjust an already faultlessly fitted cummerbund from Montbecque, in French South Venus,

when he heard a couple of tentative raps on the door of his cabin. He yelled an answer in his customary careless fashion.

"Good evening, sir." It was a steward. "You and Mr. Koehler won the ship's pool last night, sir. Here's your slip." He shoved a folded bit of paper into Owen's hand.

"Uh," Owen said reflectively. "—er—thanks." He tossed the steward a *pour-boire*, and only after the flunkey had gone did he open the chit, glancing momentarily at his unusually heavy strap-watch. The numerals, sliding past an opening in the otherwise blank face, were glowing with their accustomed faint luminescence . . . okay, no spy-rays on him.

The note was brief enough: *five twenty-four*; 11:30 . . . five twenty-four—that would be Koehler's cabin, of course. It was only ten after eleven now; he'd still be with his orchestra, on B-deck. Owen sighed unhappily. He had his choice of fluttering around in his room for the intervening twenty minutes, or going down to the ballroom. And he hated Koehler's music . . . This was a hell of a job; he'd resign and raise peanuts or something when his present assignment was done.

He sighed again, and decided to go down and have a drink.

A blast of sound, like a tangible something, struck him as he elbowed his way into the crowded ballroom, obliterating all other sensations for a moment. He pushed across the room with some little difficulty, sidestepping a hunchbacked drunk in maudlin search of somebody's karra-beer to cry into, and leaned thankfully against the long bar.

There was nobody on the floor. At least, nobody was dancing. Jon Koehler's music was an anachronism in this age of minor strains and chords, but when his boys had been sounding off this long, dancing was forgotten. Instead, the mob

was jam-packed around the bandstand, swaying in unified, moth-like hypnosis, and as usual, was keeping discreetly to the side where Koehler was not. Owen looked at him in cynical amusement.

He was a peculiar sort to be the leader of a jive-bunch. Not particularly bad-looking; tall, broad-shouldered, and of indefinite age, but his high forehead and intent stare made him seem, at that distance, as though he were sporting a death's-head on his muscular neck. He ruled that orchestra with unrelenting discipline, perpetually glaring unblinkingly at them and muttering under his breath, threatening, swearing, and all the time hammering a terrific piano.

He looked every bit the confirmed killer and spy that he was, Owen thought, rather than a society darling of some two month's standing; that same combination of allurements and revulsion was evident in the one-sided distribution of his audience.

A BLOTTER-SKINNED, iridescent Martian with tattered ears was screaming his liver out through a trumpet, lashless eyes closed in frenetic ecstasy. Koehler hissed ophidianly. It was not apparent to Owen's untutored ear what the man had done—doubtlessly merely closed a phrase with a somewhat commonplace riff—but the man flinched a trifle, and seated himself abruptly. Owen chuckled and turned to his by-now-arrived and long-awaited highball. It seemed absurd, this hard-faced pianist running his band as though it were the crew of a long-arc Patrol ship . . .

Owen set his glass down finally, and glanced at his watch. Not so good; only ten minutes gone, so far. He looked around for amusement, for there was really no need to keep an eye on Koehler—yet. His roving glance fell on an auburn-haired girl and stayed there, focussed on her waist-line, where her dress suddenly began. She was, unhappily

enough, though, standing with her white back to him, cuddling up a gin fizz.

He called the bartender over. "Ask the lady—the lovely red-headed lady—if she'll have a drink with me."

There was, he reflected, no great amount of danger in a pick-up. And anyway, any girl with a dress and a back that rightfully belonged to an angel was well worth knowing, if only for ten minutes. She finished her drink and raised green eyes to the spy.

"Thanks," she said readily. "I was hoping you'd do that. I saw you looking at me; I could tell that you were on the make."

"Hell," Owen said in mock dejection; he really didn't give a damn. "And I thought all the time it was my personality that attracted you."

She laughed. A nice laugh, Owen thought, appraising her. The rest of her wasn't bad either. He was sorry he didn't have the time to give her the attention she merited.

"No," she was saying. "I wanted to tell you something."

She paused to watch the hunchbacked souse, who, only fifteen years out of date, was happily doing the Lunar Leap all by himself.

"STAY away from John Koehler, Mr. Sanderson," she said.

Owen choked and spluttered furiously on his third Scotch and soda. He regarded her ungently with streaming eyes.

"Would I be rude," he almost yelled, "if I asked how you knew me?"

"Not at all. Your little collodion scar is peeling, for one thing."

She reached to his forehead; for a fleeting moment he felt her fingers, cool and firm, against his hot brow as she jerked away the fragment of neo-skin.

"That's better. As for Koehler—we've decided to leave him out of this. It's not safe. If he knows that you're one of us,

as he will tonight, he may sell us down the river. I've got Khovansky's plans anyhow; I can tell you all about them myself."

"Then you're a Nationalist?"

"Of course. No one else knows you were in New York. And I have the plans packed away in here." She held up a small metal-weave purse.

What happened after that was breathtaking. The purse seemed to vanish from her hand, and the hunchback—miraculously sober—was loping along an outside corridor. In an instant Owen was after the man—he looked, from the glimpse Owen snatched, like one of Allison's operatives—but someone spun a bar stool between his legs, slowing him.

The corridor was dark as the coal-scuttle of Hell, and Owen paused a moment in indecision. There—what was that? A movement, the faintest flicker of motion, in the gloom ahead. Owen ran on. The fool couldn't get away; not this way. . . .

Then he snapped out an oath of comprehension. The fugitive was heading for the loading well, the hundred-and-fifty foot shaft that ran the diameter of the spacesphere. But . . . And the fleeing man jumped!

But he wasn't falling—he was floating downward slowly, oh, ever so slowly. His coat had been discarded, and Owen saw what had happened; he was wearing a grav'-belt. That, then, was his hump.

He was a perfect target against the lights of the well, and he had over one hundred feet to fall. Cursing at the criminal stupidity of him, Owen dragged out his pistol and filled the air with zipping little darts of heat, shooting around him as carefully as possible. What was the matter with the idiot?—if he had any God-damned sense at all, he'd cut his power and fall free until he presented a more difficult target to other and hostile marksmen.

Then someone else was beside the raging Owen, a deliberate hand aimed a heavy deranger and fired one shot. Below, the purse-snatcher seemed to hesitate in mid-air for one endless second . . . then a bloom of flame flowered from the grav'-belt on his back, and he fell like a stone, turning over and over till he plopped on the floor of the well.

Feeling a trifle sick, Owen straightened (he was absurdly conscious of his aching back) and stared through the darkness at the marksman.

"For a gun-man of your reputation, Gene, you're a hell of a lousy shot."

Owen fought down a powerful urge to heave Khovansky over the railing after his victim and turned away. The girl ran up.

"Did you get him, Gene?" she asked breathlessly.

"No," he said stiffly. "Igor did."

The girl looked at the Nationalist with little interest.

"Oh, hello, Khovansky," she said. "Do you suppose we can get back without going through all that uproar back there?"

"Probably," Khovansky returned coolly. "You belong in Koehler's room right now, Sanderson—not drinking bottoms up with our little playmate here," he finished, his tone scornful.

"But I thought . . ." Owen caught a glance from the girl, an unspoken plea. "I thought it was too early."

"Um," grunted Khovansky. "Your watch is slow, then. Also, it indicates the presence of a Y-ray. Let's get out of here."

CHAPTER TWO

The Angel

THE door of 524 opened for them as they approached, and Koehler's skull-like countenance greeted them.

"Apologies accepted in advance," he intoned. His voice was just as Owen had expected; precise and monotoned, more like a vogueur than fleshly sounds. "I was watching you, Sanderson. You're a poor marksman." He slipped a Y-ray mirror into his pocket.

Owen accepted the rebuke in indifferent silence, as would Sanderson have done, but he wished he could have made mention of the three trophies he held for pistol work.

The gentleman in uniform sitting over by the desk of Martian teal was an officer of the Patrol, Roger Wilson, and Third Mate of the *Engels*. Owen wondered if he'd be recognized by the Patrolman.

Sure enough—"This isn't Gene Sanderson," Wilson yelled. "He's a snotty, I tell you! If he's Sanderson, where's his scar?"

Owen relaxed, and laughed mirthlessly. "If that's what's bothering you, you miserable little toenail, Toots here peeled it off. You must be one of the hot-shots, to be so afraid of the snotties."

"Take it easy, Wilson," Khovansky chimed in. "Gene's been wearing a false scar for a long time, now; I'm satisfied that he's genuine."

"That's enough!" Koehler snapped. "Quit bickering, you two! Hell, you're acting like a couple of infants! . . . I don't want to waste any more time than I have to. The sooner I get back to the *Halo*, the happier I'll be."

"What did you come in for, in the first place?" the girl asked harshly. Owen turned away to hide the expressions he knew must be chasing themselves across his face, and pretended interest in a little bit of statuary on the desk. The *Halo* was the pirate sphere operated by the Angel! How did he tie into this affair?

Koehler's lips were twisted wryly. "Anything for entertainment," he stated bleakly. "It doesn't particularly matter what I do, in the long run . . . 'Tomor-

row— Why, tomorrow I may be myself with Yesterday's Sev'n thousand Years' ” he quoted. The strange little lines around those hard, distant eyes of his deepened.

Owen stirred impatiently. “Skip that, Koehler. What gives now? Or can't you say?”

Khovansky answered, “It's all right, Gene; we're insulated here. As for our line of action, according to the arrangement worked out by John and myself, the *Halo* will intersect our trajectory ten minutes after we enter F-Sector, and take us off. Then we really go to town. All we've done up to now has been simple phutzing-around.

“First, using the information that you got for us, we've got to eliminate the Patrol. A mass attack on the Outposts seems the best way. The Angel has organized the pirates into a loose union—they're just waiting for the word to cut loose and smash hell out of the Outpost colonies. Next, we've got to find out how the government messengers manage to cross between Earth and Mars in five minutes, and set up our own equipment to duplicate it. Third, we've got to get hold of the battle plans of the Fleet.”

“We've been all through this a dozen times,” Koehler objected. “How are you going to do all of it?”

“I'm not going to do all of it,” Khovansky retorted imperturbably.

“The first point, the elimination of the Patrol, is up to you, John. I'm leaving the battle plans to Sanderson. You've been to Mars Centre before, haven't you, Gene?”

“Yeah. I've seen it, but it's a heck of a tough job to peek around there. The joint is lousy with those damned little relay detectors that shoot a jolt along a Y-ray beam strong enough to fry you for dinner. You would pick the tightest crib in the System . . .”

Khovansky scowled. “That's your worry. Wilson: you know what to do

when the *Halo* contacts your mirrors?”

Wilson waved one hand in an airy, confident gesture. “Sure, sure. Don't worry about a thing. Look, I've got to go up on deck now. Keep in touch with me, will you?”

“We will not!” Koehler—or the Angel—snapped. “The next time you'll see us will be in F-Sector. You'll get your pay when—and if—the coup goes through.”

Khovansky frowned at a discolored spot on the door after Wilson had gone. “I don't quite trust that officer-laddie. Did you know he was a Patrolman, Gene? Oh, he's all right; he's done several jobs for me before, but I'm getting tired of him. Don't like the way he throws his weight around. Before we transfer to the *Halo*, I want you to take care of him. And do a better job of it than you did on that spy. . . .”

WILSON hurried into the Angel's cabin. Once more the little group of spies and counter-spy was fully assembled, as they had been three nights ago. Owen was absently squeezing an old, almost-forgotten Terrestrial tune from a little pocket-sized concertina, and watching the slim girl as she moved about the room. Khovansky was lounging easily against a wall, hands in pockets and his usual saturnine expression shadowing his dark face.

“The *Halo* has been sighted,” Wilson announced. “It appeared on our mirrors about ten minutes ago.”

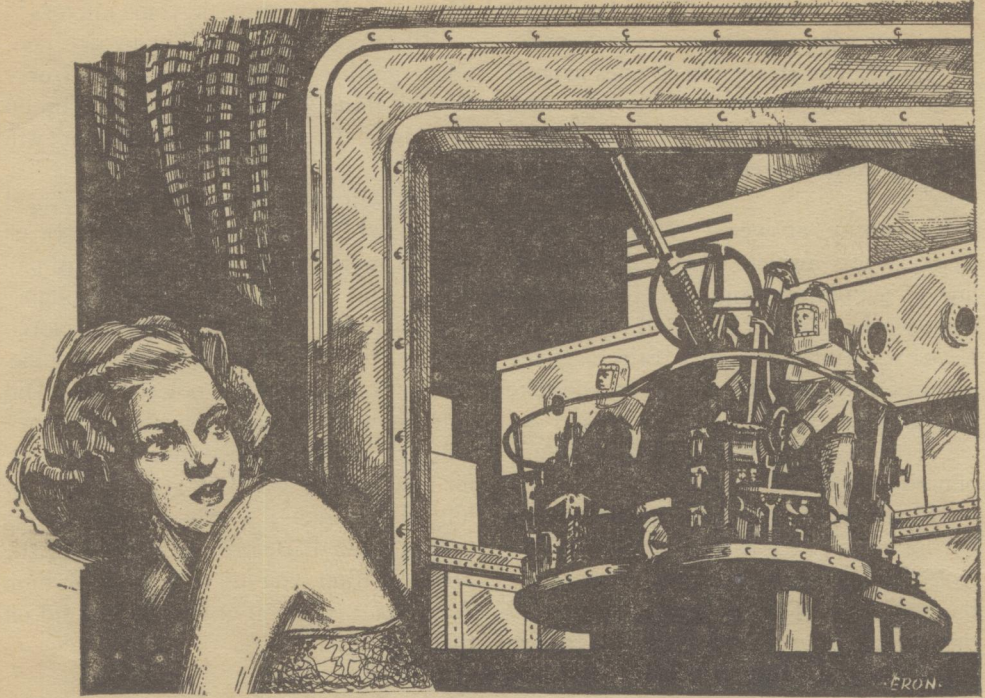
The Angel's head snapped up. “You've attended to everything?”

“Sure,” Wilson protested. “It's all set.”

Khovansky heaved to his feet like some great, lazy bear.

“Might as well get set, then,” he rumbled. “Come on, you two. Gene, you stay here and take care of Wilson, will you? Meet us in the observation blister when you're done; don't take too long.”

The door closed behind them.



Owen fumbled in a drawer of the big desk. "You're in the Patrol, aren't you, Wilson?"

"Yeah. Yeah, I am," the officer said cautiously. "So what? If Khovansky's got any ideas, he might as well forget about them . . . or jack up the ante. He doesn't pay me enough anyway."

Owen wheeled to face him. "Oh, drop it. Come on, give me the dope on Igor; I'm one of Allison's boys."

Owen was taking a chance, and he knew it. He wanted to find out, though, just where Wilson stood. It was possible that he was on the same sort of assignment as Owen himself. . . .

Wham!

A stony fist landed on his jaw, proving the ancient postulate anent the possibility of two bodies occupying the same space at identical times. Momentarily stunned, he crouched there for an instant, until a second rabbit-punch sent him to the floor. Sick and dizzy, he lay there while Wilson scuttled across the room. He let him

get as far as the door before he finally squeezed the trigger. The heat-beam stitched a neat row of holes across Wilson's back; he stumbled a bit and half-turned. One hand clutching his mutilated chest. The little lances of pure heat had seared completely through his body.

"Oh!" he whispered, sounding pathetically like a whipped child. "You—" and then the frightful pain of the cauterized tissues gripped him. He screamed once, a bubbling, choked death-cry that ripped from his throat, and he flopped fishily to the floor.

Owen shoved his pistol back into its armpit holster, cursing as the hot barrel touched his skin. He had to get out of here. Christ alone knew who had heard that yell, and explanations would take too long and involve too much risk of exposure. Besides, he'd wasted enough time. He rolled the body out of the way, and stepped into the passageway.

Confused shouts were echoing through the corridors as he ran up to the observa-

tion blister, and he heard the unmistakable hiss of numerous beams. Suddenly a figure in the khaki denim of the Angel's crew leaped from a side passage brandishing a Luger. The bullet whipped by Owen's skull and spanged into a bulkhead as he tugged at his own weapon. It was in his fist, finally, and he drove the ray through the pirate's face. He leaped over the writhing man and ran on.

Khovansky and the Angel were waiting impatiently for him.

"Well? Did you take care of him?" and, "What kept you?" came simultaneously from the pair of them.

"He's okay," Owen drawled calmly, though a trifle out of breath. "He clipped me, but he's air-conditioned now. Gave him five charges to make sure; two in the belly, two in the skull, and one for that sock on the jaw he handed me. Let's go, huh?"

The Governor of Avalon, Plutonian capital of the Outpost Colonies, stood with folded arms at the great window of his office, which capped the fifty stories of the Administration Building; structures were necessarily much smaller, here in the Colonies, than on the home planet, due to the expense and difficulties of transportation and construction. Idly he watched the silver fleck settle slowly toward the surface of the planet. Little air-cabs scuttled by like grotesque flying crabs, sinking groundwards or rising from the landing stages scattered about the city, and a swarm of small tugs returned from their rendezvous with a disabled freighter. The tiny sun flared timidly in the gloomy, dismal sky, but a few stars were visible, nevertheless.

IT WAS mid-afternoon, and the colony was humming like an aviary with its various businesses, most of them relating to the *zaratite* mines. The clipper ship *Hessaronian* had just raced past overhead; its Martian sister sphere, the *Gobi-*

Hessar rested in its cradle two miles distant from Avalon, in the sprawling space-port. Both of the *Hessacopters*, I and II, were days away, one bound for the Jovian System, the other for the other side of the sun to intersect Neptune's orbit. Neither Terrestrial spheres nor any of the vessels of the various Martian lines were expected.

And so it was logical that the Governor should be standing at his window watching the steadily-growing silver sphere with increasing curiosity. The stranger was decidedly sizeable.

Not quite as large as the immense passenger boats, it was still some two hundred feet in diameter, disregarding the "blister" that bulged at its poles, after the fashion of Venerian war craft. The focusing effect of the gravity-web that supported it made the ship seem much nearer than it actually was, but even so it was obvious that it would soon enter the zone forbidden to geotronic traffic. Yes—there was the scarlet beam from the despatcher's tower at the 'port darting up to it.

The sphere continued its leisurely descent, though. Soon the characters on its hull were visible, and the Governor paled, dove for the phone on his desk. That great silver ball, hanging in the black sky like a huge drop of mercury, was the *We're Alone*—whimsically-titled pirate craft!

A warning flare burst beneath the lowering vessel. The forts around the colony had awakened, at last. The stuttering blueish beam of a heat projector—secondary, color-producing radiations were customarily projected along with the inimical beams to aid the gunner in directing his weapon—flashed from one of the blisters and played across the crystalloid surface of the colony's shell, seeking a weak spot which would absorb some of the ray.

The skies were magically empty. A laggard cab was caught in the path of a

deranger projected from one of the forts. It faltered, and plummeted like a stone, to smash into the roof of the colony. A shower of razor-edged shards of crystalloid rained into the streets below, decimating a crowd of fleeing civilians.

The blue ray swung, probed a long finger into the gap. A dull concussion followed as the generators of the Power Building shorted and released their frightful loads of energy. Swiftly a blast of air screamed through the rupture, to fall back in snow. The poisonous Plutonian atmosphere seeped in.

The damage was bad enough, but only one compartment of the multi-celled city was breached. The town had been constructed with this very possibility in mind, and it was divided into numerous sections, each with its own protecting walls and atmosphere, and power supply. Avalon could resist attack for a long time yet. . . .

CHAPTER THREE

Pirate Attack!

KHOVANSKY flicked his cigarette from the open window of the rocketing ground-car, cursing as a few hot sparks blew back into his face, and immediately took his hands from the wheel to fish through his pockets in search of another butt. It was quite safe to do so, since the long stretch of highway between Mars Port and the key city of Garrison was as smooth and level as the green of a billiard table. Two miles or so distant, crystal-clear in the thin broth of the Martian atmosphere, the obsidian surface of the *pave* dipped in a gentle series of waves, but they were hardly high enough to be called more than slight ripples.

Ordinarily, cars were not driven on Mars with dropped windows, and while Khovansky could breathe the thinner air with little discomfort, still he was as sensitive to cold as any warm-blooded Ter-

restrial; a fifty-degree temperature, while a beautifully balmy day by the standards of the Red Planet, was quite distasteful to him, and he hastily rolled up the glass.

He was upon the first of the ripples by now, and he perversely increased the speed of the car to a full ninety-five, enjoying to the fullest extent every bit of the struggle to keep the hurtling machine on the road. He was irked by the three-hour drive through monotonous desert, his cigarettes were gone, and he was of a naturally aggressive nature anyway. He switched on the radio cuddled under the dash, and depressed the "news" key. There was a slight power hum while the set warmed up.

"—ations broke off one hour ago," a strained voice barked. "A flash has just come in from Chekhov, on Ganymede! Three pirate vessels are bombarding the colony! Chekhov is the sixth of the Outpost Cities to be raided since Avalon was attacked three days ago. The Patrol is making every effort to check the raids, but the pirates have evidently chosen their time very carefully, since fully half of the Patrol ships are laid up in the repair-docks in Lunar City. Central Government is said to be considering the recall of the Main Fleet from its annual manoeuvres in outer space to cope with the sudden outburst of pirate activity. Flash! Word has ju—"

Khovansky flipped the switch, and his strong mouth twisted in a lopsided smile. The Angel's scheme, typical of him, was working to perfection; Central Government would be safely occupied for some time to come.

The next step, then, was to gain admission to the Transportation Chambers, where his trained eyes could survey the apparatus which, when duplicated, would flash his own messengers across the forty-eight million miles of void between Earth and Mars; the other planets would come later, as the most important two were

disposed of. It would be difficult for Khovansky to achieve even an approach to the Chambers, but the prospect did not worry him.

The little car bounced over the last ripple and continued at the same breathless speed, yawning and swaying to the sides of the road. The buildings of Garrison rose with disconcerting suddenness in the distance, and Khovansky released a sigh of relief. He had no desire to continue the trip through the black night that would shortly fall.

HE PARKED the speedster in a private garage. It was only a hop, skip, and a pistol shot to his destination, and in a few minutes he was entering an office marked "Comptroller."

"Sit down, won't you?" requested the thin Martian at the littered desk, absorbedly scanning an official-seeming paper. "I'll have this cleared up in a moment."

"It can wait," Khovansky suggested silkily. The ragged, leathery ears jerked a bit, and the Martian's head snapped up.

"Khovansky! What do you want now?"

Khovansky grinned. "The pleasure of your company, Dracton. After all, I've known you for a good many years now; your attitude hurts me. It cuts me to the quick, Dracton. Why, you act as though I were an enemy of yours!"

Dracton cracked his knuckles in a nervous gesture. "Don't play with me, Khovansky," he begged. "Tell me what you want and get to hell out of here!"

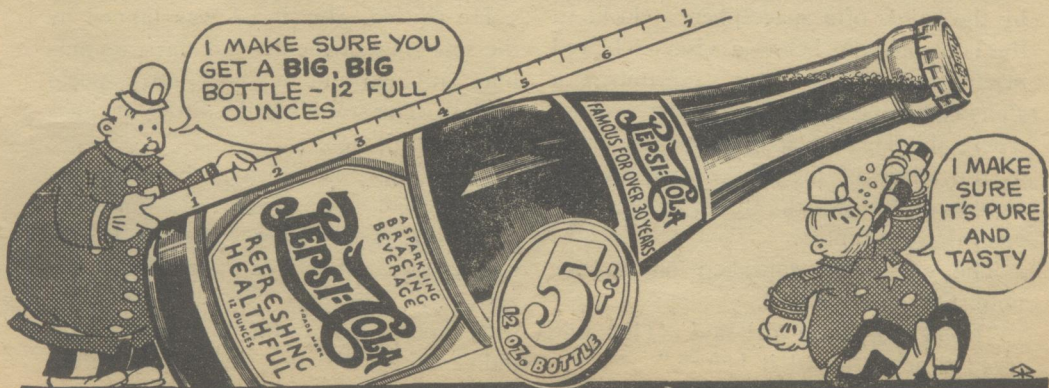
"Okay, then." The Nationalist's tones were hard, silky and insinuating no longer. "I want a pass to the Transportation Chambers."

The Martian smiled wearily. "You don't want much, do you?" he said sardonically. "That's only the most closely guarded secret of the Centrale. But you—you'll just walk right in and out again." He laughed, and there was little mirth in the sound. "Sorry, Khovansky. I can't do it. That's beyond my powers, and you know it. You'll have to go directly to the Central Government for that—and it wouldn't surprise me if you did . . . damn you!"

Khovansky shrugged. "All right, then. If I have to go to Central, I'll do it. They'd be awfully interested, by the way, in the details of that contract with Titanian Minerals . . ."

The Comptroller's slender fingers popped in a very ecstasy of anguish. "Now look here, Igor," he exclaimed earnestly, "I can't afford that! But I'm really helpless in this matter of the Chambers. The only men I can send through are the government staff working under me, and they're all well-known at the Chambers."

"Oh, hell, use your imagination!"



Khovansky snarled. "Pass me through as a messenger or a runner—anything! Forget something—send me in with it to one of your men."

Comptroller Dracton stooped before a small safe, spun the dial through its prescribed, clicking orbit.

"All right," he said, and handed Khovansky a small card. "That will admit you. You know," he added, almost conversationally, "some day I shall kill you, Igor. I hope very much to drench you in oxylene, and then stand back and toss cigarette butts at you. So do me a favor, my friend, and don't get caught."

"Thanks," said Khovansky. "I won't."

And so the second step was accomplished. . . .

CHAPTER FOUR

Janne Explains

OWEN slouched in a comfortable seat, his feet on a higher level than his blonde head, and squeezed amazingly harmonious sounds from his battered little concertina. The transparent dome of the *Halo's* observation blister arched above him; the gas-glow tubes had been switched off, and the only illumination was that of the starlight seeping through the dome. The *Halo* was quiet—so very quiet—with that curious stillness that only seems to come at night, whether night-fall be governed by a planet's rotation or by the hands of a spacesphere's clock. In the control-room below a visevox blared briefly as the navigator transmitted a short command to the engine crew; somewhere there was a long, extended creak as the fabric of the vessel strained and shuddered beneath the thrust of the powerful driving units.

The concertina squeaked on a sour note. Owen shuddered.

"Don't stop," the girl said. "That was nice; I never heard it before."

"Stevens' latest hit," Owen murmured around the stump of a cigarette. He twisted about to face her, found his position uncomfortable and swung his size nine feet to the metal floor. He regarded her knees with undisguised approval.

"There's a record-player somewhere around here," he continued, "if I can only find the damned thing. John has a habit, I've noticed—ah, here it is!—has a habit of coming up here and knocking off a couple of spools every days. I'll put on some more of Stevens' stuff for you; he's good."

They smoked for a while, Owen running off little trills on his squeeze-box in idle accompaniment to the music.

"Y'know," he mused, "Stevens isn't like some of these modern composers. Or maybe I'm old-fashioned, huh? But their stuff—Schoenberg and Shostakhovitch and Hindemuth—their stuff sounds like a crawling chaos to me. I dunno; modern music irks me. . . ."

The recording, on its little wire spool, reached the last melancholy note and there was no sound but a faint hum from the player. Owen leaned over and switched it off. "Do you mind?" he asked, and dropped the concertina into one sagging pocket.

He tramped on the butt of his discarded cigarette.

"We intersect Mars' orbit tonight," he said, "and pick up Igor; the Angel got a helio from him yesterday afternoon."

He paused. Her faced was limned by the soft glow of the myriad stars, its outlines softened and moulded into a poem of flesh. The spy blinked a little; at times he hated his job. . . .

"I'm sorry, in a way," he went on. "We've had some good times up here, you and I. Janne—there's an angle I don't make, something I've wanted to ask you. . . ."

"I know. You want to know why I didn't want you to meet the Angel. I didn't

know then that everybody was going up to his room . . . I met him on the *Tala*, and joined this—this conspiracy. I'd known him before, you see, I was on the *Lacus Solis* when he captured it a year ago." She shuddered. "He put everybody out of the airlock. We stood in line, with his men all around us forcing us on, stepping out into space one by one, and he saw me. He just—stood there a minute, looking at me in the strangest way, and somehow seeming so tired, and he said, 'Let her go.' It was just as though he didn't give a damn what happened to anyone, even himself, and was doing this just because of a whim."

SHE stopped for a moment, as though to clarify the situation in her own mind. Owen silently gave her another cigarette.

"I joined him, back on the *Tala*, because the Centrale had executed my brother for a crime that someone else had committed, and I wanted revenge. But this plot . . . Even if you are in it, Gene, I can tell you; I don't care what the stories are about you, you've been clean and decent to me. . . .

"But this conspiracy is all so horribly wrong, Gene! Maybe the Nationalists are sincere in their ideals, but even in their 'ideal' state, there would still be trouble—there would always be a certain amount of power in the hands of a few men, and in the end, they'd be right back to the old system again. They say that our government, under the Centrale, is a government of fear—fear of superiors, and that they would get away from all that. They can't, Gene . . . they just can't!

"And they're so fanatical! They'll destroy everything that our system holds precious, to cram their beliefs down our throats whether we want it or not—and they call that saving us from ourselves!

"So I thought that if you didn't show up, Gene, he might decide not to bother

with it and would go back into space; the whole thing would have collapsed, without his help. He wouldn't care. Remember that line from one of Kipling's poems?—'He was the cat that walked by his wild lone, and all things were alike to him'." She laughed nervously. "That's John Koehler, down to the very last atom of him. He doesn't care about anything."

Owen was quiet. He knew what she meant; he had read the story of the Angel's ennui in those little broken lines around his colorless eyes. Koehler had lived too hard and too fast to be able to enjoy life as a human being should.

"Put on another spool, Gene," the girl asked, "and let's dance. I haven't danced in a long time."

"Oh, hell," he groaned. "Do I have to get up? And I was *so* nice and comfy here!"

Owen's thoughts were whirling like a Bolero as the pair of them glided and dipped across the floor. He had thought that this slim girl in his arms had been thoroughly in sympathy with the plot, and now, to find that she— He wanted suddenly to hold her close, her head against his muscular chest, and whisper into the tiny ear so appealingly half-concealed by a mist of auburn hair.

But all he said was, "I'll have to be going soo. The Angel wants me along when we pick up Khovansky."

She gave a little cry of disappointment. "Oh, Gene, do you have to?"

"Yeah. Afraid so, honey." He led her back to the seats. "John thinks there's a spy aboard the *Halo*. Twice now, when he's cut the power he's heard a call-note going out on the Patrol's own band. It stopped before he could get a beam on it, though. So I guess that he wants to get me out of here and into Mars Central before the snotties come bustin' in."

Owen leaned forward and grasped her hands, speaking more earnestly than before. "Janne, I don't give a damn about

going; it's just another job to me. I'm being well-paid for my share in this mess. I'd like to get off the *Halo*, though; this tub isn't exactly conducive to one's peace of mind . . . but I hate to leave you in this. Why do you stick around, Janne?"

SHE shook her head. "I don't know, Gene. I hate the *Halo* and I hate Khovansky and I hate the brutes riding in this hell-ship . . . but I stick just the same. Don't ask why."

"Yeah," Owen said. And again, "Yeah. I can't change your mind?"

She looked at him, stars shining behind her eyes. "I can't leave. And where would I go?"

"Okay," he said tight-lipped, "skip it. It was just an idea—and not a very good one, at that."

She stopped him, to his extreme surprise, with a brief kiss. Her fingers touched his cheek caressingly. "Poor Gene," she murmured. "I'm so sorry—what's the matter?"

Owen's fingers had closed with painful force about her wrist. He indicated his watch, its numerals blazing under the invisible impact of a spy-ray. Quickly he grabbed up a spool at random, shoved it into the record-player, and winced as the howlings of Chauvenet's *Ganymedian Rhapsody* bounced at three-quarter volume around the blister.

"Somebody's watching us," he explained needlessly. "Forget what we were talking about," he lipped tersely.

A door slammed. The Angel was crossing the floor toward them.

"We're going down to pick up Igor." His usually lifeless voice had a sharp, harsh undertone. While he spoke, the muted murmur of the drivers changed, deepened, and they felt the sphere swing beneath them as it was ripped from its Mars-circling orbit. The Angel snapped the light-switch.

Owen blinked like an owl in the sud-

den flare of the gas-glow. He'd been right, he thought. Koehler's face was grim, more death-like than ever.

"You've been up here a long time, you two."

Owen nodded easily, mentally thanking the jitter-headed Goddess of Luck that he hadn't made any damaging disclosures to the girl.

"Why, yes," he returned. "We were gettin' in a bit of dancing."

The Angel's cold eyes burned. "Dancing!" he snorted. "And Nero played a fiddle! You fool—this is one of the most dangerous parts of the game! I've got to set the *Halo* down in open desert, without a cradle, only fifteen kilometres or so from Garrison and twiddle my thumbs while Khovansky takes his time meeting us. The devil alone knows who'll be following him! He's up against the Centrale this time, and they're not fools . . . even if the Patrol is!" His manner changed abruptly. "I—I'd like to have you along in the C-Room when I set her down, Gene. You're a nice guy to have around."

Owen stared after him as the Angel left the blister.

"Well, can you tie that!" he marveled. "The Angel's turning soft, Janne."

CHAPTER FIVE

The Angel's Gift

LANDING a spaceship is no mediocre operation. The usual procedure is to manoeuvre the huge globe directly over a landing-cradle, possibly one hundred or two hundred feet up, and cut the power. The resultant impact is not as fearful as an uninformed person would imagine, due to the monstrous, smooth-working hydro-pneumatic buffers using the same principle of oil- and air-cushioning employed in the recoil mechanism of a large piece of ordnance. And that is why pirate vessels so very rarely touch a planet's surface.

Lacking the facilities of buffers and cradles, their navigators prefer to do all their ground-work by small auxiliary rockets.

But the Angel was, as the general public now knows, no ordinary pirate. He had a knack of piloting, a gift possessed by no other rocketeer, that would have enabled him to thread a needle, using the *Halo* to tow the thread. And so the huge sphere was lowered to the drifting sand far below. His hands white-knuckled on the T-bar, face pale and dripping, coaxing, cajoling, sometimes cursing the spasmodically dropping globe, he grounded it on the soft Martian desert.

"Hell!" he said, and in any other man and under any other circumstances, it would have been a curse. "Give me a cigarette, Gene. Now all we have to do is wait for Khovansky."

It was typical that he dismissed an extraordinary feat of jockeying so lightly.

They did not wait long for Khovansky. A tiny pinpoint of light winked briefly, out in the blanket-like darkness, and not long after, the Nationalist and his men entered the sphere, each trailing an enormous box on a battery-powered grav'-plate.

"Hi, John," was his cheery greeting. "Back to Heaven at last."

Koehler's eyebrows raised quizzically. "Heaven?" he murmured.

Khovansky was quite evidently in high good humor. "Sure," he smiled. "Where else would one find a haloed angel? Let's take this stuff somewhere—one of the blisters would be best—and get it set up. It won't be hard."

The Angel detailed two of his crew to carry the equipment to the starboard blister. Then turning once more to Khovansky, he said, "Okay, Gene will give you a hand. I'll take the *Halo* up in the meantime."

Khovansky raised a restraining hand. "Uh-huh," he protested. "This thing

won't work in free space. The force field set up by a grav'-web would cut it off, or filter out the beam, or some damned thing. The mechanics of it are too confounded complicated to be picked up in a couple of days. It's really comparable to a Y-ray, you know. It—"

"I didn't know," the Angel interrupted ironically, "but I'll take your word for it. What the hell do you want me to do—sit here all night?"

Khovansky was unruffled. "You catch on quick, John. You'll have to, though. Even with your percentage of intake, this little gadget will drain your cells. Mars Centre is on Terra, fifty million miles from here, you know. But hell, you know all that—what's the use of standing here talking about it? Let's go do some work, huh?"

KHOVANSKY had not erred when he said it would not be difficult. The apparatus seemed to have been assembled and then knocked down in such condition as would permit instant rebuilding with the simplicity of piling toy blocks. Looking at it, Owen, who lacked the technical background of both Koehler and the Nationalist leader, was floundering hopelessly.

"What the hell is it?" he wailed plaintively, surveying the half-completed product of their endeavors.

"Nothing much," Khovansky said. "I'm surprised that I didn't think of it myself, with all the hints I had. As I said belowdecks, it works like a Y-ray, only, in reverse. A Y-ray—lift that end there; that's it—over here, now, and tighten that wing-nut—picks up sight and sound at a given point, and transmits it along a beam to the receiver. This little thingamagadget turns all that around and adds a little touch of its own. It picks up a solid object at our end, chases it along a very tight beam, and reassembles it at the point of focus. See? Look out! God only knows

where I'll get another tube like that if you smash it!"

Owen juggled the large bulb for a moment. "No, I don't see," he mourned. "I always was dumb when it came to this stuff."

The apparatus looked capable, he thought, of doing anything from frying an egg to performing swift and sudden annihilation. He asked another question.

"It's a strange thing to watch," Khovansky obligingly explained. "The 'passenger' steps into that coil," indicating a huge, seven-foot cylinder, "and the operator flips this switch here. There's the very devil of a roar, like a coarse electric arc, and a blaze of light. When the smoke clears away, the passenger is gone, just as though he were smashed out of existence."

"Hey, wait a minute!" Owen yelped. "I don't like that. I've got a very definite aversion to being treated that way! My mother's fault, probably; she brought me up."

"Come on," the Angel snapped impatiently. "Send him off and get it over with."

Khovansky nodded, and closed a small knife-switch. "It will take a few minutes for the tubes to heat up," he explained. Owen glanced at his watch. This was the time for the Marines to come marching

in while the band played "The Stars and Stripes Forever." Where the hell *were* Allison's boys?

Little blue glows began to creep along the banks, and tiny pinpoints of orange-yellow marked the shielded filaments. Another switch shot home and a queer vibration, a sort of silent quivering in the air of the blister, made itself apparent. Owen fingered his watch nervously.

"I'm going to set you down in the Sahara, Gene." Khovansky's voice made him jump. "You'll be fifty kilometres from Mars Centre. When the job's done—"

EVERY pistol in the world went off, and the explosion lifted the three men from their feet and set them running down the companionway. The 'lock-deck was a bedlam of battling men; pistols and the wicked Martian *cestii* were being wielded with frightful effect. The air was a howling fury of screaming ricochets and shouts; a man in pirate khaki screamed and clapped frenzied hands to a pulped, streaming face across which a toothed *cestus* had smashed. Another sat against a wall, his legs stretched before him, coughing weakly and clutching his torn belly, unmindful of the conflict before him. Off in a corner a khaki-clad fighter grinned toothlessly through crushed lips

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as he slashed his pistol barrel across the eyes of his struggling opponent. But the main fight was toward the rear of the deck, where the two forces were locked in a milling, shouting, cursing mass.

The Marines had arrived, and the *Halo's* crew couldn't take it.

Owen shot Khovansky twice through the skull as he centered his sights on a placidly gum-chewing individual who seemed to be directing the attack. The gum-chewer waved a hand in languid thanks, and with something of a shock Owen recognized his boss. He clawed and struck his way into the mad melee, striving to reach Allison's side.

"Hi, Butch!" Allison said calmly, emphasizing his greeting by dropping a pirate. "How we doin'?"

The Angel had meanwhile reached the comparative safety of a small emergency 'lock. He crouched there in the tiny compartment, the 'lock-door half open. "Gene!" he yelled. "Come on—this way!"

Owen dropped to the floor as a heat bolt hissed over his head, raised his pistol and lowered it again.

"Come on out, Koehler! Throw your gun down and come out!"

"You damned spy!" the Angel spat, and threw a slug at him.

Owen's finger hesitated on the trigger, tightened with sudden impulse. The Angel's weapon fell from suddenly lax fingers; he shook his head wonderingly and slumped to the cold floor.

And then the girl appeared from nowhere, it seemed, was raising his head to her lap. Owen could hear her crying as he ran over.

She turned a black face to him, her eyes were twin lightnings through a storm of tears. "You were the traitor! He was your friend and you killed him!"

The Angel's thin lips moved. Owen slipped to one knee beside him, bent over to listen.

"Never mind," he murmured weakly. The girl wiped a trickle of blood from the corner of his mouth, bowed her slim body and pressed her lips to his pale, high forehead. "You're a fool, Janne, and so—am I. Why don't you pin a medal on him?"

He coughed, and a sudden spasm of pain twisted his mask-like features. A vacant stare glassed his eyes; his jaw dropped and sagged grotesquely to one side. The Angel was dead.

Owen gently placed his hand on the girl's shoulder. "Janne . . . he's dead now—get away while you can . . ."

But he never had a chance to finish. A heat beam bounced from a bulkhead in a shower of sparks, hissed into her soft flesh, and she slipped with infinite slowness across the Angel's body.

That seemed to mark the end of the fighting. A few scattered reports echoed, died away. The air was blue and hot from the rays that had whipped through it, bodies were scattered about the floor slumped in varying odd positions; over at one side, the ghastly, twitching wreck of a man strove to drag itself along on hands and knees, peering sightlessly about with eyeballs that were white and cooked by the searing bite of a heat beam. Owen saw Allison coming toward him, blood dripping from one dangling arm.

"Good work, Johnny," the major told him. "The revolution falls flat without Khovansky, and with the Angel dead, we'll be able to handle the pirates. You'll get a nice piece of bounty for this."

"Yeah, Sure," Owen said dully. Somehow he couldn't focus his thoughts on the reward.

He looked at the fallen criminal, and the pitiful heap lying across it that had been all the beauty and loyalty and love of Janne, and within him the Angel's tired voice repeated, ". . . give him a medal."

JUICE

They invented a brand-new game in Lunar Center—ping-pong, played with electromagnets for bats and for the ball a complex sphere of living electricity.



By L. SPRAGUE de CAMP

OF LUNAR CENTER, little could be seen on the surface, except the few nondescript domes. Below the sur-

face was a series of chambers, like those of a Maginot Line fort, and from these branched a labyrinth of tunnels. Some led to the shafts of the Lunar Mining &

Metals Corp. One reached out half a mile to the chambers containing the rocket-fuel plant. In the control-room of this plant a slight sandy-haired man in his early thirties worked a slide-rule. He was Victor Gaston, the engineer in charge.

As a large young man entered the room, the lights flickered. Gaston barked: "Damn!" Then he said: "Oh, it's you. Come in."

"I *am* in," said the other truthfully. "But I don't mind sitting down. What's in your hair this time, Vic?" He was Darwin Priest, assistant to the Chief Surveyor of the Space Transport Authority.

"The lights," grumbled Gaston. "Been wrong ever since Sella landed. And when I call Hartwig up, he says, 'Oh don't bawthah me.'" He maliciously exaggerated Chief Engineer Werner Hartwig's accent.

Priest nodded sympathetically, and scratched the chin from which no amount of shaving would banish the bluish tinge. "The trouble with you is, you've never learned to handle your bosses. You know Uncle Poggy's terrible temper. He eats out of my hand. The Moon's a bad place for people with nerves."

Gaston fumed. "You can say that; Pogbadian's at least human. But if you opened Hartwig up you'd find nothing but stop-watches, efficiency tables, and a copy of Frederic Taylor's sermon on the duties of a good employee. Won't even let us do real research for fear of blowing up the fuel accumulators. What's Poggy's program?"

"We start the survey for the emergency fuel-line pretty quick. That means froggin' around in a suit, okay if a meteor doesn't drill you. Say, where's the Dutchman?"

"Bill?" replied Gaston. "Asleep. He can—damn, there go the lights again. Routine check didn't find anything wrong. So Hartwig says, 'Waste the Authority's money tracing every wire in the place?

Nonsense, young man!' " He listened. "Sounds like company. Yellow Peril's dainty steps, I think."

PRIEST craned his neck toward the corridor. "You'd have to be deaf not to know 'em. Yep, Hank, and he's got a skirt."

"Female? Where's my comb! Damn, damn. No remarks from you about peristaltic movements." Gaston referred to Lunar Center's chief topic of conversation, to wit, the unfortunate effect of the slight gravity on the human digestive system.

A thickset man with broad flat features entered with the female in tow. Gaston said "Hello, Peril." Priest added: "Hi, Genghis Khan."

Genrih Tseven, third assistant astronomer, would have been surprised if anyone had called him by his right name. He broadened his perpetual smile, waved a pudgy hand toward the two, and introduced them: "This is Miss McGlomb. You know, *the* Miss McGlomb? She came up with her father last week, and I've been showing her the Observatory. Take over, huh?"

Gaston and Priest went into action like a pair of terriers after a rat. McGlomb was the Authority's sixth vice-president. Besides, the female was obviously good-looking.

"Say, Hank," Gaston put in as Tseven started to leave, "How's juice up your way?"

"The lights blink," replied the Mongol blandly. "As they have ever since Sella landed. And a couple of our 'phone lines went out a couple of hours ago. When the monkeys went over them, they found some of the contacts melted down into little puddles of copper. Nobody knows why. Be seeing you."

Priest was saying: ". . . and so the hydrogen ions are stored here, and pumped up to the port when a ship's about

to take off. The fuel plant is out here so if it explodes. . ."

"But I still don't understand what ions are," interrupted the girl.

"Well, I'll try to explain again. You know what an atom is?"

Gaston pulled at Priest and hissed: "Say, whose control-room is this?"

"Keep your shirt on," whispered the surveyor. "I seen her first." But Gaston took charge of explanations: "Last ship out was Sella's; been up on Maleyev's Ob—"

"Oh, I know Captain Sella," broke in Miss McGlomb. "He's what I call a real hero . . . so handsome . . ."

"Maleyev's Object," continued Gaston firmly. "Another moon, as you may know, which we didn't know we had until a few months ago. Not surprising, considering it's only half a K through, and three times as far from Earth as the real moon. Sella was looking for scanlonite; that's what they mine here, you know. But nothing but nickel-iron, so he's gone back to earth."

"What's scanlonite?" asked the girl.

"A complex magnesium-lithium silicate, found only on low-gravity bodies. In a magnetic field it conducts like silver. Cut off the field, and it conducts like porcelain, which is to say hardly at all. They can make it on Earth for \$2.74 a gram, and mine and ship it from here for \$1.96 a gram. Hence the ninety-nine year mining lease that Lunar Mining and Metals has on the Moon and on anything lying around on its surface. Won't say anything about how they got the lease; you'll hear if you keep your ears open."

"But," protested the girl, "isn't Mining and Metals the company you work for? I thought it was all one organization."

Good lord, thought Gaston, and her old man an Authority exec! "No," he said, "we work for the Transport Authority, as your father does. That's a public corporation whose stock is owned by

the principal governments on Earth. Mining and Metals just leases—"

"What's scanlonite used for?" asked the girl.

GASTON felt a slight wave of annoyance at these interruptions. But her eyes were still big and blue and beautiful. "Oh, electric switches and things."

"Oh. I thought it would be something exciting, like a gem."

Priest was smiling slightly at his friend's visible cooling. He asked: "Don't you think that's enough engineering for now? Let's try the radio." He twirled the dials of the set. The set burped, gave out a short phrase of music, and went dead with a pop.

Gaston swore under his breath as he hurried over. "All the damned juice works are going haywire!"

Priest told the girl: "Don't mind Vic; he gets riled up easy. Have you been up on top yet?"

"Oh, yes. Captain Sella took me for a two-hour hike. He's such a wonderful man—so brave—" She sighted Gaston's canary. Here was something she understood. "Oh, isn't he a darling! What's his name?"

"Alaric," said Priest. "Personally I like Great Danes better. But they don't let us keep big pets because of the oxygen they use."

Alaric gave a mournful twitter and relapsed into silence. A red-faced young man in pajamas appeared through a door. He said: "Excuse me, please," and vanished. Presently he was back in a bathrobe. Priest introduced him to the girl as Willem Kuyper, Gaston's partner.

"It must be thrilling . . ." began the girl.

"Please," said Kuyper firmly. "We have heard that before. Once a year something goes wrong, and we have a little excitement. Rest of the time we watch dials, and bush levers when a ship comes

in, and blay bridge. The last ship was Sella's, and there won't be another for days."

"Do you know Captain Sella?" gushed the girl. "Isn't he a marvelous—"

"Ouch!" yelled Gaston. "The damn thing bit me! What's that?"

SOMETHING was oozing out of the receiving-set, like a soap-bubble out of a pipe. Like a soap-bubble it presently parted company with the set and floated up over the people's heads. It seemed to be a ball of light, varying in color from magenta to deep purple, and a little bigger than an orange. It gave out a high buzz, like that of a small insect.

"Inbossible," murmured Kuyper. The ball moved toward Alaric's cage. There was a poof! and a burst of feathers. Then there was no ball, and a dead canary.

Priest started for the cage, but jumped back. The glowing ball was swelling out of a joint in the cage-wires. In a few seconds it was drifting around the room again.

The girl screamed piercingly. The ball hesitated, then started slowly toward her. Kuyper jerked open the tool-cabinet and took out a yard-long spanner. "Gill our Alaric, will you," he growled. He swung at the ball. As the head of the wrench hit the thing it vanished with a report. The Fleming leaped straight up, face distorted, and collapsed on the floor.

Gaston pulled Priest back from the fallen man. "Watch out! It may be in him still. There it comes!"

The ball was oozing out the end of the spanner. Priest snatched open the hall door. "Can't get out that way. More of 'em in the hall."

Gaston was trying to disentangle himself from Miss McGlomb, who had fastened around his neck like an amorous octopus and was shrieking at him to save her. He got loose long enough to snatch up the telephone. The line was dead.

The ball floated up to the ceiling. Priest, bending over Kuyper, said: "He's alive; just electric shock, looks like. If we can use artificial respiration—"

"Not with that thing floating around," replied Gaston. "It seems to travel along metal—look, why not use this to fend it off?" He picked up a little table with a circular glass top. He grabbed a bottle of rubber cement out of the tool-cabinet, and smeared some of the goo on the brass screw that went through the center of the table-top. "That ought to insulate it. For God's sake, Miss McGlomb, will you please let go my arm?"

The ball drifted; then swooped at Gaston. He brought up the table, and the ball bounced back from the glass top as if it had been made of rubber. Gaston, mouth twitching into his nervous little smile, yelled: "Ha! Can't go through a dielectric!"

The ball tried again; again its attack was parried.

"Looks like it's alive," said Priest. "If we had another table we could play ping-pong with it."

Gaston's face showed he wasn't amused. The ball flew to a light-switch on the wall, shrank, and disappeared. Priest went to work on Kuyper's breathing apparatus.

Gaston yelled: "Look out!" The ball had appeared out of a lighting-fixture on the ceiling, and was dropping toward Priest's head.

"Whew," said Priest, "you saved my hash. Let's drag Bill into the lab."

"Oh, my God!" cried Gaston. Miss McGlomb had fainted.

"Keep your head, Vic. I'll carry 'em." Priest dragged the two limps forms out while Gaston held off the ball with the table-top. Gaston slipped into the laboratory and shut the glass door quickly. He began brushing rubber cement around the door-cracks and over the metal door-handle.

THE laboratory had the messiness of authenticity, with heaps of wire, rubber tubing, and miscellaneous junk piled around. Priest said: "What'll we do about the pipes and wires running in here? It'd take gallons of goo to insulate 'em all."

"Have to trust to luck that it doesn't find them for a while. They're pretty complicated. If it isn't alive, it gives a damn good imitation."

Gaston looked through the glass door. "It's them," he announced. "The ones in the hall are oozing through the doorknob. Four in the control-room now." The glowing balls hovered about the room. The only sounds were their hum and Priest's heavy breathing as he labored over Kuyper.

Gaston continued: "Seem like animated lighting-balls, sort of. Nobody knows what lighting-balls are, or what holds 'em together against the mutual repulsion of their electrons. My guess is our visitors are balls of electrons, spinning rapidly."

Priest grunted, "Bill's pulse is getting stronger. How do these things move?"

"Don't know, but it might be by repelling ionized air-molecules out one side. The one that attacked us has shrunk; must be getting worn out."

The smallest of the balls fastened itself to an open light-fixture. The men could see a blue flicker inside the thing's body. The ball grew as they watched.

"Hey!" cried Priest, "it eats juice! It shorts the light-circuit, and feeds off the spark it makes through its own body!"

"Sure," said Gaston. "What'd you expect it to eat, hamburger and onions? Oh, hello!" This was to Miss McGlomb, who had come to.

"Where am I?" she asked. Gaston explained. The girl cried: "Get me out of here! Get me away from those awful things!"

Gaston explained that the emergency

exit to the surface was through their bedroom, which could be reached only through the control-room. Miss McGlomb wept. Gaston looked jitterier and jitterier. Priest said: "Look here, young lady, you're missing something very interesting. If we watch these things maybe we can figure out how to handle them."

"I'm not interested in your fire-balls! I want to get out! Captain Sella would know a way out! He's a real man!"

The ball detached itself from the plug and flew vigorously around the room. It joined another ball. The two whirled around one another. Then there was only one, the size of a grapefruit. The big ball changed to a torus, and the torus broke up into four small balls. These raced for the open fixture. The first to arrive anchored itself and began to grow. The others buzzed off, apparently looking for more light-sockets.

Priest said, "They're alive all right. You've just seen a red-hot drama of stark passion. Like this!" He made a pretended grab for Miss McGlomb, who squeaked and snatched up a burette stand, with: "Don't you dare! I'll brain you!"

"Act your age, Darwin," said Gaston. "Guess you're right; they reproduce like paramecia. Wonder where they come from? Not the Moon, or somebody'd have seen them. Can't travel through a vacuum, which is an insulator. Somebody brung 'em."

"Sella!" cried Priest.

"Exactly! From Maleyev's Object!"

"What?" It was Miss McGlomb. "Nonsense! I won't have you vilifying my friends this way!"

Gaston and Priest looked hard at the young woman, evidently not thinking beautiful thoughts. But a vice-president's daughter is a vice-president's daughter.

PRIEST turned back to the door. "We'd better do something. They're exploring the wiring system."

"Sure, but what? Let's see; what's their conscious world like? Ours is made up of gravitational fields, and certain electromagnetic waves and sound waves, like the sound-waves between sixteen and 20,000 cycles. Our balls are probably blind to gravitational fields and sound-waves, but strongly conscious of magnetic and static fields. The wires and pipes are like hallways to them. Insulators are like walls or closed doors. Air they move slowly through, like a man swimming."

"But that doesn't get us out," protested Miss McGlomb. "You scientists are supposed to be smart—"

Gaston jumped nervously. "I'm not a scientist, my dear young lady. I'm just a poor dumb engineer—"

Gaston put in: "Don't rattle him, sweetheart. The great brain has to—"

"But," the girl persisted, "all you do is sit around and talk about walls and bicycles. Can't you do anything but lecture? Captain Sella—"

"Miss McGlomb," snarled Gaston tensely, "will you be so very kind as to shut up—before I stove your ports for you? Where was I? Oh yes. They shouldn't be able to see, lacking organs for focusing light-rays. But they might be able to tell which direction electromagnetic waves are coming from, the way you can locate the heat from a fire. If they feed on current, and can locate a source . . . I know, a trap!"

In a few minutes the men had rigged up a box of miscellaneous glass plates, precariously held together by machine-tape. The plate at one end was fastened at the upper edge only, so that it was free to swing.

"Now," said Gaston, "the bait." He rummaged around until he found a spark-coil. He explained: "We'll put the secondary inside, and the primary outside next to the glass."

"Yeah," said Priest, "but how to get the ball through the door?"

"We'll open the door."

"What?" shrilled Miss McGlomb, "let those things in here?"

"We'll pin Bill's and my rubber aprons together," said Gaston. "Curtain. Stuff up the spaces on the sides of the box with glass wool."

"I won't let you—" began Miss McGlomb, but a growl from Priest stopped her. Gaston said: "Don't make it any harder for us, young lady. If a ball gets into the ionizers, the whole fuel supply'll go off with a loud bang. Only we shan't hear it."

PRIEST took a mouthful of thumbtacks and climbed a chair. Gaston opened the door, and Priest tacked up the improvised curtain. Then they pushed the trap under the curtain and across the threshold, so that the end with the door was in the control-room. They connected up the primary of the spark-coil, which was crudely taped to the rear end of the glass box. The hinged plate the far end was held up by a string running back into the laboratory.

"Damn," said Priest. "Have to get down on the floor to see what they're doing in there. Okay, Vic, the juice."

A little blue streak crackled across the terminals of the secondary coil inside the box. Presently Priest yelled: "Here it comes!" A rosy ball hovered uncertainly at the open end of the box. "Come on, mousey!" pleaded the surveyor. "Look at the nice cheese!" The ball finally drifted into the box and pounced upon the spark like a hungry dog on a chop.

Gaston released the string, and the hinged plate dropped with a clank. They hauled the box into the room, closed the door, and sealed the hinged plate into place with tape.

The ball seemed to realize that something was wrong. It left its meal and circled the box. It changed to bright pink and darted about, its shrill buzz coming

clearly through the glass. Priest turned off the current, "No use letting it build up voltage to where it can bust out. Especially on the Authority's current. Now we've got it, what'll we do with it? It's probably sending an SOS to its pals."

Gaston was silent for a while. Then he said: "If it's made of juice, it should be affected by a magnetic field. Motion of an electron in a field creates a voltage at right angles to its direction of motion. Let's see. For a core—no, the burette stand's too thin." He prowled around, and pounced on a yard-long mailing-tube. This he filled with buckshot from the lunar static field gage, and closed the ends with a pair of round tin box-tops. "Now," he said, "ought to be plenty of lead-wire. Ah!" He began winding the insulated wire around the tube.

"Here, Vic," said Priest, "punch a couple of holes in your tube, and stick this lever through for a crank. *That's* it. I'll hold the lower end with my feet, and crank. You feed the wire."

They worked furiously, but the wire coiled with disheartening slowness. The lights went out. The one emergency bulb blinked wanly on over the doorway.

"Hell!" shouted Gaston. "Can't see what I'm doing. That means the 110-volt system's gone."

"Keep your shirt on. I've got it." Priest reached over and shook the box; the entity inside glowed brightly. "We'll use Alphonso's own light to fix him by."

"Step on it, Darwin. Here, I'll pour the rest of the rubber cement on the tube. Don't want it coming unraveled."

To the accompaniment of the baleful buzz of the imprisoned entity, three layers of wire were put on the tube, and the whole thing was covered with black machine tape.

"Okay," said Priest. "Where's the 220 plug?"

The wires from the improvised electromagnet were plugged in, and Gaston

pointed the thing at the glass box. Instantly the ball was snatched this way and that by magnetic forces, and finally pushed into a corner, where it buzzed helplessly. Gaston looked his disappointment. "Not good enough. I can push Alphonso around with my magic wand, but I can't wreck him. Let's see—"

THE girl shrieked. A ball was growing out of the cold-water tap. It detached itself, floated up to shoulder height, and began shuttling purposefully across the room. "Damn it!" cried Priest, "It's after us! Oh, hell, here's another!" A second sphere were growing out of the faucet. "Must have found the way, and they're lined up in the pipe!" The big surveyor dropped to his hands and knees as the first ball swept over him. The second ball was shuttling too, and a third one had appeared on the tap. Their humming was like that of a swarm of mosquitos.

Gaston swung the electromagnet at the first sphere that came near him; the field flung it six feet away, but it came back for more. Priest caught up the glass-topped table. Miss McGlomb was screaming continuously, so that the men had to shout to each other. They tried to protect the two other persons. But the third sphere joined the deadly hunt, and a fourth began to take its place. One was persistently trying to get past Priest's table-top; as he blocked each lunge, it backed up and came on from a new angle.

"Vic!" he yelled suddenly, "is that magnet on direct current?"

"Yes. You mean—"

"*Try a. c.!*"

The engineer backed up to the wall-socket and snatched the plug out. The slight spark caused thereby attracted two of the balls. They swooped as he fumbled for the alternating-current socket. Gaston in his excitement failed to turn around to see what he was doing. In a fraction of a second the onrushing lavender spheres

would plunge into him—they were only inches from the end of the electromagnet, which he gripped like a lance in his left hand—and his fingers found the a. c. socket and thrust the plug home.

The two balls exploded with one shattering bang. Gaston leaped halfway across the room to the third ball, which went off likewise. Gaston swung his apparatus at the faucet, and another explosion rewarded him.

"Got em!" he whooped. "D. c. just pushes 'em around, but they can orient themselves to a constant field. But the a. c. field changes direction so fast it shorts 'em or breaks down their organization or something. Come on! We'll hitch a reel to the magnet, and set up a bunch of spark-coils for bait, and clean 'em out of the Center."

GENRIH TSEVEN came to see them. "They've arrested Captain Stella," he announced.

"Did he do it?" asked Gaston.

"It looks that way. He found the Maleyev's Object was mostly Scanlonite, with enough magnetite and metallic iron to give it fair conductivity. He landed with a magnetic grapple, and the field caught one of these lighting-balls near the surface. They live in the object, you know."

Gaston said: "It must be like a big hollow cavern to them."

"When Sella got out," Tseven continued, "he found this one ball caught at the end of a pinnacle by his field. So he collected it in a non-conducting box, and studied it on his way here.

"The Mining Corp's lease gives them not only all the scanlonite in and on the Moon, but all that's in any meteors on its surface. So Sella wanted to have the Corp. haul the Object into the Moon's orbit, and lower it down on the surface, so it would come under the terms of the lease, and their monopoly would be safe,

"But he wanted to present the governments that own the Authority's stock with an accomplished fact, before they made a stink about moving the Object. So he turned the ball loose here, knowing it would wreck all the low-amp circuits, including that of our signal-beam modulator.

"I'm afraid it'll go hard with him. Eleven men knocked out, two of em' dead. Anyway you boys ought to get something out of it. I've heard rumors of promotions."

Gaston said: "Take mine on Earth. I'm applying for transfer."

The other three protested with one voice: "No, Vic!" "You can't do that to us!" "What'll we do for a fourth bridge-player?"

He smiled his nervous, twitchy little smile. "Thanks, but my mind's made up. Darwin was right; the Moon's no place for a man with nerves. Anyway I don't get on with my superior."

Tseven asked: "Where's the lady?"

Priest answered: "She's been barricaded in our bedroom for twelve hours and won't come out. The balls have all been killed, but she's staying a while to make sure."

A beautiful smile spread over Victor Gaston's undistinguished features. "That gives me an idea for the most horrible revenge the mind can conceive. He dialed the telephone. "Mr. Hartwig? Gaston . . . Sure, Bill's coming along fine. Say, we have a surprise for you. Know Miss Eleanor McGlomb, the McGlombs' daughter? She was in the control-room with us when the trouble started . . . Yes, she's here now. Had a trying time, poor thing. If you'll be in your office half an hour from now, I'll bring her up to meet you. Don't mention it; glad to. 'Bye." He turned grinning to his friends. To Tseven he said: "If she nearly drove us nuts, Hank, what do you suppose she'll do to old Super-Efficiency Hartwig?"

THE END

THE SCIENCE FICTIONEER

Official Organ of The Science Fictioneers

NEARLY a hundred members in twelve days! That's what *The Science Fictioneers*, your fan club, has already accomplished! And more than that—four strong and lively branches already chartered, over a dozen more proposed, many valuable suggestions received for expanding, increasing, and improving the club. A grand beginning for what is rapidly becoming *the* top-notch science fiction fan club!

But we have only begun. As Milton A. Rothman, a member of our Advisory Board, stated at a recent conference of science fiction fans: "Fans are science fiction readers who like to do things. They are not satisfied to have things done for them. They must edit their own fan magazines, write their own stories and articles, make up their own conventions, run their own fan-clubs. They will not be satisfied at having entertainment or benefits pertaining to fan activities handed them on a silver platter."

And that is why *The Science Fictioneers*, a fan club run by fans for fans, is succeeding!

There is much before us. In Chicago, next fall, will be held a national Science Fiction Convention, which every member of *The Science Fictioneers* should support in every way possible. Many members of our club live in small cities and rural areas, where there are not so many fans as in the larger cities, and where, therefore, it is difficult to form local groups so that they may enjoy personal contact with other readers of science fiction; by telling our friends about science fiction, loaning them copies of our magazines, we can bring more people into our organization so that every city shall have a fan club of its own.

All this we can and will do!

But we need the help of every reader of *Super Science Stories* to do it. We ask all of you to fill out the membership application on the next page, send it in right

ADVISORY BOARD

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away, and participate in the activities of *The Science Fictioneers*.

Every member should try to form a local branch of the club. The minimum number that will be granted a charter is three members. There are no "charter fees" to pay; no red-tape to go through. As soon as you have three members of *The Science Fictioneers* in your locality, send in their names to the central office along with an application for a charter. It will be sent to you by return mail!

News from our Branches

DUE to the short period of time that must necessarily elapse between the time an issue of our magazine appears on the stands, and the time when the next issue goes to press, we cannot give you a complete list of all the proposed branches and suggestions that have been made. However, the following is complete up to the minute this issue went to press.

Our four chartered branches are *Los*

Angeles Science Fictioneers, Branch No. 1, P. O. Box 6475, Met. Station, Los Angeles, California; *Chicago Science Fictioneers*, Branch No. 2, 2609 Argyle Street, Chicago, Illinois; *Futurian Society of New York*, Branch No. 3, 2574 Bedford Avenue, Brooklyn, New York; and *The Solaroid Club*, Branch No. 4, 9 Bogert Place, Westwood, New Jersey. We suggest to every member of *The Science Fictioneers* living near one of those clubs that he visit their next meeting.

In addition to the chartered branch of *The Science Fictioneers* in Chicago, mentioned above, a request for authority to form a chapter in the same city has been received from Mark Reinsberg, 3156 Cambridge Avenue, Chicago, Illinois. The authority to do so is given; however, it is suggested that if the two groups were to merge a more stalwart and alive branch could be built through their united efforts than could be expected with them running in competition with each other.

Other persons who wish to form chapters in their vicinity are: Roy Cameron, Jr., 1021 Chestnut Street, Hamilton, Ohio, who asks that a list of members of *The Science Fictioneers* in or near Hamilton be sent him so that he can start a club. Unfortunately, Member Cameron, we have so far received no other applications from your city. Be assured that all such

that we do receive will be sent right along to you the moment they arrive.

Member Walter F. Williams, of 333 Ovington Avenue, Brooklyn, New York, says: "I have been interested in dramatics for some time and have dabbled in a bit at writing sketches and plays. I have always wanted to form a dramatic group whose work would consist solely in writing and producing plays of a scientific and fantastic nature." Here too, since there is a chapter of *The Science Fictioneers* chartered in Brooklyn, we invite Mr. Williams to get in touch with *The Futurian Society of New York* (Brooklyn branch of *The Science Fictioneers*.) However, his proposed dramatic group is an excellent plan, and all members interested in it should write Mr. Williams at the above address.

Member J. F. Gaillard, 731 Keith Avenue, Anniston, Alabama, who is a student at the Alabama Polytechnic Institute, would like to form a branch of *The Science Fictioneers* in that city.

Edwin R. White, 73 Taunton Road, Toronto, Ontario, Canada, says: "I don't need to wish you success as I know you will have all kinds of it. But I would like to say that you can depend on me to aid you in any way that I possibly can. For a start, you might print an article in your next issue, calling on the Canadian fans to get together and have their branches pulling along with the rest. I was disappointed to note that there was no Canadian group listed in your last issue. I hope that another time there'll be two or three. I'll get the ball rolling on this side of the border with your help. . . . Congratulations on your choice of an Advisory Board for the club. You are, it seems, off to a flying start." We are very anxious to form a Canadian branch—or branches!—Member White. A list of names in your area has already been forwarded to you; more will follow as they come in.

Harry Warner, Jr., sends in a tale of woe: "For years—ever since I became active in science fiction—I have tried to form a fan club in Hagerstown. There just don't seem to be enough fans! But put my name down on your list as one who wants to start a branch of *The Science Fictioneers*." His address, Maryland fans, is 303 South Bryan Place, Hagerstown, Maryland.

Olon F. Wiggins, 3214 Champa Street,

THE SCIENCE FICTIONEERS
APPLICATION FOR MEMBERSHIP

The Science Fictioneers
210 East 43rd Street
New York City.

Sirs:

I am a regular reader of science fiction and would like to join *The Science Fictioneers*. I enclose a stamped, self-addressed envelope for my membership card.

Name

Address

City & State.....

Occupation..... When Born.....

.....Please reserve a *Science Fictioneers* pin in my name. (Check if desired.)

Denver, Colorado, is anxious to organize a branch in his city. He and Karl Roehm, of the same city, are engaging in a furious hunt through Denver to find the third person necessary to get a charter.

Science Fictioners Pins

Due to unforeseen difficulties and to the difficulty of finding a suitable design for the pins, the *Science Fictioners* pins, which were to have been ready for distribution March 1st, will not be available until the beginning of May. The pins, which will be attractively made in the shape of a rocket ship (similar to the title on the cover of this magazine), are for sale to members only at 25c apiece. Don't fail to reserve yours when applying for membership, as the supply will be limited.

Suggestions from Members

The Science Fictioners isn't and shouldn't be a one man job. The task of directing its activities belongs, not to the editor of *Super Science Stories*, nor even to the nine-man Advisory Board of the club, but to the entire membership. It is through the suggestions of the membership, given by writing letters to *The Science Fictioner*, that the policy of the club will be determined. Write your suggestions for future activities in today!

A few, however, of the suggestions received so far follow.

Joseph M. Lewandowski, Member Number 26, asks that all members in his vicinity (Brecksville, Ohio) contact him, and suggests that *The Science Fictioners*, "1. Institute a gigantic membership campaign; 2. Group all members into local chapters; 3. Keep all members posted on what other chapters are doing; 4. Institute a program of events, such as amateur story-writing contests, 'How-much-do-you-know-about-science-fiction' contests, and awarding degrees such as 'Master of Science Fiction', 'Bachelor of Science Fiction', 'Doctor of Science Fiction', etc."

Advisor Bob Tucker, Member Number 25, very tersely advises: "Make our department in *Super Science Stories* longer; unite all present organizations and clubs into one loose congress or parent organization, such as *The Science Fictioners*; and push the Chicago-1940 Convention to the skies." (Our next issue will have your article on the Convention, Bob; till then, all we can do is to suggest that those who plan to attend the Convention write you at Box 260, Bloomington, Illinois, for details.)

Due to the inflexibility of type, that's all the suggestion for this issue, fans. But watch for our next issue, with more chapter news, more new members, more suggestions, and *action* on the suggestions already made!

New Members

Olon F. Wiggins, 3214 Champa Street, Denver, Colorado; Stephen J. Takacs, 303 Eck-

ford Street, Brooklyn, New York; John Murray, 1905 Marmion Avenue, New York City; Howard D. Miller, 1081 Albany Avenue, Hartford, Connecticut; Edgar Gilbert, 2145 Avenue L, Wichita Falls, Texas; Donald D. Coleman, 1733½ Juneway Terrace, Chicago, Illinois; Geo. M. Aylesworth, Box 508, Mackinaw City, Michigan; Donald B. Miers, Prospect, Schoharie, New York; Malcolm F. Bustin, 23 East Commonwealth Road, Cochituate, Mass.; and Holden I. Stroud, Belmont, New Hampshire.

Archibald Jensen, 817 Plain Street, La Porte, Indiana; Harold W. Traeller, Jr., 106 Norman Avenue, Brooklyn, New York; Mark Reinsberg, 3156 Cambridge Avenue, Chicago, Illinois; Cyril Korabluth, 506 West 213 Street, N. Y. C.; Richard I. Meyer, 3156 Cambridge Avenue, Chicago, Illinois; Karl Roehm, 2903 Champa Street, Denver, Colorado; Frank W. Kloof, Jr., 898 McCulloch Street, Wheeling, W. Virginia; Robert Dunlevy, 517 Werwood Avenue, Wheeling, W. Virginia; Donald A. Wolfheim, 2574 Bedford Avenue, Brooklyn, New York; and John Michel, 2574 Bedford Avenue, Brooklyn, New York.

Bill Reese, 1625 College Street, Columbia, S. C.; Fred Antonsen, Jr., 4431 Broadway, Chicago, Illinois; Tom Wright, RFD 1, Box 129, Martinez, California; Walter F. Williams, 333 Ovington Avenue, Brooklyn, New York; Bob Tucker, P. O. Box 260, Bloomington, Illinois; Joseph Lewandowski, 17 Riverview Road, Brecksville, Ohio; Roy Cameron, Jr., 1021 Chestnut, Hamilton, Ohio; R. W. Goodridge, 542½ Congress Street, Portland, Maine; H. Wesley Hite, 114 Mound Avenue, Dravosburg, Penna.; and C. Jones, 102 Blossom Street, Fitchburg, Mass.

Jack C. Dean, 53 Shrewsbury Avenue, Red Bank, New Jersey; George R. Wessel, 1039 St. Paul Street, Baltimore, Maryland; Frank Bryan, Jr., Nelson, Oklahoma; J. Robert McDougall, 74 Taylor Avenue, Kirkland Lake, Ontario; Robert W. Lowndes, 2574 Bedford Avenue, Brooklyn, N. Y.; Milton A. Rothman, 2020 F. N. W., Washington, D. C.; Frederic A. Kummer, Jr., 224 West Lafayette Avenue, Baltimore, Maryland; Robert A. Madle, 333 East Belgrade Street, Philadelphia, Penna.; Harry Warner, Jr., 303 Bryan Place, Hagerstown, Maryland; Norman Woodard, 702 West 1st, Spokane, Washington; and Jack Heaton, 113 Ormond Street, Brockville, Ontario.

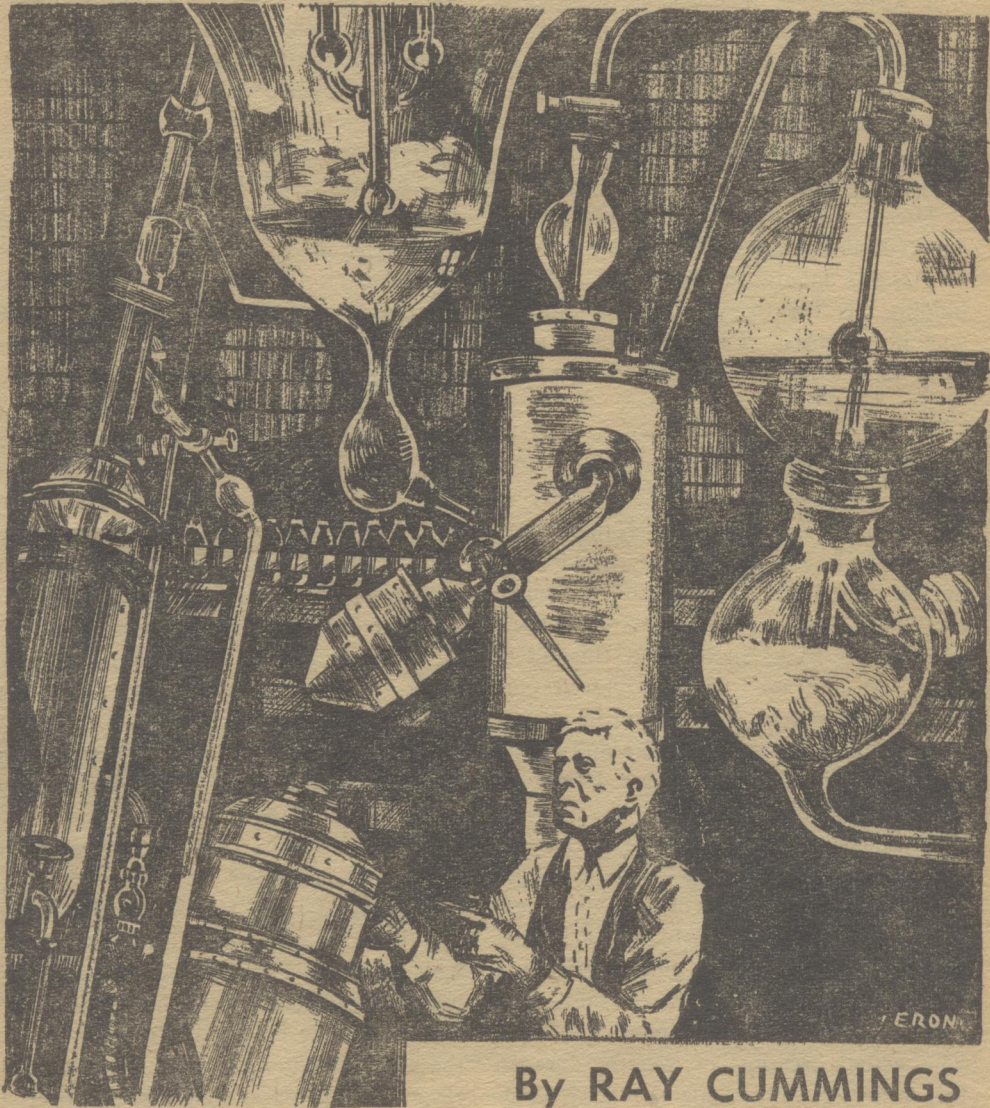
Walter J. Daugherty; Morojio; Forrest J. Ackerman; Pogo; Ray Bradbury; Russell J. Hodgkins; T. Bruce Yerke; Franklin Brady; and Paul Freehafer—P. O. Box 6475, Met. Station, Los Angeles, California.

William Quallich, 658 Adams Street, Gary, Indiana; Raymond Mathieu, R. F. D. 1, Attawaugan, Conn.; William Berger, 845 East 128th Street, Cleveland, Ohio; D. B. Thompson, 3136 Q, Lincoln, Nebraska; Paul H. Klingbiel, 627 South 7th Avenue, West Bend, Wisconsin; J. F. Gaillard, Jr., 731 Keith Avenue, Anniston, Alabama; Edward Kosower, 259 Parkside Avenue, New York City; Frank M. Tennant, 100½ South Main, Hutchinson, Kansas; Edwin Roy White, 73 Taunton Road, Toronto, Ontario;

Continued on page 110)

ARTON'S METAL

Forty years—and Blakinson came back to see Georg Arton, the man whose wife he had stolen. Arton had made a discovery, a new source of wealth. Was it also—a weapon for vengeance?



By RAY CUMMINGS

THE hissing spluttering wires gave off a lurid green glare. It mingled with the opalescent sheen of the fluorescent tubes and drove the flicker-

ing shadows back into the laboratory corners. The acrid smoke rose in swirling wisps which gathered and hung in layers like ghostly shrouds up by the vaulted

ceiling of the big metal laboratory room.

Painted by the glare, the thin bent figure of Georg Arton stood at one of his metal work-tables, with his gloved hands adjusting two naked electrodes. The sparks shed from his metal-woven smock. The lurid glared on his huge goggles of amber glassite. As he moved intently at his tasks, he could have been a huge, crooked pseudo-human insect, with mailed jointed body and goggling lens-eyes—a being from another planet engaged here in something infernal.

These weird thoughts flooded burly James Blakinson as in the doorway arcade of Arton's laboratory he stood peering, holding his breath, watching. Blakinson was no scientist. Things like this were awesome; a bit frightening. What was Arton doing?

To Blakinson's fancy, this was not the experimental workshop of a skilled physicist, but rather the lair of a dabbler in necromancy—a probing at Nature's secrets which should not be probed. A prying into the Unknown; and it seemed to Blakinson that rebellious Nature must be drawing back, snarling at this interloper. An outraged Nature, cowed perhaps for a moment, but waiting its chance to strike in reprisal—to strike and to kill this human meddler who dared trespass upon things forbidden.

Blakinson felt himself shuddering. But still he stared, watching Arton who did not yet know he was being observed. What was this thing which the townspeople said the cracked old scientist had discovered? A thing—so it was said—that would make its possessor fabulously rich. The actual creation of wealth, here in this weird, cloistered metal room? Modern magic. They said that.

And down in the village Blakinson had seen what seemed undeniable proof—the records of the assay office which had analyzed a fragment of metal that Arton had brought to them.

The unnameable metal. No one could say where it had come from, or what it was. Weird treasure. An ounce of it would be worth two decimars. How much of it did Arton have here? Was he a super-modern alchemist, transmuting baser metals into this weird alloy which among other things seemed to be a mixture of gold and platinum and radium? That's what the townspeople were saying.

THE two spluttering electrodes which Arton's gloved hands were holding were in metal clamps now. The clamps were part of an intricate mechanism so that as Arton began twirling a series of small dial-knobs, the spluttering electrodes were moving sidewise and forward, approaching each other in the empty space above the work-table. They had been a foot apart; now they were only six inches.

The goggled Arton was tense and hurried now. Blakinson, a dozen feet away in the shadows of the arcade doorway, held his breath as he watched. The two long rows of fluorescent tubes, linked in series, boiled and bubbled more furiously with a maelstrom of bombarding electrons. Arton was bending forward. His gloved hands, gripping calipers, seemed carefully measuring the location of the two hissing crackling electrodes as they neared each other.

What was this thing of riches which Arton was creating?

A layer of acrid fumes that floated up by the vaulted ceiling, fluttered in a vagrant draft of air, came down and momentarily enveloped the lurking Blakinson so that he coughed involuntarily. At the sudden sound old man Arton turned, ripped off his glassite goggles and peered. And then he gasped,

"You? Why—why *you*, Blakinson?"

The big burly Blakinson started; recovered himself. Then he looped his cape over his arm with a gesture of nonchalance; and gripped his hat and gloves and

cane in one hand—his cane, metal-tipper, with a heavy gargoyle metal knob.

"The door was partly open," he said. "I didn't use the buzzer—you seemed busy—I hated to disturb you."

He tried to smile ingratiatingly. But why should he bother? He saw the old hatred leaping now for Arton's grey eyes. Without the goggles it was the Arton of their boyhood, changed by time to be a shell of the handsome, fierly young fellow whom Blakinson remembered. Like the embers of a fire, shriveled, shrunken down yet still holding a semblance of what it was. The years had not treated Arton too kindly. He looked eighty now, though Blakinson knew he was only sixty-five—only three years older than the powerful Blakinson himself.

"So? You remembered me at once?" Blakinson added awkwardly. "Quite a while—forty years. That was in 1939 we saw each other, wasn't it?"

"In 1939—the year you stole her," Arton said slowly. His withered old voice throbbed to match the hatred of his eyes.

For that moment the two men fronted each other in the center of the lurid laboratory. They were alone here, in the metal building which was Arton's home on a lonely mound a mile from the town. Outside the latticed windows moonlight was straggling through the grove of trees which enveloped the little terraced metal structure.

For just that moment their glances crossed like swords; and an idiotic thrill of fear darted through the burly Blakinson. Idiotic because with one hand he could grip Arton's withered old throat and strangle him . . .

THEN Blakinson flung away his fear and smiled—crafty smile as he remembered why he had come here. "Well," he said, "aren't you going to ask me to sit down? Just happened to be spending a day in Jameston—and they told me

about you. "So I came—an old friend—after forty years—"

Still Arton could only stand, staring with that glowing hatred in his eyes. And Blakinson hooked a little padded metal bench forward with his cane and sat down. But he was very alert. Was this madness gleaming now with the hatred in Arton's eyes? What of it? Arton had discovered something, here with his puttering science. The creation of gold, platinum and radium? . . . No one knew that Blakinson was here.

If only now he could learn this secret, and go away; and the villagers would find old Arton dead, here in his laboratory. An accident, they would say. Something going wrong with an experiment, so that the old man had fallen and cracked his head, dashing out his brains against a corner post of one of these metal chairs.

How easy that would be to contrive! . . .

"In 1939—that was the year you stole her," Arton was repeating slowly. With the emotion of his hatred all the little color had faded from his sunken cheeks and pinched lips so that he was livid, with his breath a panting gasp. Was he ill? He looked it. He looked almost as though he were about to totter and fall.

Blakinson hooked another little bench forward, and Arton collapsed to it, still staring.

"Well, I'm a motor-oiler," Blakinson said with an uneasy smile, "if I stole your wife—how silly. We're men now—not impetuous, idealistic boys. Mary loved me—and I took her."

"Yes—that's right. You took her."

Blakinson laughed. "That was a little startling to you, back in 1939, wasn't it? But it isn't really outlawed by the Social Code now. 1979—and we know more about the laws of life and love now, don't we? The needs and the inherent right of love to take what it wants. I was unceremonious, forty years ago. Today I'd file

Declaration of Love with the Social Manager, Arton—but the thing is the same, whatever you call it—”

“Stop!” Arton cried. “You—you damned blasphemer—”

“And Mary would sign the Declaration—”

“You lie! She wouldn’t. She—she never really loved you. You just tricked her—”

Arton gasped it out. Then on the bench he sank back, panting, breathless; and a groan escaped him as one of his withered hands clutched convulsively at his chest. Blakinson saw that he was suddenly in horrible physical agony but still his eyes showed burning hatred for this man who had stolen his wife.

Then Blakinson jumped to his feet. “You’re ill, Arton. What’s the matter with you?”

God, the old fellow seemed about to gasp his last. If he died, his secret would die with him. A sudden apprehension shot through Blakinson. A chance to get quickly rich was here. Heaven knows; Blakinson needed it. A thousand decimars—he was short fully that much in his accounts at the Federal Citizen-Loan Bank in New York. An embezzler; they’d trap him within a month or two and he’d be outlawed for life in one of the ghastly Polar Prisons of Antarctica.

“What is it, Arton? Let me help you.” He bent over the stricken scientist.

“My heart,” Arton gasped. “Angina—”

“The shock of seeing me. Oh, I’m sorry.”

“My medicine—over there—the taboret—”

Blakinson jumped for it; came back with the small triangular vial and a glass of water.

“These Arton? How many?”

“Two—Oh, hurry—”

ARTON’S face was twisted with the terrible pain now. The opalescent glow from the electronic tubes painted his

contorted features so luridly that he seemed something less than human. His thin white fingers like claws fumbled with the agony in his chest. But still his eyes burned with that smouldering hatred. There was terror mingled with it now.

The solitious Blakinson, hurrying to administer the medicine, fearful that Arton would die before revealing his secret, saw the terror in Arton’s eyes and thought that it was only physical agony and the fear of death. He could not know that Arton feared sudden death only because it would leave unfinished something which for all these years he had wanted to do.

“Two,” Blakinson was saying. “Here they are.”

The little triangular pellets wafted up their aromatic fumes as Blakinson drew them from the vial. Arton gulped them down; then for a long time he lay on the bench, gasping, while Blakinson solicitously held his cold dank hand.

“Better now?”

“Yes—I’ll—be over it presently.”

“I’m sorry, Arton. Shouldn’t have come—giving you a shock like that. And I shouldn’t have spoken that way about things. About poor Mary. Forget it, Arton.”

“Yes,” Arton murmured. “Just—forget it. She—Mary—she died—peacefully?”

“You’re not well enough to talk,” Blakinson remonstrated. “Take it easy now.”

“But I am—well enough.” Arton was struggling erect. Color was coming back into his face; the paroxysm was over.

“Mary died—peacefully?” he insisted.

“Why sure—sure.”

“I heard—that was years ago—I heard, Blakinson, that you weren’t—treating her very well. But you had gone to the Soviet then—I couldn’t find you. Then I heard that she had died—over there—”

"Don't let's talk of it," Blakinson said soothingly. "All that you heard—that was a lie. Mary was always very happy." He gazed around the opalescent-glowing room. The apparatus on the big metal table along the opposite wall was still humming; the electronic tubes were still bubbling with fluorescence.

"You're quite a scientist I hear," Blakinson added. "Different from me—I'm just a money-monger." He expanded his bulky chest. "Done pretty well by myself—piling up the decimars. How have you fared, Arton? They tell me you've struck riches here."

HE HELD his breath for the answer. Queer how Arton's face lighted up. And his eyes sparkled.

"I'm just about to strike it rich now," Arton said. A new vigor had come to his weak, quavering voice. He stood up, swaying.

"Easy," Blakinson said. "Don't overtax your strength."

"I'm all right now. I feel—much better now." His glowing eyes clung to Blakinson's face. "Would you—would you want to see what I'm doing? Shall I explain it to you—how it works?"

Falling into Blakinson's trap. So easy! It was like Arton to be fatuous. He had always been naive, trusting. He had been the last one to realize what was going on between his wife and his friends. Forty years hadn't changed him. He was willing now to show Blakinson his secret.

"If it won't tire you," Blakinson said. "Mighty interesting, of course." He struggled to hold his voice casual. "What have you done, discovered a way to create gold? And radium?"

"And platinum," Arton said. "Those metals—queerly combined—and queerly radioactive. A nameless metal. But I don't exactly create it. No, you won't call it that."

He was shakily walking back to his

work-table, donning his goggles. "Rather, I produce it," he added. "Or, let's say, I find it and make it exist. I secured one little piece—that was about a month ago, but I've been disappointed ever since. All I've got is what seems to be an even baser metal than lead. And sometimes I just get nothing. There seems to be a lot of empty space around here, mingled with the metal."

Just a demented old fellow. Disappointment struck at Blakinson. Was Arton, with premature senility and the angina that starved his heart of its blood—was he just addle-witted now? Forty years of brooding because he had lost his wife, so that now he was having hallucinations of his own scientific genius?

But somehow, it didn't seem just that. "Why—that's too bad," Blakinson stammered. "Needs perseverance, you mean? Trial and error, until you get what you're after."

"Exactly so." Behind the huge glassite goggles, Arton's eyes were masked. But his lips were smiling. "That's it, Blakinson. You always get—what you're after if you never give up. No matter how long it takes, your chance will come."

"That's right," Blakinson agreed.

"And when your chance comes," Arton said, "you seize it. Because maybe it only comes just once . . . Here, put on a pair of goggles. The light—it's worse than actinic—might damage the retina. We'll try again—see what we can get this time."

Blakinson could feel his heart pounding as he donned the goggles, backed away and stood watching.

"I'll finish the trial I was starting when you came," Arton added.

"I hope we get something good."

"So do I. You never can tell. You see, it seems to be a fragment of tiny metal bricks—a queer nameless metal that doesn't run uniform. It seems to be only streaked—spotted, you might say—with metals of value to us. And there is so

much space where you get nothing . . . Watch now. It only takes a moment."

BREATHLESSLY Blakinson stared.

The calipered mechanisms that held the naked ends of the electrodes were very slowly approaching each other again. At the height of a few inches above the table, they were drawing together. Then from above, a white horizontal wire, fine as a grey human hair, was lowering. A mechanism held it so that it was stretched nearly the length of the big table—a synchronized mechanism bringing the horizontal wire down to contact the two moving electrodes when they were about an inch apart.

Blakinson saw Arton take a swift backward step, with a hand and arm up to shield his face. The tiny stretched white wire contacted the electrodes. There was a puff of blue-white glare; a second in which Blakinson heard a queer indescribable puff of sound—a strangely gruesome little sound as though something were struggling.

The inch-long gap between the electrodes as the wire connected them flashed with the blue-white light. But through his goggles Blakinson saw a tiny ghost-like thing hovering in the glare—a blob that hung for a split-second and then sank, quivering a little until in another split-second it was falling. Then it hit the metal table with a thump.

The puff of white glare was gone. The smoking electrodes drew rapidly apart. The white wire had burned and broken. On the table a glowing bit of metal the size of a man's fist was lying, with a wisp of acrid smoke rising from it.

Arton ripped off his goggles. His hands were trembling.

"You see how it works, Blakinson? You see how much bigger that metal chunk is than the space between my electrodes? That's on expansion apparently; with the transmutation there comes an

expansion—a doubling of bulk, you might say. It's weird—fascinatingly weird."

"What did we get?" Barkinson murmured. "What did you make that chunk of metal out of? I didn't see that you used anything. It just looked like empty space between those electrodes."

"Eh? Oh yes, quite so."

Was Arton demented? He was ignoring the smoking chunk of metal. With swift shaky steps he was rolling the two little chasses that held the electrodes to opposite corners of the room.

"What's that for?" Blakinson demanded. "What is that chunk of metal you produced? Valuable?"

"It's too hot to examine yet," Arton said. "We'll see in a moment. Move aside—watch your head."

Blakinson stepped aside to avoid the thin white wire which Arton had now strung from one corner of the room to the other. . . . The chunk of metal on the table seemed to have green-gold ore in it. Was it radioactive also? Worth a fortune maybe.

Barkinson gestured. "What do you figure that's worth?"

"Oh, a decimar maybe. We'll estimate that when it cools off."

TEN thousand gold-standard dollars!

And Arton probably had a lot more like that around here. Why wait? Why not strangle the old buzzard now—smash his head against one of these chairs . . . Into Blakinson's triumphant, murderous thoughts Arton's excited voice pounded:

"Watch closely now. We'll create, as you might say, a lot of it at once. There ought to be a million decimars worth of it lying around here. Let's bring it out and have a look at it. What you say?"

With a thrill of cupidity, Blakinson stared. Arton was over in the corner with his hand on a switch. His goggles were off now; his eyes were gleaming, his face

white, contorted. His voice was shrill with triumph.

"As I said, Blakinson, when the chance comes it must be seized—because it may never come again. Oh, I've waited so long for this—"

It may have been that Blakinson was aware of a stabbing thrill of terror as he saw the white wire that was stretched diagonally across the big room come down and contact the electrodes in the room's opposite corners; and the trembling Arton pulling the switch to its fullest intensity. In the gigantic blue-white glare perhaps Blakinson was aware of Arton's white face, ravaged by his incurable illness—aware of his sunken eyes burning with hatred, triumphant with a forty-year desire now at last to be satisfied.

The vast blue-white glare was mingled with the great magnification of a gruesome roaring struggle . . . Nature outraged, struggling to uphold its fundamental law that no two material bodies may occupy the same space at the same time . . . Nature struggling against this monstrous assault and inevitably winning, so that the reeking, fume-laden room was monstrously filled with alien substance that burst and shattered the walls and brought the little metal house clattering down into a trumbled, smoking mass of ruins . . .

"**B**UT what in God's name happened?" demanded one of the young newscasters who had just arrived.

The Shadow Squad Police lines encircled the little tree-clad mound where Arton's home had stood. But there was nothing here save a weird pile of hot metal ruins, from which smoke still drifted.

The young newscaster crowded into a group of men who were watching the workers prowling among the debris.

"Did they find his body yet?" someone asked.

"Maybe never will," a big blond fellow retorted. He was a young chemist from the nearby town. He looked awed. "My God, I took a close look at those ruins a while ago. There's metal all mingled with other metal."

Another man said: "I heard somebody say there was a ton of metallic stuff here which he must have hidden in his house. A nameless metal—looks like nothing on Earth—"

"Maybe a meteorite fell and squashed the place," somebody else suggested. "A metal that's never been on earth before? You suppose it's valuable stuff?"

"I saw a little piece of it," the young chemist said. "Gold and platinum—and radioactive, I think. Valuable? By the Gods of the Starways, if there's a ton of it here, it's worth a million decimars."

The group stood awed. "But how in the devil could that old fellow Arton have a treasure like that hidden in his house?"

"Mingled with his house," the young chemist said. "My God, I saw a steel-metal floor-beam—the floor of his laboratory, it looked like—with this weird stuff looking as if it was bursting out of the beam."

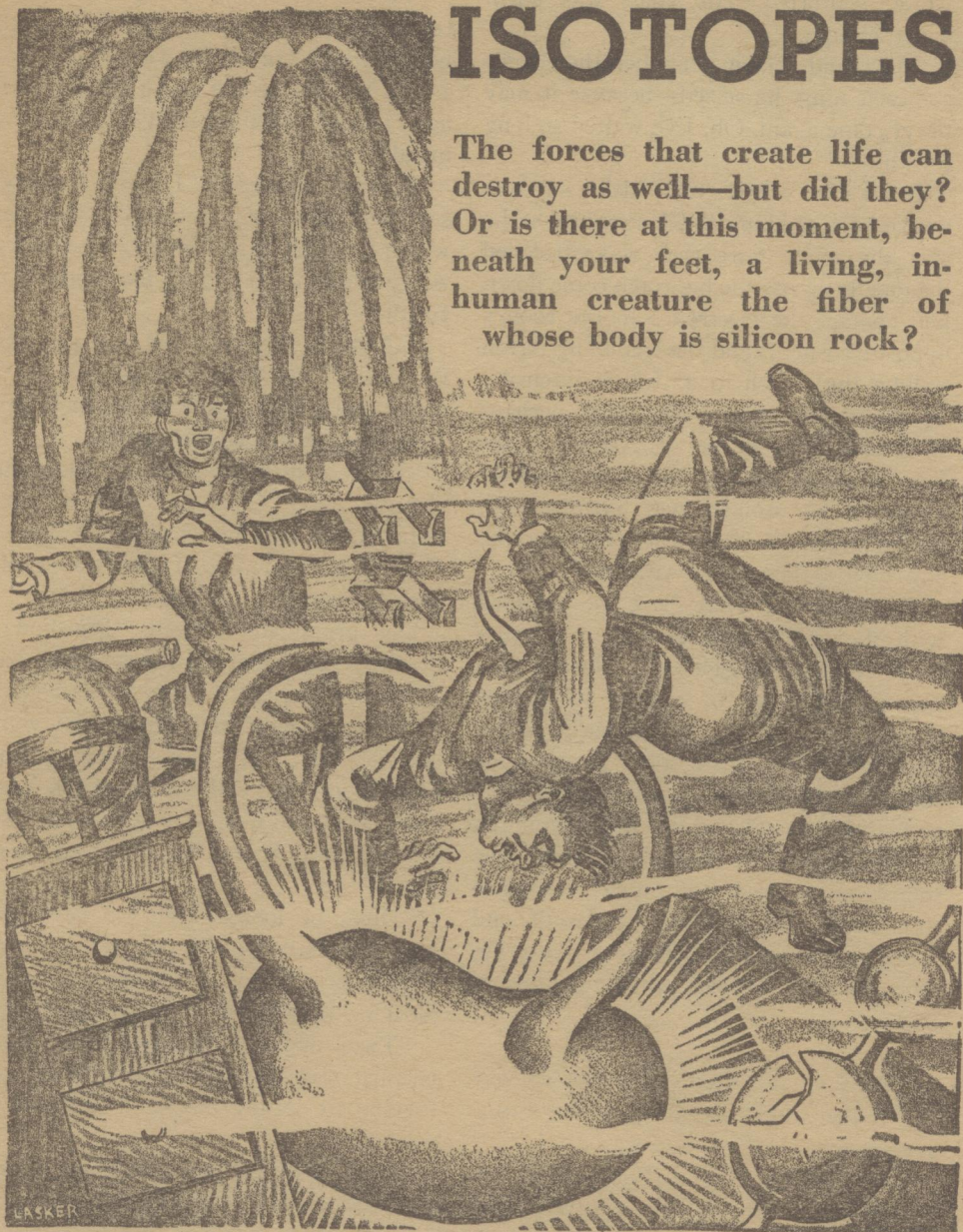
"Don't be loose-witted," a newscaster said. "A meteorite fell, only it's queer nobody saw it falling. Or there was an explosion—only queer nobody heard any."

"Two material bodies," the young chemist still was murmuring with awe, "trying to occupy the same space at the same time—"

Ironic, that no one would ever know how close he was to the truth! The nameless metal. It assayed nearly a million decimars; and after a lengthy litigation between the Municipal, the State and the Federal Governments, most of it was awarded to the Anglo-Saxon Foundation for the Advancement of Science. Which is perhaps what old Arton would have wished.

LIVING ISOTOPES

The forces that create life can destroy as well—but did they? Or is there at this moment, beneath your feet, a living, inhuman creature the fiber of whose body is silicon rock?



By P. SCHUYLER MILLER

BILL BISHOP'S telegram had caught Dunlop on the station platform, on the thin edge of a vacation. There were just seven words: "Mak-

ing tests tonight. Come if still interested."

That was enough, because Frank Dunlop remembered the night, three years before, when Bill had tried to explain the

thing that his mathematics had brought out of the chaos of conflicting theories about the structure of the atom. His voice had been triumphant as he spoke.

"These equations mean *life* to me, Frank," he had said. "They mean freedom—freedom to go and do and think as I like. They are going to take me out of Corbin and its dinky little small-town minds and make me someone big out where it counts!

"Frank, I know what life is! I can create it. And when I do—you'll see me do it!"

And so, when Dunlop got the telegram, he walked over to the ticket-office, changed his Bangor express to a Corbin local, and in half an hour was rattling along over the rails of Massachusetts' sole remaining narrow-gauge railway.

THE train panted into Corbin with a hat-box, just two hours late. Ten minutes walk brought Dunlop to the little campus with its velvet lawns and spreading elms, and in its cluster of dark buildings the single spark of light in the physics laboratory led him on.

The door to the new wing was locked. He braced his feet and rattled it as though he were shaking down walnuts. There was no response. He peered through the glass, then up at the curtained windows from which that thread of light still gleamed. They were too high to reach. He resolved to give it another try.

This time he made the very building quake. He stopped to listen, and down the gloomy corridor sounded the quick click, click of approaching footsteps. The light above the door went on. A girl glared at him through the glass.

She had hair like the color that wells up out of mahogany when the sunlight falls slantingly across it. She had eyes like green, snapping sparks, almost black with anger, and a skin that only a master-photographer like Steichen could repro-

duce. The rest of her was hidden under the tattered smock that had hung in the corner of the senior lab at Corbin since before the oldest graduate could remember.

She sprung the lock and threw the door open. "If you're Frank Dunlop," she snapped, "you're late. We waited an hour for you!"

"I'm sorry," he apologized. "You might have known the train would be late."

Her red mouth snapped shut, she whirled on her heel and stalked off down the hall toward the rear of the building. As she reached an open door, someone stuck his head out. It was Bill Bishop.

"That you, Frank?" he called. "We've started. Come on in."

The girl brushed past him and disappeared. Dunlop flicked off the lights—college economy was an old story to him—and walked down the corridor to the frame of light that was the door. Bishop thrust out his hand.

"Too bad you were late," he said. "Everything was set up, and when you didn't come, I—we—started."

The door opened on a little landing, halfway up the wall of a room like the den of the well known Mad Scientist of the science fiction yarns. What half of the colossal array of apparatus meant, Dunlop could not guess, but there was a general air of reasonableness about it that distinguished it from some of the imaginings in the magazines. It was an overgrown first cousin to the ingenious accumulations that any first-rate scientific laboratory has hidden away in its holy of holies for the Big Brains of its research staff to play with when they are not being awarded prizes.

THE girl stood before a huge switchboard that covered all one end of the room. The size of the bus-bars that came in through the wall to that board made Dunlop whistle. Bishop was drawing

enough current to make the General Electric's lightning shop over at Pittsfield look silly. But Bill had him by the elbow and was hustling him down the little iron stair.

"Marge," he shouted above the drone of the transformers. "It's climbing too fast! Slow it down."

Dunlop watched the ammeter needle slide back along its dial as the girl obeyed. Then she turned, smiling. The black flame of anger was gone out of her eyes. "Do your duty, Bill," she said.

He flushed. "This is Dr. Whelan," he explained. "I met her in California, a year ago. Marge, this is Frank Dunlop. He's an old classmate of mine. Insurance salesman or something."

She laughed. "I know. You told me he was coming. Besides, I accused him of it a moment ago, at the door, and he took it like a gentleman." She held out her hand. "Supposing we do our fighting as friends."

"Dr. Whelan!" Frank bowed low, with mock courtesy. "If you'd been teaching physics when I went to college, maybe I'd have given Bill a run for his money. What do you say—can you tell me about all this without using ten-dollar words?"

She laughed again. He liked her laugh. "I think so," she replied. "It's really very simple." She led him across the floor to a small quartz cube, set in the heart of a maze of giant coils. It was sheathed with thick sheet lead and clamped between the poles of the biggest magnet he had ever seen. One face was exposed over an area of less than a square centimeter, and opposite that open space was hung a giant ray tube.

"There it is," she announced. "In that little chunk of crystal are all our hopes for immortality."

He tried to look impressed. It didn't work. "You don't believe me," she accused. "Very well—now you'll have to listen to the whole story. Come back here out of the way. There may be stray radiation that wouldn't do us any good."

She made a fetching picture as she sat on the edge of the laboratory bench, swinging her feet like a schoolgirl. "You know about Dr. Bishop's discovery," she began. "Life is a fundamental property of the universe. It seems to be energy, but it acts more like some queer sort of strain, inherent in the very nature of things, which makes them sensitive to outside forces—makes them what we call alive. Years ago, men like Crile made inanimate chemicals go through all the physical motions of living cells. They could move, eat, reproduce, but they weren't alive. There was something else—the something that we call life—needed to control them and give them will—purpose—intelligence.

"Then there are the viruses—protein molecules like those in meat or eggs—that become deadly living enemies of life or inert crystals, almost at will. Some biologists think they are true living molecules—the smallest living things—creatures on the very borderline between the animate and the inanimate. But Bill's equations went beyond that point. Any molecule—any *atom* can be alive!

"Bill Bishop broached that idea to some of the masterminds that run the scientific congresses and they laughed at him. They said that even if a complex protein molecule could be alive, it was nonsense to think that a simpler molecule could be, much less an atom. They said life is an accident, the result of some metastable balance in certain compounds, and that apart from that it couldn't exist. So he thumbed his nose at them and proved them wrong! He started where none of them had dared to start—at the beginning."

SHE stopped, staring through the maze of apparatus at Bill, bent over his instrument board, intent on his sheets of scribbled figures. Her left fist was clenched, and Frank saw that there was a diamond on the ring finger.

She came out of her reverie with a start.

"I'm sorry," she said. "I was thinking. Tonight we're making a test that will change scientific history, and all because one man discovered a new way to look into the gizzard of an atom.

"It's the atomic nucleus that really counts, you know. The real, fundamental properties of matter—of the world and everything in it—depend on the way in which the nuclei of some ninety-two different atoms are put together. And that is where the secret of life lies.

"I said there were ninety-two kinds of atoms—the chemical elements. There are really many more, because every element has a number of isotopes—other atoms with the same general chemical properties, but which differ physically because the weight and structure of their nuclei are different. The deuterium in heavy water is a double-weight isotope of hydrogen. Lead has more than sixteen different isotopes. Every element has them. Some of them are radioactive. And some of them are—alive.

"Bill, with his new kind of mathematics, worked out a set of equations that described what we know about the inside of an atom. Any atom. A sort of general atom. They show why bromine vapor is brown, and chlorine green, and iodine violet—why mercury is liquid, and carbon diamond-hard or soft as graphite. They show why platinum is inert and oxygen active as the devil. And they show that for every chemical element there exists a single, unique isotope whose properties set it apart from every other atom—a living isotope!"

She waved her hand at the array of crowding apparatus. "This means nothing to you," she said. "There's no reason why you should try to understand it. One thing is all you need to know—in the heart of that little crystal cube we are duplicating the contorted, unstable fields of force that make an atom live. The atoms at the center of the block are strained and

twisted to the breaking point, and bombarded with powerful short rays until they have absorbed vast quantities of energy. Where it goes we don't know. Not even Bill's equations can tell us. But somehow its presence and its release means—life.

"Sounds simple, doesn't it? Well, in a way it is. But if Bill is wrong—if it all turns out to be moonshine and champagne bubbles, in spite of our having had two pretty level heads bent over it for the last three years—you can't be too far from Corbin when things let go!"

Dunlop stared at her. She meant it. There was danger in this thing—big danger. But to her and Bill Bishop it meant less than nothing, compared to their chance to prove their theory to the world. He shrugged.

"I'm still single," he told her. "Besides, I never did like running. What comes next?"

Her laugh pealed out. "I'm glad! And—you can't run now. It's too late. Look."

THE crystal cube swam in a haze of violet light—light that beat out of it in a blinding storm of radiation pitched at the very edge of visibility. Strange things were happening in that little block of space—colossal things! Vast forces of the kind that molded stars were warping and buckling its atoms until a queer, shimmering halo of mirage surrounded it, through which the walls beyond seemed oddly twisted. Almost he could see the mighty twisting lines of intra-atomic force that converged on that pin-point of tortured space, and feel the cataract of surging energy that beat into its hell of shuddering atoms!

A grey moth drifted aimlessly down out of the shadowed ceiling. The violet midst fell on its dusty wings and Frank saw them blaze with cold green light. Its wavering flight bent upward, circling the haloed quartz like a tiny, glowing comet. Closer it swung and closer—then an atom of

blinding light burnt its image into his dazzled retinas. A crash like the crack of a thousand lightnings split his ears. The room reeled and he was crouching against the concrete wall, the girl sheltered in his arms, while Bishop, his mouth shouting words that Dunlop could not hear, rushed toward them through a storm of dancing lights.

Half an hour later Frank was still sitting on the bottom step of the little stair, while Bill and the girl checked and rechecked every tiny detail of their apparatus. The reek of burnt copper was in the air and thin curls of bluish smoke were rising from the massive cables. As Dunlop stared, he heard again the mutter of the great transformers, like the ominous distant thunder of disapproving gods.

He went to them. Marge's face was white, her dark eyes troubled. "It's like a warning," she pleaded. "You've gone farther than any man has ever gone—seen things happen that no man has ever seen—but there is more beyond that. More than you or anyone dreams! Let's be careful. We've learned a lot. Wait until we know just a little more—until we're surer of ourselves and what we're doing."

Bill laughed—a nervous bark. "We can't stop now. You told Frank that. We don't dare. There is a zone of disruption bordering the region of greatest strain, where our fields converge. If we tip our balance ever so little in the wrong direction, we'll go *psst!* like that moth! Only the moth never got past the weakest fringe of what is really there! No—we'll go on all right. We have to!"

The rise of the slim black needles on their dials was slower—the sweeping purple curve of the recorder pen was changing, flattening, reaching equilibrium. Somewhere in that holocaust of battling forces a balance had been reached—a check on the vast, straining, cosmic energies that were the stuff of life!

A minute passed and another. **Bill's eyes**

were glued on that levelling curve. Beside him, the girl was a tense arc of eager beauty. His hand hovered above the master switch—swooped down. Twin arcs of blue-white electric flame blazed across the poles. The tang of ozone was in the air. Then Marge's hard heels went click-clicking across the floor. Bill Bishop padded after her, Frank following them.

THE quartz was white hot. Bill pulled on a robe of stiff leaded cloth, slipped a hood with weird dark goggles over his head. He motioned to them to step back as he pulled away the lead sheathing.

It was a mere shell, the inside melted away by the fierce heat released when those warring forces reached stalemate. Marge tugged at Dunlop's sleeve. She pulled forward a tall leaden screen on little wheels. It had a window of thick, dark glass. Cheek to cheek, the scent of her hair in his nostrils, they watched Bill Bishop's every move.

He had on thick leaded mittens with loose gauntlets. Lifting the cube from its setting, he carried it over to the bench under the stairs, beside them. A strange contraption stood there, with a disc of frosted glass on which flecks of greenish light flashed intermittenly. As Bill sat down the cube, a veritable blizzard of green fire swept over the milky disc.

"Look at the ray-counter," Marge whispered. "That quartz is giving off enough hard radiation for a gram of radium!"

Bishop was holding the cube close to the strange apparatus. Frank saw that the first fury of green fire was dying, the sparks of emerald light becoming fewer. Bill's voice sounded strangely loud with the thunder of the generators stilled.

"There's something queer here. No radioactive element I know anything about has so short a life." He shrugged. "Well—next time we'll be on the lookout for it. You can come out now—it's safe."

He pushed back his goggles with one

clumsy glove and squinted at the cube. There was a tiny hollow at its center, a ghostly bubble in the clear crystal, its walls dewed with shining metallic droplets. Frank bent close to it. The shining dew was condensing into a tiny pool of bright liquid metal, no bigger than the head of an old-fashioned glass-headed pin. It was in constant motion, trembling and quivering with a kind of nervous energy.

"It's mercury," Bishop volunteered. "Quicksilver. Marge—will you get the mortar?"

She brought a huge steel cylinder, scoured until it shone, and a stubby pestle. Dropping the cube inside, Bill steadied it with one gloved hand and chipped gingerly at it with the other. Tiny flakes of quartz began to pile up in the bottom of the mortar, like shavings of clear ice. Soon there was only a roughly spherical lump the size of a walnut. Bill emptied the mortar and dusted it with a fine brush. He struck a harder blow, and another. The third blow found some strain in the crystal. There was a sharp report and he stood looking down at a heap of glittering quartz dust.

With a steel spatula Bill carefully ladled out the fragments of shattered quartz, dumping them in a heap on the table. Marge brought him a small evaporating dish and a thin-edged horn spoon, and as the tiny droplet of quivering metal appeared at the bottom of the mortar, he scooped it up and transferred it to the dish. A few glittering spicules of crystal glistened on its surface—quartz-dust, atom-fine—but he brushed them gently aside. Breathlessly they watched the shining surface. Every light and object in the laboratory was reflected in twisted miniature. It was like a tiny metallic eye staring unwinkingly up at them from the bottom of the white dish—an eye through which stared the intelligence of a life alien to everything man had ever experienced—metallic life!

Bishop stretched out his hand to pick up the little dish—and stopped!

THE tiny globule was changed—dulling—scumming over with a skin of steel-grey crystals. Across its middle a hair-thin line appeared—broadened and deepened to a fissure that cleft the drop in two symmetrical halves. And with uncanny speed those halves were splitting, separating, dividing again and again into a myriad of infinitesimal grains of metallic sand—into a shimmering dust of metallic molecules which had lost their dull grey-ness and were alive again with the glistening sheen of metallic mercury.

He looked up at Bill. There was a gleam of triumph in the scientist's eyes, and his lips were curved in a satisfied little smile. He was right and all world of science with its smug experts was wrong. And he liked the feeling.

Bishop picked up the dish. "Let's have a look at it," he said. A binocular microscope stood on the table under the windows, opposite the switchboard. Carefully decanting the shining grains into a glass cell he slipped it under the objective. A moment of focussing and he beckoned.

It was like looking into the faceted eye of some weird metallic insect. The granules that they had seen with the naked eye were in turn made up of geometrically packed clusters of still tinier droplets—not the normal spheres of mercury, but angular, crystalline-seeming particles that shone with the mirror-luster of the pure metal.

Bishop was fixing a burette over the microscope and filling it with clean mercury from an earthenware jug. He slid it down until the tip of the burette protruded into the field of the microscope.

"Let's feed it," he said.

A shining droplet of mercury slid into the glass enclosure of the cell. It lay close to the other, oscillating gently in the cavity of the glass.

A tremor shook the mound of metallic sand. It was fusing into a flattened disc of liquid silver that glided with uncanny swiftness across the cell. The two drops met—melted together—and then again the mercury was dulling, splitting, dividing into hundreds and thousands of infinitesimal grains of shimmering metal that were alive and eagerly aware of the nearness of food.

Again and again Bill fed it, watching every change. As it grew, the metal beast-let became more active. It kept its liquid form longer and longer—slid out gleaming silver pseudopods and slipped like a questing beast of prey around the walls of its prison. The mere uncorking of the mercury-flask would throw it into a frenzy that threatened to send it bounding out of the cell. Soon Bill transferred it to a beaker, and then to a larger one, until by the time it was the size of a pigeon's egg he had it in a thick-walled Erlenmeyer flask whose sloping walls would prevent it from escaping.

MMARGE WHELAN had separated a portion of the stuff with a spatula and was studying it. Neither it nor the parent thing seemed harmed. Feed them enough, and like Carrell's chicken-heart they would live and grow forever. It fought death savagely, resisting even the strongest acids. It seemed that the tiny bubbles of hydrogen that formed on its surface were absorbed to form a protective coating that shielded it from the acid. Nor would it amalgamate with gold or copper or any of the usual metals.

Somehow the life-energy which had been poured into it was acting to adapt it protectively against harmful environments. It was evolving—changing into a creature better able to take care of itself than the thing Bill had created—but vastly faster than any normal form of life of Earth.

By now it formed an inch-deep pool on

the bottom of the flask. Bill was dictating notes to Marge—scientific stuff that meant exactly nothing to Dunlop's untuned brain. He tilted the flask and watched the thing slide sluggishly along the glass with the viscosity of molasses or heavy oil. It looked soft and velvety, like the coat of some silvery animal.

He poked at it. It *was* soft—cool and yielding like ordinary mercury, yet somehow different. Dunlop pushed his finger deeper into the mass of shining dust and felt the displaced metal rise slowly around it. Then with a yelp he dropped the flask.

It smashed on the floor at his feet as he gaped dumbly at his bleeding finger, crushed by a force like a closing trap. Before he could stop it, the metal thing had elongated to a shining ribbon that vanished into a crack between the wooden blocks of the floor. Behind him came the crash of breaking glass, and he heard Marge gasp. He turned.

It was like staring into Ali Baba's cave.

The floor was heaped with blazing diamond crystals, red and white and rich purple, needles of congealed flame that grew visibly as he stared. The walls were covered with them, growing like a glittering moss on the grey concrete, bristling from the soapstone top of the laboratory table, furring every bottle and piece of glassware. Whole areas the size of a man's head would shoot steeping up in a minaret of bristling crystal, furred with tinier spines of a myriad gaudy colors, then crash in a crumbling ruin of broken jewels.

By the far wall a greater mass was growing, of which the rest was but an outgrowth. Squat—hexagonal—blunt-tipped—it was like a vast living crystal of smoky quartz, and it was growing larger with every minute!

"Silicon!" It was the girl. "Oh, Bill! The quartz—that's living too!"

Frank realized what she meant. Stray force-fields in that mad chaos that swirled about the droplet of mercury had formed

another, unintended pattern—had brought life to an atom of silicon in the quartz cube. Swiftly the infection had spread until now the quartz-beast was gorging itself on all the vast reserve of silica in the concrete walls, in the soapstone table-tops, in the bottles and dishes of glass and quartz. Half the Earth was silicon! There was no limit to the food the thing could get!

"Frank!" Bill grabbed his shoulder. "Get the broom—there by the stairs. Empty the trash cans. Quick!"

HE DROVE through a door in the wall, Marge after him. There was a clang of metal and he was back, dragging an empty ash-can and brandishing a shovel. There were others in the corner under the stairs.

Dunlop sent papers, filings, broken glass spilling on the floor and joined the battle. He with one broom, the girl with another, sweeping back the crystal tide! Bill with his shovel, hacking, scraping, filling the cans with glittering quartz-jewels that blazed like the wealth of Golconda under the naked lights. Can after can—and that creeping advance was checked! Faster than it could grow they swept it back, scraped at the walls, gouged at the eaten floor.

Before them in the corner of the laboratory, that huge crystal mass loomed, half buried in a talus of gems—the heart, the unnatural brain of the thing! If only they could destroy it!

A thick wax bottle lay in the heap of chemicals tumbled from the fallen shelves, where the thing had eaten away the supports. Another lay beyond it, and another. Dunlop saw the yellowed label—HF. *Hydrofluoric acid!* He remembered his college chemistry. Hydrofluoric would dissolve quartz!

He gathered the three wax bottles into his arms. He seized one by the neck, its stopper jammed tight against his palm, and hurled it like a bomb at the crystal

thing! Again—again—again—the brittle wax shattering, the smoking acid streaming down the jewel mass. And Bill yelling in terror:

"No, Frank! No!"

What did he mean? Already the up-thrusting angle of the giant crystal was crumbling under the attack of the acid. The vital force which imbued it seemed to make it vastly more active than would normally be the case. The vapor rising from it was a shimmering sheet like the air over a hot radiator.

"Frank! You fool! Don't you see—that gas will be alive!"

See? Of course he saw—now. Quartz, dissolving in the acid, formed silicon fluoride—the colorless vapor rising from the dissolving crystal. Silicon atoms, alive in the molecules of quartz, were still alive in that invisible, venomous vapor that he had freed!

Close under the ceiling the rising vapors had collected, swirling, cooling, sinking again in a heavy blanket heavier than air. Moisture in the air attacked it, forming tiny particles of silica gel that gave it visibility. A blanket of living, poisonous vapor, spreading sluggishly, sinking slowly to cover the entire room. A sea of opalescent mist that was gathering itself together in a great sphere of saffron cloud that drifted slowly, purposefully, toward them! Above the stanch of chemicals from the fallen shelves Frank scented a sharp, acrid odor.

"Get Marge out—quick!" Bill lunged past him, a carboy of ammonia in his arms. Into the midst of the jeweled sea he plunged. He swung the bottle high above his head in both hands and sent it crashing against the crystal monster. Instantly a white cloud of mingling vapors closed over him. Alkali against acid, counteracting the damage Frank had done, coagulating the living atoms of silicon in jelly, where they could be trapped, starved, even killed.

The globe of yellow vapors burst through the white mist. Tentacles of cloud

hung from it, spinning, shaping themselves into down-reaching tendrils as a tornado forms its vortex of destruction. They swung lower and Dunlop caught the girl up and raced for the stairs.

AS HE reached the landing she tore loose and tried to duck past him. He yanked the hall-door open and shoved her through, snapping the lock on the inside. He turned.

One end of the laboratory was paved with wooden blocks. As he looked, an area three feet square popped into the air and a metal football rolled out on the floor. Under the microscope table he saw the tell-tale debris of shattered earthenware from the flasks of mercury on which the thing had fed. Then a searing tendril brushed his cheek and he stared up into an umbrella of swirling mist, like a colossal jellyfish, dropping on him from the ceiling.

Dunlop went down the steps like a vaudeville tumbler. It was a matter of seconds since Bill Bishop had vanished in that swirling fog, but it seemed hours. Out of the fog came the tinkle and crash of falling crystal, and a high-pitched, singing twang that chilled his spine. He trod on the scurrying metal globe, skidded and fell flat among needles of broken crystal that gashed his bare hands cruelly. He saw the mercury-creature scuttling like a rat for the shelter of the great switchboard, and as it vanished Bill's voice screamed in pain.

The swirling vapors parted. Bill hung there kicking, impaled on a thin blade of blood-red crystal that sprang from the side of the giant thing. Again that shrilling twang sounded, and a second blade flashed with incredible speed to pierce his throat. Then came the sputtering roar of electric fires, a choking rush of ozone, and the mass of apparatus blazed with intolerable violet flame!

Behind the switchboard there were

naked bus-bars which the metal creature shorted with its body. Surging uncontrollably into Bill Bishop's vast array of apparatus, the unleashed current freed a barrage of radiations beside which cosmic rays were puny patterings. The wand of life may also be the staff of death. Dunlop saw the quartz-thing die.

AS RAYS condense the vapor of a cloud-chamber, the mist was driven down in milky dust. He saw all that jeweled mass afire with blue fluorescence. He saw thin spires of crystal crumbling, minarets toppling—saw the vast, barrel-bodied thing in the corner slump in a heap of glittering fragments from which the broken body of his friend protruded grotesquely. He smelled the reek of mercury vapor, and the odor of burning wood.

The trash they had spilled on the floor was ablaze, ignited by the flame-burst as one of Bill's great tubes blew out. Smoke and the reek of boiling chemicals choked him. He stumbled knee-deep through a mass of yielding sand and dragged Bill's limp body out of the ruin of the crystal monster. Then his feet were on the little iron stair, his fingers fumbling numbly with the lock of the outer door. Marge Whelan's voice was crying in his ears. And all the world went black.

There was a while when he seemed to rise up out of the darkness and then sink sickeningly back. Up—and down, up and down, and then after a time he got a toe-hold somewhere and hung on. He opened one eye, but there was something over it. He opened the other.

He saw a waving mass of mahogany hair and a pair of green eyes and a red mouth. There were big blue moons under the eyes, and lines on the white face. He tried his own mouth—it would open a little.

"What happened?" he whispered.

She bent closer. "You're all right?" she demanded.

He closed his good eye wearily. Women were all the same! "Sure, sure," he whispered, "I'm fine. But what happened?"

The green eyes were black again, but with pain, not anger. Bill Bishop was dead—he remembered that—and they had been engaged. Maybe time would heal that scar.

"The laboratory was a wreck, Frank," she told him bitterly, "but I saved his notes and mine—I have it all. We—we can do it again. We can publish Bill's notes and his equations, and there will be someone who will try to duplicate his experiments. Then they'll know he was right! Even if he is dead, he was right, and his death proved it!"

Dunlop's bandaged hand, burnt by the same penetrating rays which had blasted unnatural life out of the crystal thing, found her limp fingers and squeezed them. He closed his eye and lay in the darkness, remembering. A moth dying in a puff of intolerable flame—a man, spitted by a blade of living stone—saffron mist that swirled hungrily, and a shining metal thing that scuttled in the shadows.

BILL BISHOP had learned a truth, and tested it. Truth killed him. But it would not kill again—Marge Whelan above all. A moth and a man, and they must be the last!

"That thing that killed him," he whispered. "It's—dead?"

"Yes." Her voice sounded very small and far away. "They cleared away the debris. There was a tube running down through the floor of the laboratory where the crystal was. It was lined with little needles of quartz, but they are just so many crystals. We dug down twenty feet and there was nothing else. It's gone, I think."

"Then listen," he said gently. "You're as badly cracked up as I am, inside. You must be. You have folks back in California or some place. I'm O. K. here. I'll be out of these bandages by the time my vacation's up, and then we'll get together and decide what to do. Prexy knows me pretty well, and he knew Bill well enough to let him play around with what looked like craziness. Leave those notes with us, and when you're feeling better come on back and we'll get Bill his monument, if you still want to. Now scram—I'm going to take a nap, and when I wake up I want you to be on your way. Leave all the details to us."

He smelled the perfume on her hair as she bent over him, and felt the pressure of her lips on the bandages. Her heels click-clicked on the linoleum and the door closed softly. She'd go—and she'd come back again. But no one was going to do what Bill Bishop had done. Prexy would agree to that.

She could leave it to them. . . .

THE END



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CHAPTER ONE

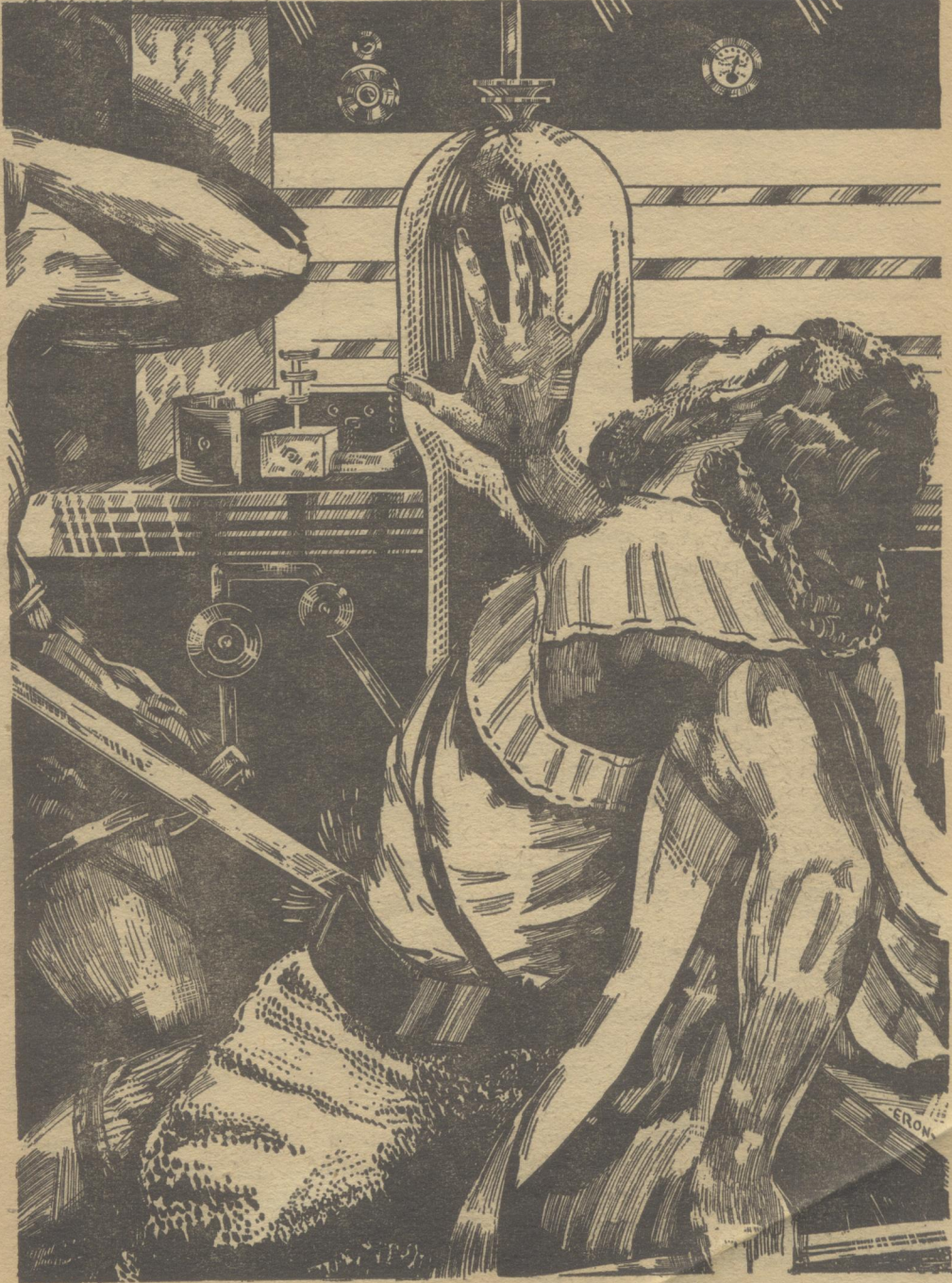
Leigh Salvage, Incorporated

SUNLIGHT gleamed on the squat, stubby space-ship. Its rocket exhaust flared once; then paled into nothing. It was drifting through the



OF PLUTO

By S. D. GOTTESMAN



meteor zone though not the undirected object it seemed to be. Captain Jerry Leigh had his scow under control; the control of a man who was born in the space-lanes, and knew them as his own face.

Captain Jerry was in the cramped cabin of the ship, scribbling at endless computations. "Allowing for Black's constant," he muttered, "plus drift, plus impetus, less inertia . . ." He turned to a calculator, stabbed at its keys, and read the result. He yanked a bell pull and a clangor sounded through the ship. Men filed in—a full crew meeting. Jerry rose.

"As I estimate it," he said, "the *Argol* lies in quadrant III of the meteor belt. Its coordinates are alpha—point. oh oh four; beta—seven point three oh two; gamma—zero!" There was a shocked pause, and a big man stepped out of the crew. "Will we go through with it, captain? Gamma—zero is a small margin of profit, to say nothing of safety." He spoke slowly and precisely; the flat "a" of his English indicated that his tongue had once been more used to the Scandinavian languages.

Jerry smiled: "Sven, caution is caution, and maybe the salvage money isn't worth the risk." His face hardened. "But I'm not working for money alone, and I hope that none of you others are."

A voice spoke from the floor, "Glory's glory, but space-bloat is a damned nasty way to die!"

Jerry frowned. There were trouble-makers everywhere and all the time. "Wylie," he said, "if you've ever seen a wrecked liner you'll know what we're here for, and what our job is. We salvage and tow the ships wrecked by meteors or mechanical flaws, and we get paid for it. But—and it's a big but—if we didn't do our job, those ships would run wild. With no crew, tearing through space at the whim of the governor, plowing through the shipping lanes,

never twice in the same place, and finally coming to rest as permanent menaces to trade and life—*that's* our job! They carry water condensers to Mars: they carry radium to Earth. Para-morphium from Venus, and iridium from Neptune. Without us salvagers there would be no shipping; without shipping the structure of interplanetary union would topple and fall. This isn't a job or even a career—it's a sacred duty that we do for each and all of the nine worlds of the solar system!

"Coordinates, I said, are alpha—point oh oh four; beta—seven point three oh two; gamma—zero. Carry on; full speed ahead."

The exhausts flamed; the stubby, rusted prow turned once more—into the meteor zone!

Jerry droned figures to the helmsman, with his eyes glued at the vision plate of pure fused quartz. "Meteor in our third quadrant—distance about five hundred kilos. Deflect into first . . . back on course.

"Cloud of aerolites ahead. Carry through." Ahead loomed a blotch of darkness. "Unknown particle in second quadrant. Our coordinates, helmsman."

Sven, at the tiller, read off. "Alpha—point oh oh four; beta—seven point four oh oh; gamma—point oh oh two."

"Hulk *Argol* ahead. Carry through into gamma—zero." The big man wet his lips and deflected the steering bar. "Carried through, sir," he said. Jerry, his eyes never leaving the plate, whispered tensely, "Cut steering to master's board." Sven snapped a switch. "Cut, sir." Delicately Jerry fingered the firing switches. A blocky black mass boomed down on the ship from the East; violently the little scow looped over and down, clearing the path of the particle. This was just one of the reasons that men were prejudiced against gamma—zero. Too much loose junk zipping around for comfort.

THE *Argol* was squarely on the cross-hairs of the vision plate. Captain Jerry studied the battered piece of wreckage. It had been a supertransport once—loaded to the observation blister with para-morphium from Venus to Earth. She had encountered an unexpected cloud of meteorites; probably too big to run away from, and so had been riddled and gone under. From then on her career had been a terrible one of shooting wildly through space on almost full fuel tanks; demolishing a refueling station a million kilos of Mars; smashing into a squadron of police rockets and shattering them into bits—and finding rest at last in the meteor zone to upset orbits and hurl cosmic rubbish into the trade lanes. He examined this corpse of a ship, estimating its size and Martian weight. He thought he could handle it. Through the annunciator he said, "Make fast with magnet plates." And to Sven, "Take the master's board for emergencies. I'm going over to supervise."

Jerry crawled into his space-suit; a terrible cumbersome thing of steel alloy and artificial membrane, and dropped lightly down the shaft of the ship to the big space lock that characterizes the salvage vessel.

"Wylie," he ordered. "Take Martin and Dooley with a cutting torch to open their sides and then look at their fuel tanks. If they have any left we can use it. I don't believe they're empty, from the lie of her."

"Macy, take Collins and Pearl. Secure grapples, and allow as much slack for towage as you can get. If you allow too little, you'll never know it, by the way—we'd be smashed like an eggshell on the first turn bigger than thirty degrees.

"Dehring and Hiller, come with me. You need supervision. Take cameras and film."

The boarding party bolted their helmets on and swung open the space lock.

Wylie, unrecognizable in his swathing overall, braced the cutting torch against his middle and turned on the juice. The powerful arc bit through the wall of the *Argol* as if it had been cheese, and the men filed through. They had cut one of the cargo rooms, piled high with metal cylinders of para-morphium, the priceless Venerian drug of sleep and healing. A few of the containers were sprung open and the contents spoiled; still, seventy per cent of the remaining cargo went to the salvager, and eighty per cent of the hulk.

Jerry took his crew of two to the steering blister that bulged from the top of the ship, picking his way between damaged bodies. In the blister he found the captain, staring permanently at a hole in the observation plate where a meteorite—one of many—had pierced the armor of his vessel. With a crowbar Jerry pried off the top of the recorder and photographed the tracing needles on the graph that charted the course of the ship with all its crazy tacks and swerves through space.

"Dehring," he ordered, "take up that corpse. We're going to stack them and see that they get decent burial when we reach a planet." And with the callousness of years of space travel and the coldness that the hard life of the salvager instills, the man obeyed.

Jerry wandered at random through the ship. It had carried some passengers: One of the cabin doors was open, and the figure of an old woman, face mercifully down, was sprawled over the threshold. She had heard the alarm in her little room as the air drained out of the ship; unthinkingly she had flung open her door—gasped for breath when there was nothing to breathe—and fallen as she was.

He picked up her tiny frame, and carried it to the stern of the ship. He wondered who she was—why she was re-

turning to Earth from Venus at her age. Perhaps she had wanted to pass her last years among the green and brown fields and again see a mountain. Perhaps—he thought he knew how she felt, for he, too, had once been homesick.

MARS—red hell of sand and cloudless sky. Home of “wanted” men and women, where the uncautious were burned in the flaming bonfires of the Martian underworld. Haven of every swindler and cutthroat in the system, it was but a dull gem in Sol’s diadem. Some day they would clean it up—raid the sickening warrens that snaked through and under its cities; fill them in with dynamite. That day would be a good one . . .

Gently he deposited the body among others; brushed away his random thoughts and called, “Macy! Grapples fixed?” Macy’s thin voice trickled through his earphones, “Yes, sir. I gave them twelve hundred meters.”

“O. K.” he snapped. “Return to the ship, all except Wylie. You’ll stay aboard, Kurt, to stow displaced cargo.”

“Yes, sir,” said Wylie, in a growl. “And shall I comb the corpses’ hair, sir?”

Jerry grinned. “Why not? And see that it’s done or I’ll fire you and bust your rating on every scow out of Mars.” Discipline, after all, was the thing.

Jerry resumed his place at the firing board. “Stations all,” he called sharply over the annunciator. “Brace for seven Mars gravities in seventeen seconds. One—”

His hands flew over the board, setting up the combinations of rocket discharges that would be able to stir the huge *Argol* out of its inertia and snap it after the scow of Leigh Salvage, Incorporated, like a stone on a string, at the end of a ponderous osmiridium cable.

“Nine!” The men were strapping themselves into hammocks.

“Eleven . . .

“Fourteen!” He tensed himself, sucking in his stomach muscles against the terrible drag.

“Sixteen!”

“Fire!”

And the ship roared sharply up and out of the asteroid belt, its powerful rocket engines—designed to move twenty times the weight of the scow alone—straining to drag the ponderous cargo hulk behind it. Soon the initial speed lessened, and they were roaring along at an easy thousand K. P. S. The captain rose and set the automatics; tried to shake some of the blood from his legs into his head. He could rest now.

Assembled, Jerry and the men drank a toast to the trade in ethyl alcohol—“To salvaging: the greatest game of all!” They drained their cups. Then big Sven rose, some of his Norse reticence vanished in the universal solvent. “My brothers in labor,” he began. “We have gone far on this trip, and there is no one here who will not agree with me when I say that we could not have done it without Captain Jerry. I give you our boss and the best of them all, Jerry Leigh, of Leigh Salvage, Incorporated!”

The flask went the rounds, and when it was emptied there was another and yet another. In just a few hours Jerry was standing alone in the middle of the room, looking owlishly about him at the collapsed forms of the crew. There was a cup in his hands—a full cup. He spurned a nearby body with his foot.

“S-s-sissies!” he said derisively, and drained his drink. Slowly he deflated onto the floor.

An alarm bell smashed the silence into bits; men dragged themselves to their feet. “Mars,” said one, absently.

“Don’t land easy, captain,” another urged Jerry. “Smear us all over the field. It’s about the only thing that’ll do this head of mine any good.”

Jerry winced. "That's the way I feel, but I'd like to get that hulk in before I die. Landing stations, all men."

Their ship and its huge running mate hovered over the red planet. Irritably Jerry dove it near the atmosphere and blearily searched its surface for the landing field. "Damn!" he muttered. "I'm in the wrong hemisphere."

The ship roared over the face of Mars, and slowed above the Kalonin desert. Jerry found Salvage Field beneath him, and cut the rockets sharply to one side, swinging the *Argol* like the lash of a whip. They swooped down, and Jerry, drunk or sober, shifted his salvage neatly above the ponderous pneumatic cargo-table and cut it loose. It fell the thousand feet with a terrible crash, landing comparatively easy. At any rate he had not missed it. "So much for Wylie," he muttered.

The exhaust sputtered and died; the ship dove to within a hundred feet of the surface. On rockets! And down she drifted, landing without a jar. Jerry held his head and groaned.

CHAPTER TWO

An Unexpected Rival

THE owner, manager and founder of Leigh Salvage, Incorporated, was only human. In turn he visited the offices of the other salvage companies and said, in effect, "Ya-a-ah!" Or that was the plan.

Burke was first on his list; a sullen, red-headed man with a grudge against everybody. He threw Jerry out of his office before half the "Ya-a-ah" was out. The Captain was too happy at the moment to start or finish a fight, so he brushed himself off for a call on Rusty Adams, of the *Bluebell* Salvage Company.

He entered their office and what appeared to be a secretary or receptionist or

something said to him, "Can I help you?"

"Yes," he said absently, looking for Adams. "What are you doing tonight?" She scowled prettily. He noticed her hair, blond. He noticed her eyes, blue-grey. He noticed, moreover, her face and figure, very neat—but this was business. "Is the proprietor of this ramshackle space-tug-gery in?"

"Yes," she said, "the proprietor is in."

"Then drag the old dog out; I would have words with him."

"I," she said, "am the proprietor."

Jerry smiled gently. "Enough of this," he said. "I refer to the illustrious Francis X. Adams, alias the Rusty Nut, alias the Creaking Screw—"

He paused. Her eyes were full of tears. She looked up. "He was my father," she said, "You're Leigh, aren't you? They told me of your ways. Father died while you were in space. I've come from Earth to take care of his business." She blew her nose on a silly little handkerchief, and said, "If there's anything I can do for you—"

Jerry felt lower than a snake's belly. He stammered an apology of some sort and went on, "As a matter of fact I did have a deal to talk over. I want to buy out your concern." As a matter of fact he had wanted to do nothing of the sort, but he thought it out quickly. The expense would cripple him for a while, but he'd be able to dispose of the *Bluebell* at a loss and get some operating capital, and one more job like that *Argol* and he'd be right back where he was now with only a little time wasted and she *did* have blue-grey eyes and what did a woman know about salvage anyway—

"Not for sale, Mr. Leigh," she said coolly.

That shocked him—he had thought that he was doing her a favor. He decided to be a big brother. "Miss Adams, I think you ought to accept. Not for my sake, but for yours. You have had no experience

at the work; you'll be at the mercy of your employees, and salvage men are the toughest mob in space. Your father could handle the company, but—"

She set her pretty jaw. "Just that," she said. "My father could handle them, and so can I."

What was a man to do in the face of such madness? Perhaps—"What about a ship-master, Miss Adams? Your profits will all run into his salary."

"No, Mr. Leigh—my father did it and I can do it. I'm going to pilot my own ship."

With that he exploded—no woman had ever piloted a rocket ship, he said; and also he said that no woman ever would pilot a rocket ship, and that if she thought she was going to learn to pilot a ship she was just plain crazy to try and learn on a salvage scow; and further he said that the salvage scow is notorious throughout all space as the crankiest, most perverted, perverse and persnickety brand of vessel that flies; that to run a scow you had to be born in the space-lanes and weaned on rocket-juice—

"I don't know about the rocket-juice," she said, "but I was born on the Jupiter-Earth liner." Jerry gasped for breath.

"Is there anything else?" she said. "Because if there isn't I'd like to get some work done on my father's accounts."

"No," said Jerry thickly. He was dangerously near apoplexy. "Nothing else." And he walked out of the office muttering, "Accounts . . . get some work done on my father's . . . "Dammit! A woman *couldn't* fly a scow, and she wouldn't believe that very obvious fact until she was smeared over half of the landing field.

Like a man in a dream he found himself at the offices of the Salvage Field Commission, paying his field dues. An official, dazed, asked if anything was wrong. Did he expect to die, or something?"

"No," said Jerry thickly, "but I ex-

pect to get potted in about twenty-five minutes. Would you mind coming along?" "Not at all," said the official. In fact he felt the need of a drink after having beheld the ungodly spectacle of the Leigh Salvage Company paying up on time.

MANY hours later all that was left of the two was a very small noise in the corner of a saloon on Broadway, at the corner of Le Bourse. Half of the small—*very* small—noise was saying to the other half at intervals, "*Wimmin can't never fly . . . Wimmin can' never fly . . . Wimmin can' never fly . . .*" And the second half of the very small noise was replying to the first, "*Yeh . . . they cer'nly don't . . .*" At length the proprietor told a hackie to please take them away, and what happened to the official nobody ever found out, but Jerry awoke next morning in his hotel room with a pair of blue eyes wavering in front of his face. They weren't real, though—vanished with the first draught of bicarb.

His phone rang, and he winced. It was the Salvage Field Commission, and they wanted to know what he had done with Sweeny. Sweeny? Oh, yeah—no; he didn't remember a thing. To hell with Sweeny. Were there any jobs to be done? He wanted to get off Mars before he got drunk again. There was a long pause while the commission looked up today's sheet. Yes—one bullion ship wrecked between Mercury and Venus. Carrying iridium. Speed was essential; therefore the agreement was on a strictly competitive basis; any or all salvage companies registered could try for it simultaneously. The owner of the ship agreed to buy back the cargo falling to the salvager at market quotations out of hand. First scow to get a grapple on, had her. Laufer and Burke had filed intention claims, and were starting off in a couple of hours; so had Bluebell.

"Who? What master?"

"Er . . . Adams. Holy smokes! *Alice Adams!*"

Jerry swore. "You'll have to stop that kid. She doesn't know how to fly."

"You'd better come down, then. You seem to know more about this mess than I do. Hurry up if you want a crack at the *Carpathia*—that's the bullion ship."

"Expect me in twenty minutes or less." Hastily he dressed, his hangover forgotten, muttering to himself things about slap-happy blondes. Schopenhauer, he decided, had approximately the right idea.

For the second or third time in his life he was not late for an appointment; twenty minutes saw him bursting through to the office of the commissioner.

"Well?" he demanded violently. "Are you going to let her fly? In a race like this is going to be, she'll not only smash up herself and her crew but any of the rest of us who get in what she seems to think is her way."

The body wrapped around the telephone voice answered heavily, "There's nothing to be done about it. For some obscure reason the 'sons or other issue of the deceased licensee shall retain the towage and salvage permits of the deceased, and all appurtenances thereof,' according to regulations."

"The license for towage, etc., includes an operator's card; therefore we discovered that a crack-brained female who has never flown before inherits a flying permit without physical examination or experience. I'm going to write my congressman; that seems to be all that anyone can do about it just now. Shall I fill out an intention claim for you on that *Carpathia*?"

"Yeah. I won't be back," he snapped, half way through the door.

HE FOUND Sven in a cheap rooming-house near the port.

"You round up the rest of the crew!" he yelled, "and be at the field by twelve

noon or you're all fired and busted." He tore away and jumped into a taxi. "To the salvage field, buddy, in a helluva rush!"

He was oiling the space lock when the others arrived, led by Big Sven. He stared at them. "Often," he said, "I have wondered what happens to space lice when they crawl off the ship. I now perceive that I should have known." Each and every man of them had at least one black eye; each had cuts and bruises about the temples. "Well—forget the good times. There's iridium drifting free between Mercury and Venus, and we're going to snag it. And if we don't sink our grapples into that hulk before any other space-tramp, you worms go hungry. Clear? Now get to stations; in ninety seconds we take off. I said *ninety!*"

The men filed into the stubby ship holding their heads. A hangover is nothing to take with you on a space-flight. If they could have left their heads behind they would have done it. With creakings of abused muscles and battered bones they strapped themselves into hammocks and pads.

The crew of Leigh Salvage, Incorporated, was in a bad way.

The take-off was uneventful as such things go; Jerry mentally noted that he had blown away a small corner of the salvage table, just another item to subtract from the profit, if any.

Once again in space, the captain was at the look-out plate, eyes and hands and brain bent five hundred kilos out into the vacuum. "Particle sighted ahead," he droned, "in our third quadrant. Salvage scow *Bluebell*. Full speed ahead to pass her." His fingers played over the master's board, and the blunt ship roared ahead. They were near—dangerously near—the *Bluebell*. A blast from the steering fins and the scow jolted into a new course. Jerry never took chances—hardly ever. They slowed acceleration far in advance

of the other vessel; that was another contract tied up and in the bag. The captain relaxed—That Adams girl . . . of course she couldn't handle a ship. Anybody could make a not too disastrous take-off, but she'd smear hell for leather when she tried to land.

A signal light flashed on his board, and he snapped on his communication beam. There was a long pause while the power built up, then a voice from the grid—

"Scow *Bluebell* calling scow Leigh Salvage, Incorporated. Give way. We're going to pass you in your first quadrant. That's all."

Jerry gaped. Unheard of! "Scow Leigh to *Bluebell*!" he snapped. "Listen, insane female; you're not driving a French taxi. There are ethics and rules in this game we're playing. Do you want to be black-balled and become an outlaw tug?" There was another reason than need of that cargo for his anger—maybe, just *maybe*, she could get back onto the field without busting herself wide open if she were alone, but with a cargo as big as the *Carpathia* she wouldn't have a chance in a million. He thought of what a short towing line could do, and grimaced.

"We're passing, Scow Leigh. That's all." The light on his board died. That was all. Well . . . for her sake . . . and for his own . . .

"Full speed ahead, and then some more, Sven. It's a race."

But it wasn't much of a race; the *Bluebell's* port fin exploded, and her acceleration stopped. Jerry grinned. "We'll pick her up on the way back and leave her ship there. The farther apart those two are the safer for both of them . . . *Hey! Stations! Hulk Carpathia ahead!*" And the salvage ship jockeyed for position, drew alongside of the bullion transport and clamped on with a clash of metal against metal. The crew prepared to board.

CHAPTER THREE

Crime in Space

JERRY reached for the phone, his brow grooved. "Broadway three thousand," he said. The voice with the smile answered, "One moment, please," giving him time to reflect on the superfluity of machinery. Less efficient than a dial-phone, maybe, but that touch of warmth and humanity—"Here's your party, sir."

"Central Office, Interplanetary Police."

"This is Captain Leigh, of Leigh Salvage, Incorporated. I wanted to see you about—"

"About the peculiar state of the *Carpathia*. Come on up."

"Yeah," said Jerry, baffled. "That's what I wanted to see you about." How did they know? And maybe they had a lead on the vanished Miss Alice Adams? He hoped so.

He was received in the offices of the Interplanetary Police by a very old man who introduced himself as Major Skeane. Jerry took a seat and opened the valise he had brought. "I don't know how much you know about the business of the *Carpathia*," he said, "so I'll begin at the beginning. Please examine these—exhibit A."

"These" were the contents of his valise—small, heavy chunks of metal. Skeane grunted. "Once spheres," he said, "apparently cast in a shot tower; then sand-blasted to suggest natural formation. Some filed by hand, even. These, I take it, were the particles that wrecked the bullion ship?"

Jerry wet his lips. "Yes," he said. "it looks like a put-up job for sure. And Alice—that's Master Adams, of the scow *Bluebell*—she's disappeared. We were racing her for the *Carpathia* and she broke down about half a million kilos from the hulk. I meant to pick her up on the way out to Mars and maybe tow



her ship in, too, but when we got grap-
ples on her we found her scow deserted
—not a man left on her! Have you people
got any dope on that business?"

Major Skeane scratched his head.
"Captain," he said, "I'm sorry to inform
you that while you do not jump to false
conclusions, neither do you shine in the
formulation of true ones. Do you see no
logical relationship between the two
events?"

Jerry considered, and paled. "None,"
he said angrily. "And instead of antilogis-
ing you might be out hunting down the
swine that would try to profit by the
deaths of two score men."

"The rebuke is undeserved," smiled the
old man. "We have the wrecker of the
bullion ship—or at least we know who
did it, and how."

"Anybody I know?" asked Jerry.

"I believe so. The saboteur is Miss
Adams, of Bluebell."

"The younger man stiffened in his
chair. "No!" he cried. And then per-
suasively, "she might be crazy as a flea,
but wrecking—never!"

"You do us an injustice. We were
warned to watch her the moment she
landed on Mars. Our agents assured us
that she was a girl with ambitions; they
kept track of her, reporting to us for the
customary considerations. One man in
particular—LeMouchard—has kept us
posted, and he's as much to be trusted
as anyone these days. To my mind—and
I am the officer in charge of this case—
the alleged disappearance of Miss Adams
is conclusive proof of her guilt. She failed
to cash in on the particularly rich oppor-

tunity that she created for herself and thus destroy the evidence, and so was picked up by a confederate, with her presumable equally guilty crew. I expect her now to continue her career from another base; possibly another planet, until she makes a slip. Then we shall trace her and deliver her to the execution cell."

"I see," said Jerry, fighting to keep calm. But he didn't see and somewhere there was a horrible mistake which had cost the lives of a score of men and would yet cost the life of that girl with the blue-grey eyes who had tried to pass him and had nearly wrecked her ship and his own, he thought.

Skeane broke in. "Will you leave that valise of junk here? We need some material evidence. And I want you to swear to a description of the girl."

"Sure," said Jerry vaguely. "Anything you say."

"Right. Hair, blonde; shade thirty-three plus on the I. P. scale. Eyes, blue-grey—shade nine. Weight—Captain! Come—"

Jerry was walking slowly through the outer office, his mind in a state of terrible confusion. He didn't know what to do for himself or her. Attack it with logic, he decided fuzzily. For effects there are causes. Assuming flaws in the line of Skeane's logic, discover the points of specific strain and test them. Hah—he had mentioned "agents"—those, he supposed, were informers. And—what was his name?—LeMouchard. Weak link number one; now to test it.

He walked into a store. "A bottle of olive oil, please. A big one." That was the first step.

IN MARS there are many hidden ways.

For every city there is a shadow-city twisting its tunnels and warrens beneath the sunlight and air. It was through these dark passages that Jerry wandered—to check, as he thought, on official deduction, of course.

Reeking with oil and dressed in the rags of an outlaw space-tug's crew he passed into the dismal underworld as one of its own creatures. In not many hours he was to be found in a low dive swilling the needled ethyl that passes as potable among the scum of a solar system. It was easy to make friends of a sort there—the price of a drink took care of it.

Jerry wasn't drunk, in spite of the terrible cargo of rot-gut he had been stowing away, but he was just a bit ill, for his stomach was well lined with olive oil, sovereign remedy and anti-intoxicant. He was buying liquor for a slimy little man through no altruistic motives; for this was LeMouchard, informer to the police. Gently he questioned him. Of course, he was strictly on the legit, but he hadn't always been, no? And those camels of the gendarmerie that made themselves the great ones, a good man—like our comrade here, yes?—could wrap them around his finger, no?

And surely he was not such a fool as to play with only one master when the pay from two was twice as great? He thought not. Oh, yes—that clever business of the *Bluebell* girl! He, Jerry, would give a pretty penny to know in whose dazzling intellect that task had been conceived and brought to fruition. Was it—could it be—that he, Jerry, was standing in the presence of the man? But no! But yes! Then surely that was worth another drink of the so gentle ethyl. And so the great LeMouchard was in the pay of the police and one other. Might he, Jerry, be permitted to inquire as to who had availed himself of the services of so great a man?

LeMouchard looked owlishly over his drink. "Oui," he croaked. "It is permitted." His face flushed abnormally, and he shook his head like a dazed fighter. "The English, I forget how you call him . . . *Le bon petit roi d'Yvetot*—the king with the little orchestra. It is . . ." he

bowed forward, his eyes bulging. "Carbon?" he said. "Sa Majeste Carbon." His ratty face hit the table-top. Out cold.

King Carbon—coal. King—Cole? Old King Cole? That seemed to be the idea. But what was a merry old soul with a small orchestra doing on Mars with a stool-pigeon?

He returned to his hotel room and phoned the Interplanetary Police.

"Major? What do you know about Old King Cole?"

There was a pause. "I believe," said the thin grey voice of Major Skeane, "that he died just fifteen years ago. A bit before your time."

"As I understand it he never lived. What are you talking about?"

"Early space pirate. Good man, too. Crashed on Pluto two days after I was assigned to his case. I was a terror in those days; he must have been afraid of my rep. They all were, then. Did I ever tell you about Ironface Finkle, the Mercurian Menace? I brought him down . . ."

"Very interesting; very—this King Cole—I want to know more about him. I suppose you found his remains?"

"On Pluto? Don't be silly. When they crash there they stay crashed. This Ironface lad had a better position than I did, naturally; I made it a point never to be unfair to the men I was assigned to, since my name alone struck terror—"

"Naturally, Major. How did King Cole work?"

"The usual way; ramming and boarding. Now Finkle had a tricky twist to his technique and had me baffled for a time—"

"That's too bad," said Jerry tiredly. "How old was Old King Cole when he—ah—crashed?"

"Rather young. In fact, he had just graduated from a tech school on Venus when he took up his career and ended it in about a year. But the Mercurian Menace was older and more experienced. He knew how to handle a ship. I was hard-pressed, but soon—"

Jerry hung up. It was fantastic! How many men had been to Pluto and returned? If his hunch was right—and it sometimes was—at least one more than the records showed. He phoned room service for the *Marsport Herald*.

"Yes, sir. Morning or afternoon edition?"

"Both, Oh, yes—I want them as of this date fifteen years ago. Better get me the year's file."

Room service turned to linen and said, "That man is mad as a hatter." Then hastened to the Herald building for the files.

In due course the files reached Jerry, who had been calculating the location of the *Bluebell*.

He flipped the pages to January and read a report of the King's first appearance. He had struck like a demon at an excursion ship, gassing it and gutting it

"I Talked with God"

(Yes, I Did—Actually and Literally)

and, as a result of that little talk with God some ten years ago, a strange new Power came into my life. After 43 years of horrible, sickening, dismal failure, this strange Power brought to me a sense of overwhelming victory, and I have been overcoming every undesirable condition of my life ever since. What a change it was. Now—I have credit at more than one bank, I own a beautiful home, drive a lovely car, own a newspaper and a large office building, and my wife and family are amply provided for after I leave for shores unknown. In addition to these material benefits, I have a sweet peace in my life. I am happy as happy can be. No circumstance ever upsets me, for I have learned how to draw upon the in-

visible God-Law, under any and all circumstances. You, too, may find and use the same staggering Power of the God-Law that I use. It can bring to you, too, whatever things are right and proper for you to have. Do you believe this? It won't cost much to find out—just a penny post-card or a letter, addressed to Dr. Frank B. Robinson, Dept. 151, Moscow, Idaho, will bring you the story of the most fascinating success of the century. And the same Power I use is here for your use, too. I'll be glad to tell you about it. All information about this experience will be sent you free, of course. The address again—Dr. Frank B. Robinson, Dept. 151, Moscow, Idaho. Advt. Copyright 1939 Frank B. Robinson.

with thermite bombs, leaving a message pinned on the chest of the mutilated captain:

"Old King Cole was a merry old soul,
And a pirate, too, was he;
He wiggled his toes, and he thumbed
his nose,

And said: 'You *can't* catch *me*!'"

From that and subsequent clues his identity had been traced. He had been Chester Cole, honors student at Venusport Tech and had led his class at the Academy of Astronavigation—but was just a little cracked, it seemed. He had, as a student, fought a "duel" with another boy, crippling him. All that had saved him from prison then had been the loyal lies of his classmates. His crew, in the days of his career of crime, seemed also to have been made up of like contemporaries. It was a strange and striking picture, this mad boy roaming space in a ship of his own, striking out at will at women and children.

Now to the end of the files, to investigate his death—

CHAPTER FOUR

Pursuit Between the Planets

APPROXIMATELY on the line which Jerry had calculated, a ship of strange design was speeding for Pluto. Like every space-ship, it was highly specialized. The super-powerful motors and grapples of the salvage scows were not hers, nor the size and luxury of the passenger liners. This was no huge freighter, jammed to the blister and built for a maximum of space to store to a minimum crew. Yet she had a purpose, and that purpose screamed from every line. This rocket was a killer, from bow to stern. Her prow was a great, solid mass of metal toughened and triply reenforced for ramming; a terrible beak of death. Above her rear rockets protruded a stern-chaser

that scattered explosive pellets behind her in an open pattern of destruction.

But this very efficient machine was not entirely lacking in comfort, for Alice Adams rested easily in a chamber that might have graced—and once, perhaps did—the costliest luxury liner. She had awakened there after that peculiar odor through the *Bluebell* had laid her out and her crew. Then a courteous knock sounded on her door. "Come in," she said, baffled by the anomalous situation.

A man entered. "I welcome you," he said, "to my vessel. I trust that you will find—"

Alice looked at his face, and screamed.

THE man recoiled and muffled his features in a scarf. "I can hardly blame you," he said savagely. "It is the wind of Pluto. You will find that my entire crew is like that, I warn you. Skin grey and dead, the scars of the Plutonian sleet over all the face. For five years we lived unsheltered in that hell—five years that might have been a thousand. Can you know what that means?"

"But who are you?" asked the girl. "And I'm—I'm sorry about . . ."

"I was once known," said the man, "as King Cole. Bright boy of the space lanes; pirate *par excellence*. The whimsical butcher—that was me. Fifteen years ago I died on Pluto, they think. Maybe I did; it's hard to say for sure these days. We lived in the broken open hull of our ship where it fell, breathing in helmets, feeding from crates and cans of food. One kid thought he could melt the snow outside and drink it. He was very thirsty, and he went mad when he saw the snow boil up into yellow-green gas. It was chlorine. It's cold out there where we're going.

"Many years it was, and then another ship crashed, and we took off our helmets and lived in that and sang songs with the men of it who survived. They were tech-

nicians, and tried to fix their rocket, but one of my boys killed them. He thought he liked it there; he must have been crazy.

"A long time later a first class pirate ship landed. We crawled across the snow to her—two hundred kilos. They took us in because they hadn't a mechanic worth the name, and all of us were fine tech men. I said I could fix her, and I could. Then one night my men killed all the crew of this new ship and I patched it with stuff from the other two rockets so we took off and sneaked into Mars.

"I had been a fool once, and that was enough, so I meant to do it the right way this time. You don't strike without warning if you want to be a success; you give plenty of warning through agents and policemen you've hired, and steer them just a bit the wrong way so that they suspect nothing and honestly believe that they'll get you the next time.

"I met a lot of friends I knew on Mars, and made some new ones when I'd disposed of the ship's cargo. The boys and I have been cruising around for some time now, doing nothing spectacular—it doesn't pay. We've been knocking off a ship here and there, laying the blame square onto a rival or somebody. Our home is still Pluto—we don't like it, in a way, for what it did to us, but in a way we do because nobody else does, and it's so *damn* far away from anything half the time.

"I'm sorry that you didn't get the *Carpathia*. I thought that with a father like yours you could fly sideways and beat any other scow in the ether to a contract."

She stared at the madman. "What did you know about my father?"

"He was my instructor on Venus. He got me out of a piece of trouble when I killed a man that swore at me. He was a good instructor, and I'm pleased that I have the chance to do him a favor through you. You see, I wrecked that bullion ship for you. Then I was going

to pick you up and the junk, but I see I've only got you. Well—perhaps that's enough. You can't return to Mars even if you want to. I suppose the police have their cruisers out looking for you and your crew. I buttered the crime onto you for both our advantages. I hope you don't mind?"

"No," she said, "and you wanted to do my father a favor by permitting me to join your—band?"

"Exactly," came from the muffled features. "And you will?"

The girl sobbed, "Never! Space is clean and cold; why must you make it a thing of Terror? Isn't that pain enough without you and your kind?"

The pirate laughed. "The whimsical butcher is not displeased," he said. "You will have your uses anyhow. It will be a long time before a soul suspects King Cole—the late King Cole—of the atrocities perpetrated by Miss Alice Adams and her cutthroat crew. I know how the police mind works. That's my business, now. Good day—you may ring for food." He left, and the door closed behind him.

Vainly the girl sprang to the door and tried the knob. It was locked firm. She returned to the bed and shut her eyes, trying to blot out the memory of that grey, horribly seamed face.

ON MARSPORT Jerry had not been idle. He had been to see the major again, and tried to convince him of the truth so self-evident to the younger man's mind, but the placid old idiot listened blandly and blankly. When Jerry was finished he said, "Through an accident, I believe, we were cut off in our telephone conversation a while ago. I was about to describe the position in which Ironface and I found ourselves—"

But Jerry was gone with great curses on his lips. Patiently Skeane sighed. It had been six years since he had been able to finish that story; the last man

to hear it complete had been a convict extradited to Venus from Jupiter. Skeane had strapped him down in the little two-man rocket and whiled away the long hours of space travel with the tale in its gruesome entirety. He thought, now, that it would be nice if he could fine somebody else to strap down and tell the story to. He was even a bit afraid that he was forgetting the details himself . . .

A taxi was driving through the muddy streets of Marsport; Jerry snapped a bill under the hackie's nose. "This for you if you step on it," he said. They pulled up, brakes squealing horribly, before a battered, weatherbeaten tenement. Jerry took four stairs at a time and burst into the close, dirty room. He shook the sleeping figure. "Sven! *Sven* dammit! Wake up, you loose-brained lump of soggy Norwegian caviar! We have the biggest job we've tackled yet!"

The helmsman rolled over, and dizzily asked, "We tow, captain?"

"Yeah, we tow—a full-armed battleship that doesn't want to be towed. Get the men to the field in twenty minutes—fare is on Leigh Salvage, Incorporated."

As the big man struggled into his clothes Jerry was down the stairs and into a taxi. "Salvage Field," he snapped, "in a helluva rush."

He had often boasted that the engines of scow Leigh were the most powerful things in the ether. Well—he would see how powerful they could be—shifting feed lines and adjusting nozzles to move the traction power, terrific as it was, into a different channel. The scow was to haul nothing but her own weight this trip, but it was essential, to put it mildly, that she haul it *fast*. The men lined up before her as the job neared completion. Briefly but clearly Jerry outlined the dangers and invited men to drop out.

"Wylie," he said, "since I shipped you we've been getting complaints from your quarter about work. This is going to be

work the like of which you never dreamed. You can take out that pistol of yours; sure as leather you're going to use it this trip, unless somebody gets you first.

"Anybody leaving? No? Then pile in and strap tight. In ninety seconds we take off under fifteen Mars gravities acceleration."

There was a little glow in his chest. These were men—his men! Comrades of flight and wreck, he'd stood by them and they were making good this day. And for a crazy woman? That was the part that baffled him—why? He had had practically no respect for her father; his ethics, or lack of ethics was notorious on the field. But she couldn't fly a ship! That, he said to himself, was what had convinced him of her innocence of the highly technical charge of piracy.

"Strapped in?"

"Eighty-nine—

"Fire!"

With a roar they took off. Such acceleration was unheard of, even on this field, where rules of astronavigation were scrapped daily and the laws of the space-lanes broken as a matter of course.

In a moment they had vanished from the sight of observers on the field; a moment more and they were into space, beyond air and warmth.

"All hands," rang out over the Leigh Salvage annunciator. "These will be battle stations when so ordered. Sven, be ready to take the tiller in anything happens to me; Wylie, choose and arm eight men to form a boarding party. Two others stand by with repair-paste in the event that our periphery is punctured. One man stand by the manual controls in case the electric board is blown by anything they have in their bag of tricks. That is all—flight stations!"

A long silence followed, Sven's hand white on the helm. "Deflect into first for particle in third," said Jerry, at length. "Meteorite." The ship shifted. "Good

God, Sven—did you see that thing?” cried Jerry.

The helmsman said, puzzled, “Yes, captain.”

“But Sven—we passed it—going in the same direction! The first time I’ve known that to happen. Swede, we’re traveling plenty fast.”

CHAPTER FIVE

Contact Off Pluto

OUT in space time depends most of all on the man concerned, but for all those on the speeding little scow, the days flashed past. They saw Jupiter pale behind them, and Saturn, and Neptune; then, one day—

“Helmsman,” said Jerry tensely, “turn control to master’s board. I think I see them.” Uneasily the big man surrendered the guiding of the vessel; he was the sort who likes to know what is going to happen next. Jerry’s fingers touched the panel, his eyes never leaving the glinting speck far ahead of him; the speck that grew as he overhauled it with dizzying speed. His own exhausts glared less bright; he was slowing down that there might be no mistake. A telescope brought to bear on the point screened out the rocket’s dazzle and enlarged the features of the vessel. And there was something about it—he was almost sure.

He *was* sure. That tube astern was a chaser, meant for him and his scow. He turned on the annunciator, his jaw clenched. “Attention all hands,” he said. “To battle stations. Check on your paste, repair crew; check on your weapons, boarding party. Pirate ship—” he squinted through the telescope—“Pirate Ship *King Cole* in sight. That is all.”

He snapped on a beam of communication to the pirate ship, closing up the distance between them, and sent a call along it.

“Scow *Leigh Salvage* calling unregistered *King Cole*. Scow *Leigh Salvage* calling unregistered *King Cole*. Answer if you hear me, unregistered *Cole*. Scow *Leigh* to unregistered *Cole*.”

There were etheric cracklings, then a dry voice. “Answering, scow *Leigh Salvage*. If you know who we are, what do you want with us?”

Jerry was close enough to see their chaser turn into his quarter and extend for firing.

“Heave to, *King Cole*,” he said. “We’re commissioned as a converted warship of the Interplanetary Police.” This was neither strictly true nor untrue. As a matter of fact Skeane had said, “Go on and make a fool of yourself if you plan to. You and your ship have my full permission.”

“Captain,” said the voice from the pirate ship, “your letter of marque won’t take *us*. I advise you to turn your garbage can back to where it and you belong before we rake you *just once*.”

“Second of three warnings,” said Jerry, wetting his lips. “Heave to in the name of the Interplanetary Police.”

There was a long chuckle from the beam-grid.

“Third and last warning: heave to!” With the words Jerry tore the ship up and over into a great, ragged loop as the pirate gun belched pellets of destruction. He had thought he would be well outside the scattering pattern, but the scow trembled as a fragment exploded against its side. “Repair crew to larboard!” he shouted into the annunciator plate, his eye on the air-pressure gage. It’s needle dipped once; then rose to normal. “Plate blown in and patched, sir,” came Hiller’s voice. “All clear.”

“Stand by, all,” said Jerry. “We’re going to attack.” The ship rose, under his sensitive fingers, above its foe. “Prepare to swing grapples,” Jerry warned. “Check magnetic plates. O. K.?”

"Magnetic plates O. K." answered Wylie.

"Then *hold on!*" The ship swooped and fluttered, at times seemingly inviting the fire of the pirates, at times seeming disabled, and darting away as the killer vessel swung itself to deliver a *coup de grace*.

THE scow's grapples swung free—ponderous curved plates at the end of long osmiridium chains. Then down she darted, the grapples clanging against the sides of the pirate and sticking like plaster, and magnetized plates in the ship herself adhering to the other.

Jerry turned to the annunciator. "Wylie, cut through, take over the board, Sven. I'm going down for the fun."

"Yes, captain," said the big man.

Again in Wylie's skilled hands the burning paste oozed from his tool and ate through the metal of the pirate's hull as the crew bolted on their space helmets. Guns clicked in readiness; the oval of weakened metal was closed. The salvagers stood back as Jerry kicked down the section. Gun ready, he and his men stepped through. They were in an empty storage room, it seemed—one that would never again be crammed with loot.

Through his head-set Jerry ordered, "All out of the scow. Come through and bring sealing material." The rest of the crew filed through the ragged opening, stepping cautiously. "Seal that," said Jerry. "Either we fly the pirates' ship to Marsport or we don't fly at all.

The breach was sealed, and the crew stripped off their space suits. Grimly, weapons poised, they moved in a solid line for the bulk-head that sealed them off from the rest of the ship. They heard running feet through the wall. There would be a corridor on the other side. Jerry flung open the bulkhead and stepped through guns blazing. Before him was a mass of men, their faces grey, horribly seamed things. Three fell under his

fire; others struggled vainly to raise a semi-portable gun against him and the men who came trooping through, their weapons hammering madly in their hands.

Tactics were discarded, and the two groups sprang together, locking in combat. Muffled groans and the thud of fists were heard; gunbutts rose and fell on skulls and faces. Finally the salvagers stood above their foes, bloody and victorious.

"Neat work," said Jerry, wiping blood from his face. "Now let's get up this cannon of theirs. That wasn't a quarter of their crew." Wylie spread the tripod of the gun and locked its barrel into place. "I think," he said, "it's in working order. Shall I try a squirt?"

Jerry nodded and the gun cut loose, hammering shells down the corridor, battering through the steel door.

"Enough," he said. "The plan from now on is to stay in a lump and keep moving systematically. If we begin at one end and work towards the other we may get there. Otherwise—" He left the words unsaid. "Wylie, go ahead of us, carrying the barrel. Collins, carry the stand."

CHAPTER SIX

Return From Battle

SLOWLY they advanced through the shattered door. They were in an engine room. "Wait," said Jerry. He turned to the complicated maze of pipelines and tore one loose; he twisted valves and shut-offs. The trembling drone of the exhaust died slowly. The pirate ship was free in space.

"We go on from here," he said. "Give me the gun-barrel." Wylie surrendered it, and his captain fired a short burst at the lock of the door. It sprung open and silently the men stepped through. It led to an ambush; a score of the grey-faced horrors sprang to the attack as his gun

cut loose with violent, stuttering squirts of destruction. Men fell on both sides, and Jerry dropped the clumsy weapon to use his fists and pistol-butt.

He was grappling with a huge man, smashing blows into his middle, twisted over his back. He struggled vainly as he felt his tendons about to give, then—a club rose and fell on the head of his foe, and he slid to the floor saved by Sven. "Thanks," he said hastily, scrambling to his feet and sailing into another pirate. A kick to the groin disposed of the man this was small season for the niceties of combat. He turned as an arm snaked about his neck, and jerked out his pistol, pressing it into the belly of the strangler. He pulled the trigger, his jaw set, and the pressure relaxed suddenly.

From knot of men to struggling knot he swung, firing till his gun was empty, and not daring to stop for a reload. In a few short minutes all was silent save for the panting of the bloody victors—Jerry's men. Two had fallen forever. Gently Jerry straightened their twisted bodies and turned his back on them.

Gruffly he said, "I believe that we are in a position to make an attack on their main forces, which would be concentrated in the control-room. Follow me."

And grimly, without a backward glance at the carnage behind them, they followed stealthily down a corridor to pause before a door triply sealed against them. Jerry pounded on it with a pistol. "This is the fourth call to surrender," he shouted through the steel.

There was a mocking laugh. "Come and get us, garbage man," answered a voice dry as dust. "We're ready for you." Jerry's face hardened. "Give me the torch," he said. They passed the tube to him, and primed it.

He braced himself and touched it to the door, opening the torch to its widest capacity. The arc sprang out; he swung it in a great oval over the steel. The door

glowed a fiery white; then the slab of metal fell inward with a clang. Through the opening they saw a score of men, guns poised. There was a pause, then their own semi-portable cut loose and tore through a half dozen of the pirates before Dehring, who was feeding ammunition, fell twisting to the floor.

GUNS blazing, then the battle-mad crew of the scow leaped to the attack. Men paired off and swung fists and boots; only Jerry stood aside—Jerry and one other. His face a grey ruin, one of the pirates stood aside and watched, taking no hand and seeking none in the destruction. Jerry walked up to him. Again the strange, knightly drama of conflict in space was to be enacted.

"You, sir," said Jerry, "are the captain?"

The dry, bleak voice that he knew answered from the head without features. "Captain Cole, at your disposal, Captain Leigh. Shall we withdraw?" No insults now—the archaic code of the space-pirates demanded this rigidly formal procedure on the meeting of the two enemy captains in battle. Jerry nodded, and the pirate chief led the way into a luxurious room.

Alice sat up. "Jerry!" she cried. "Has he taken your ship?" He smiled. "No—just the opposite. Our men are fighting it out in the control room; Captain Cole has been so kind as to offer me individual combat."

The pirate chuckled richly, "Pray speak no more of it. I thought you would be pleased to see your Alice again—she is an extraordinarily high-principled young lady. She has refused to join my little band. Well; perhaps she was right—we shall soon see.

"I believe the choice of weapon is mine?"

"Certainly, captain," answered Jerry according to formula. "And they will be—?"

"Boarding pikes," said the pirate succinctly. "There is a pair here, if you will excuse me." He opened a locker in a corner of the room and withdrew two of the vicious five-foot pole-arms from it. Jerry accepted his weapon with a murmur of thanks and examined it briefly. He struck its shaft over his knee and smiled at its satisfactory weight. "Shall we fight free or formal?" he asked Cole. "Formal, if Miss Adams will be good enough to referee." The girl nodded, her face white.

"The line of combat is not to be departed from," she began in the traditional phrasing, "and will extend along the center of the room from the door to the bed.

"The first figure will be low-crossed; challenger, Captain Leigh, attacking. The defender, Captain Cole will attempt to disarm the challenger within three disengagements." She poised her handkerchief. "At the drop of the scarf," she said, "the challenger will attack."

It fell to the floor, and Jerry hooked a tine of his weapon into the pirate's guard and swung upward, then darted at the chest of his enemy. There was a clash of steel, and—his hands were stinging and empty. He had been disarmed. Cole stood smiling, his pike held easily, waiting for the next figure, as Jerry's mind raced furiously back to the days of his school training. He remembered another such disarming at the hands of an old, quick instructor. He had been padded then, and the blades of the pike could not, dulled, penetrate his quartz practice helmet.

Faintly he heard or seemed to hear, the instructor's voice say, "Counter once conventionally; then engage, and rocking from the heels twist and thrust at once to disarm." Grimly Jerry smiled. He would not forget again.

"Second figure," said Alice faintly. "The defender will attack highcross; the

challenger will attempt to disarm within three engagements." Again the handkerchief—"scarf" in the language of the pike—fell, and again the steel clashed.

For many minutes they battled through twelve figures; Leigh had again parried Cole's blade, and they turned to Alice. But she was in no condition to continue, having fainted when the pirate's blade had swooped past Jerry's cheek a moment ago.

"Since the referee is incapacitated," said the pirate, after a moment of thought, "shall we continue fighting—free?"

"Challenger agrees," said Jerry. "On guard!" And again the vicious pikes glistened in the light, swinging madly. Jerry abandoned the formal line of combat and cut fiercely at Cole's head, who grinned and swung at his enemy's chest with a practiced flick of his wrists. Jerry sprang back, blood pouring from his side and shortened his grip by three feet of the haft, leaped through an opening, and stretched his body into one terrible blow that sent his blade through the belly of the pirate and out the other side.

The salvage man fell to the floor, and the transfixed body of Cole remained erect, propped on the pole of the weapon.

Jerry's own eyes closed quietly; his hands sought his side, and were wet with blood.

JERRY awoke in a very soft bed with those eyes swimming before his face and a sense of pressure on his lips. "What happened?" he asked, dizzily.

"I kissed you," said the eyes.

He considered. "What did you want to do a thing like that for?" he said.

"Just a hunch. It worked on the Sleeping Beauty, you know."

"Yeah, I guess so. Thanks. Where am I?"

"Marsport County Hospital," said the eyes. "Officially you are Gerald DePugh Leigh, master of the salvage scow *Leigh*

Salvage, Incorporated, if there's anything else you want to know. That DePugh nearly changed my mind about you, but I decided that you could bury it as a cross-road with a stake through its heart and maybe it wouldn't bother us."

"This *us* business," he said reflectively. "Just what does it mean?"

"Why, Jerry!" said the eyes, deeply pained. "Don't you remember?"

"No," he said, "but whatever it was it seems to have been a good idea. Did I propose to you?"

"Yes," she said, crossing her fingers. "And I accepted in good faith and here I find myself jilted practically at the altar—"

"Oh, *all* right," said Jerry irritably. "Will you marry me?"

"Yes," said the eyes. There was a pause. "I wonder if you would know how I got here," he sleepily asked.

"I flew the ship back after you ran that Mother Goose murderer through and got your own appendix clipped. You'll be out of here soon—"

"Who flew the ship?"
"I did."

"A woman can't fly a—"
"This one did."

"Well . . . I suppose so—I feel myself getting drowsy. Do you think the Sleeping Beauty technique will work twice?"

"I'll try—" Jerry heard footsteps, and the eyes retreated. A thin, grey voice spoke up, "Ah, Leigh, I thought I'd call. As you no doubt remember I was telling you of my space-battle with the Mercurian Menace. We were jockeying for position when—"

"Alice, darling," said Jerry.
"Yes, dear?"

"Will you kick that man very hard, please?" He closed his eyes, heard a yelp of pain, and the slam of a door. He smiled sweetly in his sleep.

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Just finished first issues of *Super Science Stories*. It doesn't seem quite as good as No. 1 *Astonishing Stories*. However, I enjoyed most of it.

Better-than-average stories include "World Reborn", "Trans-Plutonian Trap", "The Lotus-Engine", and "A Stitch in Time", in order of preference. "Emergency Refueling" is a fine short-short.

"Gravity Island" would have been good, except for too much stress on the sadistic side. "Guyon 45X" I didn't care for—especially the idea of marking the symbol for courage on the hero's arm. The girl seemed more courageous, anyway. "Phantom from Space" was better than most of Fearn's stuff—more coherent, for one thing—but his "science" consists mainly of inventing such terms as "Twelve Brain Computer".

The poem is fine—more, please.

Altogether, more bouquets than brickbats. I can't always say that. Until next time,—D. B. Thompson, 3136 Q Street, Lincoln, Nebraska.

See Page 118

Gentlemen:

I have just finished the first issue of your magazine, *Super Science Stories*. The stories were fairly good, and the illustrations were punk. Of course, you can't be the best on the ever-increasing market with the first issue. Let's see some of the work of Paul, Krupa, Morey, and those other masters of the drawing pen and ink.

Though I'm only fifteen years old, I have been following and consuming science fiction for four years. When I began there were only two available magazines—now, I can't count them all.

I'm very much interested in your organization, *The Science Fictioneers*. Please admit me as a member right away.

One more thing. Please give us articles; fact with our fiction. Articles by Willy Ley and other prominent authori-

ties would go well with a diet of fantasy fiction.

Here's hoping for a better issue.—Frank W. Kloof, Jr., 898 McCulloch Street, Wheeling, West Virginia.

Terse

Dear Editor:

Super Science arrived the other day; Binder's cover is beautiful; I didn't know he had it in him. I've only read one story so far, Gallun's—not bad, either. Your plans for *The Science Fictioneer* sound promising—I have an idea for this department which I'll be sending you soon. (Soon as I write it up.) Where did you exhume Blish's story from? And get an interior illustrator, will you?—Bob Madle, 333 East Belgrade Street, Philadelphia, Pennsylvania.

"Vitality and Zest"

Editor, *Super Science Stories*:

A multitude of congratulations are rightfully yours for the first issue of *Super Science Stories*. From the attractive and excellent cover, through the neat makeup and interesting content, to the final departments and preview of the next issue, the magazine shows a vitality and zest long sought vainly by many fans. If magazines succeeded on merit alone, there would no need to worry about a future for both your ventures.

As Director of *The Futurian Society of New York*, I send you the official greetings and best wishes of our organization. We do not seek for microscopic defects in your first issue; we praise you loudly; and, whenever we see what appear to be slips in judgment, we will criticize firmly though quietly.—Robert W. Lowndes, 2574 Bedford Avenue, Brooklyn, New York.

Theme Song?

Cheerio, Editor!

Despite everything else good in the first issue of *Super Science Stories*, (including
(Continued on page 125)

CASTAWAY

By DONALD A. WOLLHEIM



A Super Science Brief

FOR the veriest fraction of a second, the defensive screens of a scout in the fleet from the galaxy Eld-Magaal flickered. Immediately, it was up again, operating at full blast, but in the interval searing beams from the invading globes had already done incredible damage. The hundred-mile-long, cigar-shaped craft plunged off at a tangent, hurtling

away from the battlefield completely out of control.

It was not missed. The battle, which had already raged over a century of terrestrial time, was merely beginning. The monstrous craft of the Meta-Galactic Federation, fighting for the preservation of their star-cluster, scarcely noticed the loss of one of their smaller scouts.

But there was a hurrying of vast shapes up and down the corridors of the scout, a whistling of motors rolling through the tubes from one end of the ship to the other. Every member of the crew, conscious as they were of their craft's insignificance in that vast battle, had but one thought in mind: to effect repairs and return to the scene of hostilities at the earliest possible moment.

The commandant's orders brought system into their efforts. Given telepathically, each being abroad knew exactly what part it was to play in the operations. The sheared-off armor must be refabricated, missing instruments restored, and the ship brought to a stop, turned about, and its course set to return it battleward.

THUS was the new routine established.

In order to conceive of the time, terrestrially speaking, these repairs took, consider that, as the commander gave his first orders, another commander of a sort in Egypt, on the planet Earth, was ordering the construction of a massive pyramidal tomb to house his body when he died. While these repairs were going on, the pyramids were built, Greece, Rome, and a dozen lesser civilizations rose and fell, half a thousand generations of men were born and died. For every bit of matter used in these repairs had to be forged from pure energy; mathematical formulae involving hundreds of unknowns had to be solved in order to rebuild the controls.

Time meant little, however, to the defenders. After a race has entered the latter stages of evolution, when the planet on which they were spawned has darkened and vanished as a seed disappears to make way for the grown plant, the conception of time withers away. They were not immortal, these beings, but the life-span of the youngest was greater than the life-span of the entire human race.

Thus repairs were made as they sped

wildly throughout thousands of terrestrial years, until, traveling at speeds infinitely beyond that of light, they had reached star-clusters which even their own scientists had never discovered.

When these repairs were almost complete the craft was slowed preparatory to coming to a halt and turning about. It was the purest accident that it had come within the boundaries of that universe visible to the astronomers of Earth, that it finally came to rest in the center of the galaxy we call part of Coma-Virgo.

Soon the scout was out of interstellar space. At the request of the crew, the commander ordered a penetration of this galaxy in search of a world where a short planetary leave might be granted. Not at heart spacemen, these creatures longed to feel a planet beneath them again. Such a world was found, revolving around a small sun, Into the atmosphere the ovoid penetrated, sinking slowly in a deep forest-region of the planet.

Even though primarily concerned with returning to strike fresh blows in their war of defense, the beings from Eld-Magaal found interest in the flora and fauna of this planet. According to their custom, they formed a single group, combining their mental forces in search of vibrations which would indicate the existence of an intelligent form of life here. At first, it seemed that none existed; then, little by little, pictures began to form. A small creature in the depths of the forest—they could see what it saw, hear what it heard, and feel what it felt. . . .

SILENCE in the great forest. No sound from any quarter; all was safe. From the tree-hole whence it had taken refuge from the storm, a small creature peered out. Then, swiftly, climbing down, and picked up a sharp, gaily-painted stick used as a weapon, and stalked off in the semi-darkness. Its tiny, bright eyes twinkled in every direction, seeking food or on

guard for enemies. A sub-human *genesme*, native to these forests, it was the highest type of life on this world.

The tiny being moved forward slowly, its odd nose twitching, then stopped short. Silently it crept behind a tree, eyes fixed for a dog-sized animal, reminiscent of a gazelle. The victim came timidly in sight; quickly the *genesme* poised its weapon, hurled it as straightly as ever any man hurled a spear. With a startled leap, the gazelle-thing fell back, the spear transfixing its side. Over to it rushed the *genesme*, tearing out its weapon.

Here was food enough for many sleeps; the creature was pleased. It grasped the animal by its legs, threw the kill over its shoulders. Though but slightly larger than the animal is killed, the *genesme* carried it easily. It walked on, bubbling to itself in what passed for a song.

At this point, the beings from Eld-Magaal broke contact, realizing that they could no longer afford to idle here. It is unfortunate, for, just at this moment the *genesme* had come upon a sky-looming wall of metal. It bellied out far above the watcher, stretched away into the forest on either side as far as the eye could reach. To the *genesme*, it could only seem that a new mountain had sprouted overnight.

Just before the tiny creature, flush with the ground, was the mouth of a vast cave. Stretching its neck, it could barely see the top. Deep within, a dim light glowed.

The *genesme* looked about quickly. What a glorious cave for a home! If only no other creature had seen it first. Assured by its senses that no other creature was about, it darted across the ground, into the mouth of the cave. Opening from the tunnel were a great series of cave-entrances. Down into the gloom of one of these scuttled the Coma-Virgan, into a long, unlit hall. The half-dozen complicated masses of metal at the end of the hall meant nothing more than odd rock-

formations to him, things to look at when one was tired. Behind one of these, tall as the trees without, the *genesme* slipped. It was comfortable here and safe. It snuggled down into a corner to nibble at the carcass it carried. . . .

WITH the return of the crew, the ship arose from the surface of that planet in Coma-Virgo, out of the planet's solar system. Then it accelerated. Outward it shot on its way back, out of the lone star-cluster and out of Coma-Virgo itself. The vessel reached its limiting speed quickly and held it.

But for a brief time only. The commandant, reviewing his course mentally, suddenly realized that they must stop again. His return calculations had been based on the position of the battle-field when they left it. But the home metagalaxy, and with it the scene of hostilities, had been moving in the thousands of terrestrial years they had been away. He would have to halt, recalculate his position, and try again.

Considering that no familiar body was near them, was this not an impossible task? To a Terrestrial, it might have been. But these instruments operated in ways Terrestrial science has never discovered. They could calculate their position, and the position of their home, from an analysis of the very matrices of space.

Orders were given to halt the ship again. By this time, they had come within the boundaries of another cosmic group. Through its stars they drifted, slowing down. Already they had left behind brilliant white Spica and yellow Vindematrix in the constellation of Virgo whence they came. Now they entered a small star-cluster, passed the two suns of Sirius, and came to stop on an inner planet of a little yellow sun nearby. This time, there was no time to explore the planet or to seek out its mental forces.

If they had done so. . . .

AMERICA had not fared so well in the great war. The Japanese surprise attack on the Pacific coast in the spring of 1953 had found her unprepared. Rapidly the highly efficient Oriental troops had pushed the defenders back, mile by mile, across California, Nevada, and Utah to the Rocky Mountains. Shielded by these bulwarks, the Americans had stopped and held their ground. If they could but stand pat long enough for the tremendous manpower of the Eastern states to be built into an effective army, they were safe. For the invaders knew that their own resources were limited because of the catastrophic defeats in China, and the omnipresent menace of Russia behind them. This must indeed be a lightning war.

But their most Herculean efforts, so far, had failed to break through the mountains. All along the Rockies, from Wyoming to New Mexico, the defenders' lines held.

In the midst of the great Japanese encampment in Colorado stood a small shack. Three men conversed in it, the three whose military brilliance had carried the forces of the Rising Sun across the Pacific, into a new continent. General Nagamoto, General Iijima, and Prince Mura were going over final plans for the next day's offensive.

The camp was a beehive of activity. Giants trucks were rolling in, soldiers were unloading them and setting up their cargo, great searchlight-like affairs. These were the new detonator rays upon which the Imperial Japanese leaders were counting to win the war. Newly devised by the Emperor's scientists, about to be used for the first time in military operations, it was expected they would touch off all explosives within their twenty-mile range.

The three leaders left their shack and stood outside watching the work. There was a grim smile on the face of each;

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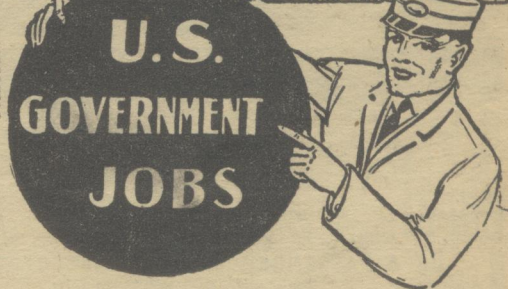
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SUPER SCIENCE STORIES

they felt the elation that comes to the almost-exhausted at the end of their labor. The Americans could never stand up against these new weapons: every shell, every grenade, and every cartridge would explode instantly as soon as the beams were turned on them. The time of Nippon's greatest glory was at hand, for those who survived would be weaponless and impotent.

By next morning, all was ready. The projectors had been moved to the front; the strongest possible concentration of Japanese soldiers was here, ready to break through the Colorado line and divide the defenders.

It was a clear day, cloudless, with a brilliant blue sky. The sun was bright upon the land.

General Iijima appreciatively glanced upward. His eye caught something in the sky above—a tiny dot. He pointed it out to his two companions who watched it grow larger rapidly. Now the others saw it. It seemed the size of a great fish; then it became a dirigible. And yet it grew larger.

A gasp of fear and wonder went up from the ranks. They craned their necks to see this startling thing. It lengthened out as it came closer; now it seemed a mile in length, now three, now ten. In an instant, it had become the entire sky, from horizon to horizon. A million throats shrieked wildly as the sky fell in on them, setting slowly but with the weight of a thousand mountains.

For the American posts high in the peaks of the mountains, it seemed indeed as if the sky had fallen. A vast metal oval, at least a hundred miles long, had fallen directly on their enemies. Could it be the act of an avenging God, crushing the entire strength of the invaders, but preserving the forces of the defenders?

An army and all its works was buried; the crushed remains of it driven hundreds

of feet below the ground over an area of a thousand square miles. Where plains had been, there now loomed a great wall of metal higher than the Rockies themselves.

A terrific wind sprang up as the air displaced by the ship's bulk rushed out of the way and the vacuum above was filled. A cyclone of unprecedented violence—it kept the American troops in their deepest dugouts for two days.

On the evening of the third day all was quiet.

And, as dark fell, the crew of the ship from Eld-Magaal was granted planet leave for a brief stroll before departing. They were impressed by the beauty of this world, but there was no time to explore its life-forms. Perhaps when the war was over, and their culture was safe . . .

MOST of the weird sights seen by the American sentries that night were never reported—being drunk on duty is a severe charge. But there are rumors of great black figures against the stars, strange earthquake-like thumpings, as if monstrous animals were roaming Earth that night. There can be found today the remains of villages that were literally kicked over. And one man, who was on sentry duty that night, swears now that he saw a strange light in the sky; it showed a face incredible, such as nothing natural should have.

Had the sentries been watching the doors of the craft carefully, they might have seen a small form emerge therefrom after the crew had departed. It was the tiny *genesme*, undiscovered in the short voyage from Coma-Virgo, trying to make an escape from the dreadful cave which moved and hummed. For several terrestrial days it had laid behind the great machines, quivering in terror whenever one of the monstrous crew appeared. Now, its nostrils told it an open door lay beyond;

it could sense a breeze which bespoke an open entrance.

For a moment it paused on the threshold of the ship, then scuttled away.

When morning lit the skies, the immense ship was gone. Where it had been, the Americans saw only a vast depression in the ground, extending as far as the eye could follow. Everything that had been there before—soldiers, towns, lakes, even mountains, was gone—or was visible only as a slight discoloration in that perfect bowl. Crushed out of existence.

The command was quick to take advantage of the new situation. Quickly the American forces poured through the hundred-mile hiatus in the enemy line and drove a wedge into the heart of the remaining invaders. Within a month, the Japanese were suing for peace, a revolt thundering about them as they did so.

The religious fell on their knees and thanked God, even as they quaked in fear; the scientists found themselves with no explanation, or with obviously untenable ones. A few fantasy-minded individuals thought deeply, but kept their explanations discreetly among themselves. But most of America tried to forget the matter—and failed.

AND so, if you would see a being from another planet, go, some night when the moon is out, to the most densely wooded section of Colorado. Seek there a place where the woods end in meadow and conceal yourself. If you are silent enough, and luck is with you, you may see a creature come out of the forest on padded feet, an odd little being such as never you have seen before. If you hold your breath, it will stand out in the moonlight, gaze upwards longingly at the stars for a moment, then scurry back into the forest. And, perhaps, just before it reaches the woods, you will hear a deep sigh. Then it will be gone. . . .

THE ERSATZ WORLD

By WILLY LEY

THE German-English dictionary reads: *Ersatz*—substitute; *ersetzen*—to substitute. And the verbal explanation given by Germans to other nationals that ask for the exact meaning of the word *ersetzen* goes somewhat like this: "In peace time *ersetzen* means 'to re-imburse,' in wartime it means to call a necessity a virtue."

Actually *ersatz* means a little more than just this, there is a certain formula for it that applies all the time. It goes like this: material A became scarce at some time. Material B was substituted, but its virtues consisted mainly in being available. However, it improved and finally there was no need anymore for material A, even if it could be had again. Material B was, in the end, just as good, maybe even better, and it was decidedly less expensive. Thus B, the *ersatz*, won the struggle for supremacy.

Life is full of ersatz of that kind. Suppose you have finished your day's work and go out for dinner and a movie with your wife. You order a steak with mashed potatoes, potatoes were once regarded as ersatz for bread. You smoke your cigarette (ersatz for cigars invented during a siege when there was pipe tobacco available but neither cigars nor pipes) and use an ashtray made of some plastic material, ersatz for wood, metal, or marble. Your wife's silk dress is again ersatz, ersatz for some other fabric that was not necessarily better, but necessarily more expensive. Its gorgeous color is the result of treatment with some dye, made of tar, ersatz for some natural dye of lesser intensity and effect.

Your movie after dinner was once regarded as ersatz for a stage play, it might also be ersatz for a trip you either can-

not afford or do not have the time to make. A taxi brings you home, ersatz for your private coach, and if its tires are artificial rubber and its fuel synthetic alcohol only an expert would notice it. And you pay for all this with paper bills, once suspiciously looked upon as ersatz for weighty metal coins.

All that is peace time ersatz—but it cannot be denied that ersatz started in wartime and most people believe firmly that the word as well as its meaning are German inventions from World War times. Speaking from experience I can state that life in Central Europe was full of that other lesser kind of ersatz. It is not even exaggerated to say that life at that time was life-ersatz.

The fun (only it did not seem fun then) started right at the breakfast table. Breakfast was said to consist of coffee, bread and jam. The bread was marked KK (which was ersatz for war-bread, K meaning *Krieg* or war). K-bread was, of course, ersatz for bread; it was a lump of sticky, dark-brown wet paste, burned on the outside. The ingredients were whole rye flour, plus potatoes, turnips, pulverized grass, and, very likely, a few less digestible things. The jam consisted of crushed beets, sweetened with saccharine—terrible. The coffee was made of crushed and roasted plant roots and it was only a small satisfaction to know the Latin names of these plants: *Cichorium intibus*, *Brassica napus* and *Beta vulgaris*.

You couldn't be sure of that, anyway. Sometimes it was dandelion root.

Soap was dark gray, strictly rationed. Real soap was forbidden: there was no fat. Cake was forbidden: there was no flour. Chocolate was . . . well, there was no chocolate. Beech leaves were called to-

THE ERSATZ WORLD

bacco. Shoes were made of a fabric made of woven paper strands, the soles were wood.

As for cigars and cigarettes, the Germans always claimed that they would win the war if only those ersatz cigars were brought to the front.

That kind of ersatz was expected to disappear after the war. Most of it did, but technical experts, especially chemists, know that much of it stayed. It even spread, like the word that designates it. The word can be found in English, Russian, and even French.

BUT the story of ersatz did not really start during the World War. A long chapter of it was written a full century earlier, during the Napoleonic wars. Europe was in quest of sugar, for economic as well as for political reasons. It is a little hard to imagine that sugar always played an important political rôle, but it is a fact. There is no other agricultural product that was so often the *casus belli* in politics. Although history does not record an actual "sugar war," there were rises and falls of governments on account of sugar, there were tax strikes and even revolutions.

When the Napoleonic Era isolated continental Europe to annoy England the urge for sugar resulted in a period of extraordinary political and scientific activity. Sugar production, preceded probably by a period of intense valuation of honey, did not start earlier than 250 AD. The raw material was sugar cane, one of those plants that puzzle the botanist because he does not know wild growing sugar cane and is, therefore, unable to say where it originated. Sugar cane needs a tropical climate. Europe under Napoleon could not expect to raise the plant. But there are other plants that produce and store sugar and that can be utilized. Sugar can be made of the sap of birch

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SUPER SCIENCE STORIES

trees, of a certain palm tree, of a special variety of agave and finally of grape juice.

It was the grape around which the hopes of the European governments centered. Napoleon offered (in 1810) a reward of 200,000 francs for the factory that would produce the largest quantity of sugar. One year later the Russian Czar offered a reward of 10,000 rubles for a production of forty *poods* (1443 pounds) of white sugar. Both rewards were never paid because the inventors that tried the sugar beet began to be successful just about at the time when the rewards for grape sugar were offered.

Napoleon at once became interested in this new field and offered—and paid—big rewards to successful beet sugar manufacturers. Other European rulers of lesser importance followed suit quickly. Germany's greatest poet, Johann Wolfgang von Goethe, got his friend and ruler, the Duke Karl August of Weimar, to do everything possible to teach the inhabitants of his little country to make their own sugar. It was, in that case, starch sugar, made from potato starch.

Apparently the home made sugar did not prove any too good, because the Weimarians went back to factory sugar as soon as it could be had. But that historical incident created the beet sugar industry, which is very important in most European countries and that increased even in the United States from 40,000 tons per year and seven factories in 1890, to 1,000,000 tons per year and 100 factories in 1933.

It is interesting to remember that the potatoes used in Weimar to make ersatz sugar were ersatz in themselves. They had been introduced only a short time earlier, against the stubborn resistance of the peasants that refused to have anything to do with that plant from America.

Many years later another American product became very important, rubber.

Though it had been used before—old technical manuals mention six or seven applications of rubber and add that there “may be a few more”—it was the invention of the automobile (and of the modern bicycle) that gave rubber its commercial value. And hardly had rubber become abundant in civilization when scientists tried to find some ersatz for it.

IT IS at this particular point that the story of ersatz merges with that of modern chemistry.

Modern chemistry makes mankind independent of many of the uncertainties connected with natural resources. Natural resources are sometimes found but hardly ever where you want them.

Sometimes they grow. And when they grow they are subject to a multitude of factors, climate being the most important and most uncontrollable of them.

That's why the Haber process for the fixation of atmospheric nitrogen had to be invented, since saltpeter was in Chile and the British fleet roamed between Chile and German ammunition plants.

The chemist can put a stop to this uncertainty. He grows his products in reaction chambers, in an incredibly short time and with supreme uniformity.

At first chemists had doubted whether they could step over the borderline between “inorganic” and “organic” compounds. Friedrich Wöhler crossed the border in making synthetic urea. It was a most important discovery, not because anybody cared for synthetic urea but because it proved that it could be done. The first commercially important discovery of that kind was Adolf Baeyer's artificial indigo. That imparted the necessary courage to try for artificial rubber.

The formula for rubber is known, it is very simple. Five carbon atoms and eight hydrogen atoms have to come together. But when they do it is only isoprene, not yet rubber. To form rubber the isoprene

molecules have to polymerize, to form chains of 700-odd molecules.

The problem was to make isoprene first and then polymerize it. Isoprene could be made from turpentine which in turn can be made from acetylene which is made from carbide which is made from lime and coal . . . the whole operation really starts from “rock bottom” and leaves nothing to be desired as far as cheapness and wide abundance of raw materials is concerned.

In 1910 the Englishman, Dr. Mathers, found that isoprene could be polymerized into rubber-like material if heated in the presence of metallic sodium as a catalyst. Three days later the German, Harries, discovered that heated isoprene polymerizes in the presence of metallic sodium . . . it was an excellent example to be used in discussions of priority rights.

But the polymerisation, although it worked, did not work well enough. It seems that those chains are only about 200 molecules long, *ersatz* at its worst. Maybe it was better to find another ersatz that was not exactly rubber chemically but had the features of rubber.

The Germans soon made artificial rubber of isoprene plus a CH_3 group. Their competitors invented chloroprene, which is isoprene minus a CH_3 group and chlorine added to it.

Chloroprene is not rubber, of course, because rubber does not contain chlorine. But it acts like rubber, has even a few advantages. It resists heat better, stands spilled gasoline better. But its tensile strength is not as one might wish. One day, however, somebody will find a way to improve chloroprene. On the same day somebody else will probably discover how to polymerize isoprene into 700-molecule chains.

In the meantime other kinds of rubber ersatz are tested merrily. The Russians have much to say in praise of their Butadiène which is isoprene minus a CH_3

group plus one hydrogen atom, polymerized in the presence of metallic sodium under pressure and mild heat (65 degrees Centigrade). The Russians call it SKB-caoutchouk and produced 12,000 tons of it in 1934, mainly for the use in automobile tires that are said to have lasted for 20,000 miles of driving. The raw material of SKB is alcohol, it requires 5.2 tons of alcohol to make one ton of SKB.

The one thing the Russians do not like about their SKB is that it is made of alcohol. The complaint has nothing to do with the willful destruction of potential vodka but refers to the price. Their alcohol is expensive because it is distilled from grain. But that, of course, can be avoided, alcohol can be synthesized from acetylene and acetylene . . . see above.

SYNTHETIC alcohol is classified as motor fuel in most European countries. Only a few of them have oil resources, none of them has enough, and every one of them suffers fuel shortages in case of war, no matter who is fighting it. It was known already before the World War that a motor designed for gasoline could be run on a blend of gasoline and alcohol or, with slight adjustments, on alcohol alone. Only then alcohol was distilled from valuable food stuffs.

But then synthetic alcohol came. There are three or four methods used to make it, every one of them starting either from acetylene (C_2H_2) or aethylene (C_2H_4) whereby the former can be "hydrogenized" into the latter. As soon as the chemical factories turned out sufficient quantities of synthetic alcohol (the *Badische Anilin und Soda Fabrik* produced alone not less than 3,000,000 liters—say three quarters of a million gallons—in 1921), it became compulsory in many countries to blend gasoline with alcohol. The present day production of synthetic alcohol cannot even be guessed.

The rubber story has another side, too. Rubber itself was for quite some time ersatz for other materials. There was once a thing that was called "hard rubber" and used as an ersatz for horn, tortoise-shell and even mother-of-pearl. It may be that hard rubber can still be found somewhere, but generally the ersatz has been replaced by another ersatz that was still cheaper and soon proved to be very much better, too.

For the new ersatz a new word had to be invented. After some attempts of introducing "artificial resin" the name "plastics" got the upper hand. There have been considerably better words coined for new materials.

Plastics started their career in 1872 in the laboratory of Adolf Baeyer, the same who produced artificial indigo and thus brought temporary confusion to the world market in dye stuffs.

Baeyer mixed and heated carbolic acid and formaldehyde. The result was something that could be likened to hard rubber, or, in a certain way, to celluloid. It was superior to the latter mainly because it was not combustible and did not smell as atrociously as celluloid did. But the product failed to gain popularity and the age of plastics did not dawn until an American chemist by the name of Baekeland (he later became president of the American Chemical Society) produced in 1909 what is now known and used the world over under the name of bakelite.

In Europe they stuck to hard rubber for a while longer and it needed the World War rubber shortage to start chemists on the search for other plastics. Dozens of new materials were invented and improved later. To-day more than 1300 tradenames for plastics are registered alone in the United States.

And it is very hard to name a thing that is not made of plastics. It seems to be impossible to think of something that could not be made of plastics. Experi-

ments are now under way to make whole airplanes of plastics. Plastics have become ersatz (superior ersatz) not only for wood and similar materials, but in some places for metals and even for glass.

And, to round out the picture, shortly before the present war in Europe started, several chemists in various European countries found a type of plastics that is very much superior ersatz for alcohol in museum work. The material, an urea-formaldehyde condensation product, is a transparent liquid about as viscous as honey. It can be poured around fresh plants and freshly killed small animals and then hardens into "glass bricks" which preserve their "inclusion"—as these things are called when Nature does the trick using amber resin—for any length of time.

THAT plastics are ersatz for glass reminds me of the story of glass itself. Originally glass beads competed, in price and rarity, with precious stones. Then the cheaper kinds of glass were used to make glass cups as a fairly expensive ersatz for metal cups. Then porcelain came and painted porcelain vases began to compete with the expensive intricate glass vases then in vogue. Now glass cups and saucers are again ersatz for chinaware while beakers made of plastics are ersatz for glass.

It is a complicated story.

There is the large field of synthetic fibers. "Chardonnet silk" (rayon) made its first public appearance at the International Exhibition at Paris in 1889. It was then about as combustible as gun cotton and its strength was miserable if compared with the product of the silk worms. It could be used for embroideries only. There is no need to tell how much it has improved since then.

Most "silk" nowadays is "that miserable substitute, rayon" . . . and at the

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SUPER SCIENCE STORIES

same time all girls in America wait for another ersatz, Dupont's new synthetic fiber. In Germany, the classic country of ersatz, they have been searching for a long time for a synthetic fiber that is an ersatz for wool. A few years ago it was announced that the search had succeeded. The name of the product was *Vistra*.

That ersatz is invading the kitchen again in Europe under present circumstances is not surprising. But again there will be a few things that came to stay, synthetic fat for example. It has been known for quite some time that cod liver oil can be vastly changed and bettered if one atom of hydrogen is added to it by a catalytic process. The oil then changes into a solid substance similar to white bees-wax. Its nourishing value remains, of course, the same, it still is fat. But it is flavorless and therefore excellent for cooking, except in the few instances where the flavor of the fat (say butter) is needed.

When efforts were made to introduce "hardened oil" in European kitchens somebody to whom the word "chemistry" suggested nothing but stench, explosions, and poisons attacked it as unhealthy. Biologists then ran off a long series of biological tests, finding that the accusation was actually just as untrue as the chemists had insisted from the start.

I expect the reproach that I exaggerate the meaning of the word ersatz. Maybe I do if I call even the finished product "ersatz," when it is not ersatz anymore, but has acquired its own rights. It is, of course, a question of definition, but it is certainly true that every one of the things mentioned in this article started as *ersatz*, was regarded as ersatz, and was despised as ersatz.

Later, however, people often found out that the thing was too good to be called ersatz. Then they termed it progress!

THE END

(Continued from page 111)

the free publicity), the absolute best single item in the issue is Gabriel Barclay's "The Song of the Rocket"! Suggest you carry it in *The Science Fictioneer* department as a theme song!—Bob Tucker, P. O. Box 260, Bloomington, Illinois; Sully Roberds, 902 West Division, Normal, Illinois.

Likes Title

Dear Ed.:

After perusing the first issues of *Astonishing* and *Super Science* magazines I could not resist writing to you. First of all, the covers. They are both excellent. I presume Binder did the cover for *SSS* also. Please hang onto him. Ever since I saw an original he did for Darrow I have been an ardent fan of his.

The stories are not classics, but they are on a par with most of the stf pubs on the stands today. Taking into consideration that many have had years of publication behind them, I might say that both of your initial efforts were of excellent quality. Here's hoping they both sell in excess of 300,000 copies!

I like the rocket-ship title for *Super Science Stories*.—Walter C. Liebscher, 1600 Jonquil Terrace, Chicago, Illinois.

Nothing to Kick About

Sirs:

Enclosed find my membership application and self-addressed envelope. Have checked box reserving a *Science Fictioners* pin.

Please let us have a few more stories like "World Reborn" and "Phantom from Space". Can't find anything to kick about in this issue. Keep up the good work and may success be yours—and permanently!—Henry F. D. Whalen, 223 Hamilton Street, Dorchester, Massachusetts.

Letter to a Book Reviewer

Dear Wollheim:

While in previous correspondence you and I have been pretty consistently upon opposite sides of the fence, here's something upon which I check you to nineteen decimals—your book-review of "The New Adam" in the March *Super Science Stories*. For I am mighty glad that somebody had the courage to debunk that incipient legend.

Most real students will agree with you, I think. In a certain field Weinbaum was truly great—although (as you probably know, but did not mention) he did not pioneer in that field, Starzl did that, and Starzl's influence upon Weinbaum's work is definite and unmistakable. I agree with you that "his characters . . . are . . . permanent additions"—even though you do not specify what characters! Am I right in assuming that you did not mean human characters? Oscar will live forever. So will Trweel, the Martian, and the *Lunae Jovis Magnicapites*. Ditto Oliver the parcat—and *blancha*, the funny fever. And plenty of others. In such things Weinbaum was supreme.

His human beings, however, were not real. None of them carried conviction—probably, as you pointed out, because of his youth and inexperience with people and with life. IF he had lived, he probably would have been a whizz-bang. BUT. . . .

Personally, I think it is a crying shame that "The New Adam" was published at all. As a novel it isn't even mediocre, and Edmond Hall is sheerly and simply a pitiful mess.

I am writing this because I suspect that there are a lot of dornicks being—or about to be—thrown your way; and I hope that this support may operate to take the curse off some of them.—Smith. (Edward E. Smith, Ph. D.)

I Like Helpful Critics!

Sirs:

Being an off-and-on reader of science fiction since 1931, an ardent fan since 1936, and an avid reader since 1939, I have felt for a long time the need of an organization such as you are founding in *The Science Fictioners*.

As I have not as yet perused your magazine, I cannot make any comments on the stories. However, I should like to make a few suggestions which would, in my opinion, improve your magazine:

1. Add a "Letters from Readers" department, and have the editor comment on each letter printed. This will give a familiar touch to the magazine.
2. Leave out the poems. They do not belong, and are much too amateurish.
3. Come out monthly. All other science fiction magazines that have proven successful are monthlies, so take a hint from

them. Also, you cannot do justice to the goings-on of *The Science Fictioneers* if you remain bi-monthly.

4. Get some better illustrators. With the exception of Foxx they are terrible, due mostly to the lack of detail and general barrenness. Also, they are too sketchy.

5. Give us a better "Preview" department. After all, half a column can hardly do justice to what is to come in the next issue. Or don't you know either?

6. Give each department a distinctive heading. You might make a contest of it and award prizes for the best suggestions.

7. Re-read the first sentence in number 3 above, then commit same to memory and see what can be done about it. Also re-read the first sentence in number 4 and do something about it!

That's all for now, but will follow this with comments on your stories as soon as I have finished them.—Joseph M. Lewandowski, Jr., 17 Riverview Road, Brecksville, Ohio.

—Even When They Don't Like Me!

Dear Sirs:

In compliance with my promise in my last letter to let you know how I rated your stories, I am writing this letter. As first issues go, you had a rather good selection of stories. However, there is much room for improvement.

First place, as I see it, goes to "Trans-Plutonian Trap", by Ross Rocklynne. Mr. Rocklynne came through with a winner; his dramatic ability in introducing incidents and his suspenseful climax all combine to make this the most entertaining story in the issue. Would like to see more of his work in later issues.

Taking second place only because of its length was Gallun's "Lotus Engine". A few pages more and it would have been first. Not only does it contain one of the most original and intriguing themes I have come across for some time, but also it was well-written and well-developed. More of Gallun also.

"Guyon 45X" by O'Brien manages to get third place. Not because it was any better than the rest, but because the rest were worse. Of all the hackneyed plots!

As some story has to win fourth place, I award it to Thornton Ayre's "World Reborn". Pure and unadulterated tripe.

Fifth place I am forced to award to

"Phantom of Space" by Fearn, who has never been worse.

Harl Vincent's "Cravity Island", in sixth place, at least does not disappoint me; it is quite in keeping with Vincent's work. Consistently terrible. This is the fourth save-the-world story, and I am thoroughly sick of them. This is one of the things in your mag which can be improved; and it had better be if you intend to keep on publishing STF stories.

Here I must pause and inform you that any stories which rate lower than the above should never have been published. They represent STF at its lowest and worst. You had two: "A Stitch in Time", by F. B. Long, Jr., and "Emergency Refueling" by Blish (he ought to blush). Both are filler material, poorly thought out and terribly botched in the writing.

With grim foreboding and ominous misgivings, I await your next issue. May it be better than the first.—Joseph Lewandowski, Jr., *Science Fictioneer Member* 26.

To Baltimore Fans

Dear Mr. Pohl:

For the last five years or so I have been one of the silent men of science fiction. But your two new magazines prompt me to write a comment of some kind or other lest you think that your efforts aren't appreciated.

As you probably know, science fiction fans, like detective, western, and adventure story readers, transfer their loyalties often. Well, it seems that I am no better than the rest of them, for I have favored five different publications in the last five years. But of late I am notorious for being an *Astonishing* and *Super Science* booster. Your magazine publishes yarns that are so different from the trashy cartoon-comic type of STF that many mags now-a-day's publish. I'm glad to see that human interest, as well as science, is in vogue in your pages.

Now to give complete ratings on your first two numbers. In the February *Astonishing* I best liked "Chameleon Planet", followed by "Elephant Earth", "Half-Breed", "Asteroid", "The Lifestone", "White Land of Venus", and "After the Plague". In the March *Super Science*, "Trans-Plutonian Trap" was my favorite, followed by "A Stitch in Time", "The Lotus Engine", "Phantom from Space",

MISSIVES AND MISSILES

"World Reborn", "Emergency Refueling", "Guyon 45X", and "Gravity Island."

I have but one complaint to make. Your artists are not real, died-in-the-wool science fiction artists. Their work shows that. However, one can't have everything, I suppose.

Have more stories by Frederic Arnold Kummer, Jr., a book-length novel is possible. His "Isles of the Blest", which appeared elsewhere, was one of the science fiction treats of the year. Also more Gallun, Hamilton, Williamson, and, by all means, why not get one of Clark Ashton Smith's incomparable stories. He is greatly missed these days by real fans.

Well, having bored the other inhabitants of the letter column for the last five minutes, I close with an earnest plea. Yea, all ye olde and new fans who resideth in Baltimore, Maryland, please join up with our fast-growing science fiction organization headed by the popular author, Frederic Arnold Kummer, Jr., and ably supported by Professor Dodson of John Hopkins University fame. Dr. Dodson, as some of you know, is quite famous hereabouts for atom-research work.

Don't forget: the olde meeting place is 224 West Lafayette Avenue, Baltimore, Maryland.—Henry Andrew Ackermann, 5200 Maple Avenue, "Pimlico", Baltimore, Maryland.

Our Policy: Good Stories

Sirs:

A word about *Super Science Stories*. The stories are not up to the standards of the newer mags, but they are better than the average. Two of the novelettes—"World Beborn" and "Trans-Plutonian Trap"—were especially good.

I hope you don't form a story "policy" like so many of the magazines, but will continue to publish stories of all types, just so long as they are *good* science stories.

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SUPER SCIENCE STORIES

in the magazine gives it something no other has. And in this connection, I hope you won't be afraid to mention the names of other magazines—a thing that is taboo with most of them. Why this is, I can't understand, even if there is competition. I think many fans are disgusted with this policy, and since *Super Science Stories* boasts an advisory board of fans I hope you will break this taboo.

One thing that would smash the taboo to electronic particles would, I think, be very helpful to many fans, and I know it would to me. It is this: Publish a list (in *The Science Fictioneer*, of course) of all the science fiction and fantasy magazines! The reason I ask this is that I have a notion that there are several magazines published that I have been unable to locate.

Knowing these other magazines would not stop me from buying *Super Science Stories*, for I could read several times as much science fiction as I am able to get! —**John Patch, R.F.D. 3, New Concord, Ohio.**

Reprints?

Dear Sir:

The first issue of your magazine seems to be a bell ringer. I heartily approve of all of your departments, especially the book reviews and the fan magazines. However, the suggestions of poetry and cartoon strips seem ridiculous to me.

The chief suggestion I wish to offer is that you print some of the famous stories of Weinbaum and Lovecraft. These men, I understand, are no longer living, and many of the present-day readers have never had a chance to read their stories. And there are probably quite a number of stories of other writers that should be reprinted by now, so why not have a reprint department?

And print the full-length novels as soon as you can.—**Charles W. Wolfe, 417 Tenth Street, Las Vegas, New Mexico.**

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(Continued)

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