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FANTASY REVIEWS

Fantasy Books


We have always been accustomed to think of witchcraft and sorcery as belonging to the dark ages, the days before science remade the world and light cast out superstition. William Seabrook in this bold and engrossing volume proves that witchcraft is not only still existent but increasingly demands recognition.

Seabrook approaches this subject with a firm disbelief in the supernatural and a firm conviction that whatever happens has rational and scientific explanations. He relates many of his own studies in witchcraft and these are by no means superficial. As a world traveller, he is on terms of close friendship with African witches and European and American black magicians. In fact, he is himself a potential necromancer of no mean ability as he proved when he put a rival sorcerer in hospital by driving nails into a doll.

He goes into the theory of murder by means of dolls pretty thoroughly and emerges with a fairly logical analysis of why this type of magic actually works. He then delves into the abnormal psychology that seems to make some people werewolves and vampires. He closes by presenting as unsolved the problem of clairvoyance. This latter he believes to be a very rare but actual phenomenon which so far is not entirely explicable.

The book is recommended to those interested in the regions of knowledge science has yet to explore.

—Donald A. Wollheim.

THE SYNTHETIC MEN OF MARS
by Edgar Rice Burroughs. Published by the author at Tarzana, Calif. $2.00.

During the past few years, Burroughs has been increasingly losing the touch that made his works so loved during the past two decades. His Mars stories, the tales of John Carter, won a very special place in the esteem of science-fiction readers. But the more recent Carter tales have dropped very steadily in quality.

The Synthetic Men of Mars, as its un-Barsoomian title implies, deals with a mad scientist who, living on an island in a deserted part of Mars, creates great hulking pseudo-men out of a vat of squirming protoplasmic slime. These pleasant creatures, whose eyes are always falling out or whose digits are of unequal sizes, are trained by the former “Master-Mind” of Mars into an army which will march forth and conquer the planet. John Carter, of course, foils the plotter; in the course of his struggles having numerous sword battles with the synthetic men who continue living no matter how many parts they are chopped.

Those who are looking for the old Barsoom will not find it here.

—Donald A. Wollheim.

BOOK NOTES

Warwick Deeping has just authored a work entitled “The Man Who Went Back” (Knopf, $2.50) which tells of a modern Englishman who is accidently transported back through time several thousand years to an earlier barbaric Britain which is also engaged in fighting off an invader. The story is romantic rather than fantastic. . . . “A Traveler in Time” by Alison Utley (Putnam’s, $2.50) also deals with the past and England but this time it is an imaginative girl who goes back through door in a manor house to various periods in the past. . . . “The Stone of Chastity” by Margery Sharp (Continued on page 6)
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—Forrest J Ackerman

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HEREDITY

An Earthman and a colonial from Ganymede, born twins but reared millions of miles apart, confront each other on the giant testing-ground of Mars—to answer an age-old scientific question!

By Isaac Asimov

CHAPTER ONE

The Twins

Dr. Stefansson fondled the thick sheaf of typewritten papers that lay before him, “It’s all here, Harvey—twenty-five years of work.”

Mild-mannered Professor Harvey puffed idly at his pipe, “Well, your part is over—and Markey’s, too, on Ganymede. It’s up to the twins, themselves, now.”

A short ruminative silence, and then Dr. Stefansson stirred uneasily, “Are you going to break the news to Allen soon.”

The other nodded quietly, “It will have to be done before we get to Mars and the sooner the better.” He paused, then added in a tightened voice, “I wonder how it feels to find out after twenty-five years that one has a twin brother whom one has never seen. It must be a damned shock.”

“How did George take it?”

“Didn’t believe it at first, and I don’t blame him. Markey had to work like a horse to convince him it wasn’t a hoax. I suppose I’ll have as hard a job with Allen.” He knocked the dottle from his pipe and shook his head.

“I have half a mind to go to Mars just to see those two get together,” remarked Dr. Stefansson wistfully.

“You’ll do no such thing, Stef. This experiment’s taken too long and means too much to have you ruin it by any such fool move.”

“I know, I know! Heredity versus environment! Perhaps at last the definite answer.” He spoke half to himself, as if repeating an old, familiar formula, “Two identical twins, separated at birth; one brought up on old, civilized Earth, the other on pioneer Ganymede. Then, on their twenty-fifth birthday brought together for the first time on Mars—God! I wish Carter had lived to see the end of it. They’re his children.”

“Too bad!—But we’re alive, and the twins. To carry the experiment to its end will be our tribute to him.”

There is no way of telling, at first seeing the Martian branch of Medicinal Products, Inc., that it is surrounded by anything but desert. You can’t see the vast underground caverns where the native fungi of Mars are artificially nurtured into huge blooming fields. The intricate transportation system that connects all parts of the square miles of fields to the central building is invisible. The irrigation system; the air-purifiers; the drainage pipes, are all hidden.

And what one sees is the broad squat red-brick building and Martian desert, rusty and dry, all about.

That had been all George Carter had seen upon arriving via rocket-taxi, but him, at least, appearances had not deceived. It would have been strange had it done so, for his life on Ganymede had been oriented in its every phase towards eventual general managership of that very concern. He knew every square inch of the caverns below as well as if he had
been born and raised in them himself. And now he sat in Professor Lemuel Harvey's small office and allowed just the slightest trace of uneasiness to cross his impassive countenance. His ice-blue eyes sought those of Professor Harvey.

"This—this twin brother o' mine. He'll be here soon?"

Professor Harvey nodded, "He's on his way over right now."

George Carter uncrossed his knees. His expression was almost wistful, "He looks a lot like me, d'ya reckon?"

"Quite a lot. You're identical twins, you know."

"Hmmm! Rackon so! Wish I'd known
him all the time—on Ganny!” He frowned, “He’s lived on Airth all’s life, huh?”

An expression of interest crossed Professor Harvey’s face. He said briskly, “You dislike Earthmen?”

“No, not exactly,” came the immediate answer. “It’s just that Airthmen are tanderfeet. All of ’m I know are.”

Harvey stifled a grin, and conversation languished.

The door-signal snapped Harvey out of his reverie and George Carter out of his chair at the same instant. The professor pressed the desk-button and the door opened.

The figure on the threshold crossed into the room and then stopped. The twin brothers faced each other.

It was a tense, breathless moment, and Professor Harvey sank into his soft chair, put his finger-tips together and watched keenly.

The two stood stiffly erect, ten feet apart, neither making a move to lessen the distance. They made a curious contrast—a contrast all the more marked because of the vast similarity between the two.

Eyes of frozen blue gazed deep into eyes of frozen blue. Each saw a long, straight nose over full, red lips pressed firmly together. The high cheekbones were as prominent in one as in the other, the jutting, angular chin as square. There was even the same, odd half-cock of one eye-brow in twin expressions of absorbed, part-quizzical interest.

But with the face, all resemblance ended. Allen Carter’s clothes bore the New York stamp on every square inch. From his loose blouse, past his dark purple knee breeches, salmon-colored cellulite stockings, down to the glistening sandals on his feet, he stood a living embodiment of latest Terrestrial fashion.

For a fleeting moment, George Carter was conscious of a feeling of ungainliness as he stood there in his tight-sleeved, close-necked shirt of Ganymedan linen. His unbuttoned vest and his voluminous trousers with their ends tucked into high-laced, heavy-soled boots were clumsy and provincial. Even he felt it—for just a moment.

From his sleeve-pocket Allen removed a cigarette case—it was the first move either of the brothers had made—opened it, withdrew a slender cylinder of paper-covered tobacco that spontaneously glowed into life at the first puff.

George hesitated a fraction of a second and his subsequent action was almost one of defiance. His hand plunged into his inner vest pocket and drew therefrom the green, shrunken form of a cigar made of Ganymedan greenleaf. A match flared into flame upon his thumbnail and for a long moment, he matched, puff for puff, the cigarette of his brother.

And then Allen laughed—a queer, high-pitched laugh, “Your eyes are a little closer together, I think.”

“Rackon ’tis maybe. Y’r hair’s fixed sort o’ different.” There was faint disapproval in his voice. Allen’s hand went self-consciously to his long, light-brown hair, carefully curled at the ends, while his eyes flickered over the carelessly-bound queue into which the other’s equally long hair was drawn.

“I suppose we’ll have to get used to each other. —I’m willing to try.” The Earth twin was advancing now, hand outstretched.

George smiled, “Y’ bet. ’At goes here, too.”

The hands met and gripped.

“Y’r name’s All’n, huh?” said George.

“And yours is George, isn’t it?” answered Allen.

And then for a long while they said nothing more. They just looked—and
smiled as they strove to bridge the twenty-five year gap that separated them.

CHAPTER TWO

Fungus Gold

GEORGE CARTER’S impersonal gaze swept over the carpet of low-growing purple blooms that stretched in plot-path bordered squares into the misty distance of the caverns. The newspapers and feature writers might rhapsodize over the “Fungus Gold” of Mars—about the purified extracts, in yields of ounces to acres of blooms, that had become indispensable to the medical profession of the System. Opiates, purified vitamins, a new vegetable specific against pneumonia—the blooms were worth their weight in gold, almost.

But they were merely blooms to George Carter—blooms to be forced to full growth, harvested, baled, and shipped to the Aresopolis labs hundreds of miles away.

He cut his little ground car to half-speed and leant furiously out the window, “Hi, y’ mudcat there. Y’ with the dairty face. Watch what y’r doing—keep the doomed water in the channel.”

He drew back and the ground car leapt ahead once more. The Ganymedan muttered viciously to himself, “These doomed men about here are wairse than useless. So many machines t’ do their wairk for ’m they give their brains a pairmenent vacation, I reckon.”

The ground car came to a halt and he clambered out. Picking his way between the fungus plots, he approached the clustered group of men about the spider-armed machine in the plot-way ahead.

“Well, here I am. What is ’t, All’n?”

Allen’s head bobbed up from behind the other side of the machine. He waved at the men about him, “Stop it for a second!” and leaped toward his twin.

“George, it works. It’s slow and clumsy, but it works. We can improve it now that we’ve got the fundamentals down. And in no time at all, we’ll be able to—”

“Now wait a while, All’n. On Ganny, we go slow. Y’ live long, that way. What y’ got there?”

Allen paused and swabbed at his forehead. His face shone with grease, sweat, and excitement. “I’ve been working on this thing ever since I finished college. It’s a modification of something we have on Earth—but it’s no end improved. It’s a mechanical bloom picker.”

He had fished a much-folded square of heavy paper from his pocket and talked steadily as he spread it on the plotway before them, “Up to now, bloom-picking has been the bottleneck of production, to say nothing of the 15 to 20% loss due to picking under- and over-ripe blooms. After all, human eyes are only human eyes and the blooms—Here, look!”

The paper was spread flat and Allen squatted before it. George leaned over his shoulder, with frowning watchfulness.

“You see. It’s a combination of fluoroscope and photo-electric cell. The ripeness of the bloom can be told by the state of the spores within. This machine is adjusted so that the proper circuit is tripped upon the impingement of just that combination of light and dark formed by ripe spores within the bloom. On the other hand, this second circuit—but look, it’s easier to show you.”

He was up again, brimming with enthusiasm. With a jump, he was in the low seat behind the picker and had pulled the lever.

Ponderously, the picker turned towards the blooms and its “eye” travelled sideways six inches above the ground. As it passed each fungus bloom, a long spidery arm shot out, lopping it cleanly half an inch from the ground and depositing it
neatly in the downward-sloping slide beneath. A pile of blooms formed behind the machine.

"We can hook on a binder too, later on. Do you notice those blooms it doesn’t touch? Those are unripe. Just wait till it comes to an over-ripe one and see what it does."

He yelled in triumph a moment later when a bloom was torn out and dropped on the spot.

He stopped the machine, "You see? In a month, perhaps, we can actually start putting it to work in the fields."

George Carter gazed sourly upon his twin, "Take more ‘n a month, I reckon. It’ll take foraver, more likely."

"What do you mean, forever. It just has to be sped up—"

"I don’t care if ’t just has t’ be painted pairple. ’Tisn’t going t’ appear on my fields."

"Your fields?"

"Yup, mine," was the cool response. "I’ve got veto pow’r here same as you have. Y’ can’t do anything ‘thout my say-so—and y’ won’t get it f’r this. In fact, I want y t’ clear that thing out o’ here, altogether. Got no use f’r t.’"

Allen dismounted and faced his brother, "You agreed to let me have this plot to experiment on, veto-free, and I’m holding you to that agreement."

"All right, then. But keep y’r domned machine out o’the rest o’ the fields."

The Earthman approached the other slowly. There was a dangerous look in his eyes. "Look, George, I don’t like your attitude—and I don’t like the way you’re using your veto power. I don’t know what you’re used to running on Ganymede, but you’re in the big time now, and there are a lot of provincial notions you’ll have to get out of your head."

"Not unless I want to. And if y’ want t’ have ’t out with me, we’d batter go t’ yr office. Spatting before the men’d be bad for discipline."

THE trip back to Central was made in ominous silence. George whistled softly to himself while Allen folded his arms and stared with ostentatious indifference at the narrow, twisting plot-way ahead. The silence persisted as they entered the Earthman’s office. Allen gestured shortly towards a chair and the Ganymedan took it without a word. He brought out his ever-present green-leaf cigar and waited for the other to speak.

Allen hunched forward upon the edge of his seat and leaned both elbows on his desk. He began with a rush.

"There’s lots to this situation, George, that’s a mystery to me. I don’t know why they brought up you on Ganymede and me on Earth, and I don’t know why they never let us know of each other, or made us co-managers now with veto-power over one another—but I do know that the situation is rapidly growing intolerable."

"This corporation needs modernization, and you know that. Yet you’ve been wielding that veto-power over every trifling advance I’ve tried to initiate. I don’t know just what your viewpoint is, but I’ve a suspicion that you think you’re still living on Ganymede. If you’re still in the sticks,—I’m warning you—get out of them fast. I’m from Earth, and this corporation is going to be run with Earth efficiency and Earth organization. Do you understand?"

George puffed odorous tobacco at the ceiling before answering, but when he did, his eyes came down sharply, and there was a cutting edge to his voice.

"Airth, is it? Airth efficiency, no less? Well, All’n, I like ye. I can’t help it. Y’r so much like me, that disliking y’ would be like disliking myself, I reckon. I hate t’ say this, but y’r upbringing’s all wrong."

His voice became sternly accusatory, "Y’r an Airthman. Well, look at y’. An Airthman’s but half a man at best, and
naturally y’ lean on machines. But d’ y’ suppose I want the corporation to be run by machines—just machines? What’re the men t’ do?”

“The men run the machines,” came the clipped, angry response.

The Ganymedan rose, and a fist slammed down on the desk, “The machines run the men, and y’ know it. Fairly, y’ use them; then y’ depend on them; and finally y’r slaves t’ them. Over on y’r pracious Airth, it was machines, machines, machines—and as a result, what are y’? I’ll tell y’. Half a man!”

He drew himself up, “I still like y’. I like y’ well enough t’ wish y’d lived on Gannie with me. By Jupe ‘n’ domn, twould have made a man o’ y’.”

“Finished?” said Allen.

“Rackon so!”

“Then I’ll tell you something. There’s nothing wrong with you that a life time on a decent planet wouldn’t have fixed. As it is, however, you belong on Ganymede. I’d advise you to go back there.”

George spoke very softly, “Y’r not thinking o’ taking a punch at me, are y’?”

“No. I couldn’t fight a mirror image of myself, but if your face were only a little different, I would enjoy splashing it about the premises a bit.”

“Think y’ could do it—an Airthman like you. Here, sit down. We’re both getting a bit too excited, I rackon. Nothing’ll be settled this way.”

HE SAT down once more, puffed vainly at his dead cigar, and tossed it into the incinerator chute in disgust.

“Where’s y’r water?” he grunted.

Allen grinned with sudden delight, “Would you object to having a machine supply it?”


“Watch! I had this installed a week ago.” He touched a button on his desk and a low click sounded below. There was the sound of pouring water for a second or so and then a circular metal disk beside the Earthman’s right hand slid aside and a cup of water lifted up from below.

“Take it,” said Allen.

George lifted it gingerly and drank it down. He tossed the empty cup down the incinerator shaft, then stared long and thoughtfully at his brother, “May I see this water feeder o’ y’rs?”

“Surely. It’s just under the desk. Here, I’ll make room for you.”

The Ganymedan crawled underneath while Allen watched uncertainly.

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**Mr. R--- makes a Confession**

1. Almost got fired today. Boss caught me napping at my desk. The trouble is I need a laxative. But I hate to take the awful stuff.

2. Tom told me to try Ex-Lax and I bought a box on my way home. Took some before turning in for the night. A cinch to take—it tastes just like chocolate!

3. Feel like a million this morning. Ex-Lax worked fine. Didn’t upset me or keep me awake last night. Boy, watch me tear into my work today!

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.

10¢ and 25¢
brawny hand was thrust out suddenly and a muffled voice said, "Hand me a screwdriver."

"Here! What are you going to do?"
"Nothing. Nothing 't all. Just want t' investigate this contraption."

The screw-driver was handed down and for a few minutes there was no other sound than an occasional soft scraping of metal on metal. Finally, George withdrew a flushed face and adjusted his wrinkled collar with satisfaction.

"Which button do I press for the water?"

Allen gestured and the button was pressed. The gurgling of water sounded. The Earthman stared in mystification from his desk to his brother and back again. And then he became aware of a moistness about his feet.

He jumped, looked downwards, and squawked in dismay, "Why, damn you, what have you done?" A snaky stream of water wriggled blindly out from under the desk and the pouring sound of water still continued.

George made leisurely for the door, "Just short-circuited it. Here's y' r screwdriver; fix 't up again." And just before he slammed the door, "So much f'r y' r precious machines. They go wrong at the wrong times."

CHAPTER THREE

Sandstorm!

The sounder was buzzily insistent and Allen Carter opened one eye peevishly. It was still dark.

With a sigh, he lifted one arm to the head of his bed and put the Audiomitter into commission.

The treble voice of Amos Wells of the night shift squawked excitedly at him. Allen's eyes snapped open and he sat up.

"You're crazy!" But he was plunging into his breeches even as he spoke. In ten seconds, he was careening up the steps three at a time. He shot into the main office just behind the charging figure of his twin brother.

The place was crowded;—its occupants in a jitter.

Allen brushed his long hair out of his eyes, "Turn on the turret searchlight!"
"It's on," said someone helplessly.

The Earthman rushed to the window and looked out. The yellow beam reached dimly out a few feet and ended in a muddy murkiness. He pulled at the window and it lifted upwards grittily a few inches. There was a whistle of wind and a tornado of coughing from within the room. Allen slammed it down again and his hands went at once to his tear-filled eyes.

George spoke between sneezes, "We're not located in the sandstorm zone. This can't be one."

"It is," asserted Wells in a squeak. "It's the worst I've ever seen. Started full blast from scratch just like that. It caught me flat-footed. By the time I closed off all exits to above, it was too late."

"Too late!" Allen withdrew his attention from his sand-filled eyes and snapped out the words, "Too late for what?"

"Too late for our rolling stock. Our rockets got it worst of all. There isn't one that hasn't its propulsives clogged with sand. And that goes for our irrigation pumps and the ventilating system. The generators below are safe but everything else will have to be taken apart and put together again. We're stalled for a week at least. Maybe more."

There was a short, pregnant silence, and then Allen said, "Take charge, Wells. Put the men on double shift and tackle the irrigation pumps first. They've got to be in working order inside of twenty-four hours, or half the crop will dry up and die on us. Here—wait, I'll go with you."

He turned to leave, but his first footstep froze in midair at the sight of Michael
Anders, communications officer, rushing up the stairs.

"What's the matter?"

Anders spoke between gasps, "The damned planet's gone crazy. There's been the biggest quake in history with its center not ten miles from Aresopolis."

There was a chorus of "What?" and a ragged follow-up of blistering imprecations. Men crowded in anxiously;—many had relatives and wives in the Martian metropolis.

Anders went on breathlessly, "It came all of a sudden. Aresopolis is in ruins and fires have started. There aren't any details but the transmitter at our Aresopolis labs went dead five minutes ago."

There was a babel of comment. The news spread out into the furthest recesses of Central and excitement waxed to dangerously panicky proportions. Allen raised his voice to a shout.

"Quiet, everyone. There's nothing we can do about Aresopolis. We've got our own troubles. This freak storm is connected with the quake some way—and that's what we have to take care of. Everyone back to his work now—and work fast. They'll be needing us at Aresopolis damned soon." He turned to Anders, "You! Get back to that receiver and don't knock off until you've gotten in touch with Aresopolis again. Coming with me, George?"

"No, reckon not," was the response. "I' tend t' y'r machines. Ill go down with Anders."

DAWN was breaking, a dusky, lightless dawn, when Allen Carter returned to Central. He was weary—weepy in mind and body—and looked it. He entered the radio room.

"Things are a mess. If—"

There was a "Shhh" and George waved frantically. Allen fell silent. Anders bent over the receiver, turning tiny dials with nervous fingers.

Anders looked up, "It's no use, Mr. Carter. Can't get them."

"Alright. Stay here and keep y'r ears open. Let me know if anything turns up."

He walked out, hooking an arm underneath his brother's and dragging the latter out.

"When c'n we get out the next shipment, All'n?"

"Not for at least a week. We haven't a thing that'll either roll or fly for days, and it will be even longer before we can start harvesting again."

"Have we any supplies on hand now?"

"A few tons of assorted blooms—mainly the red-purples. The Earth shipment last Tuesday took off almost everything."

George fell into a reverie.

His brother waited a moment and said sharply, "Well, what's on your mind? What's the news from Aresopolis?"

"Domned bad! The quake's leveled three-fourths o' Aresopolis and the rest's pretty much gutted with fire, I reckon. There 're fifty thousand that'll have to camp out nights.—That's no fun in Martian autumn weather with the Areso-gravity system broken down."

Allen whistled, "Pneumonia!"

"And common colds and influenza and any o' half doz'n diseases t' say nothing o' people bairnt. —Old Vincent is raising cain."

"Wants blooms?"

"He's only got a two day supply on hand. He's got to have more."

Both were speaking quietly, almost with indifference, with the vast understatement that is all that makes great crises bearable.

There was a pause and then George spoke again, "What's the best we c'n do?"

"Not under a week—not if we kill ourselves to do it. If they could send over a ship as soon as the storm dies down, we might be able to send what we have as a temporary supply until we can get over with the rest."

"Silly even t' think o' that. The Areso-
polis port is just ruins. They haven’t a ship t’ their names."

Again silence. Then Allen spoke in a low, tense voice, “What are you waiting for? What’s that look on your face for?”

“I’m waiting f’r y’ t’ admit y’r domned machines have failed y’ in the fairst emairgency we’ve had t’ meet.”

“Admitted,” snarled the Earthman. 

“Good! And now it’s up t’ me t’ show y’ what human ingenuity can do.” He handed a sheet of paper to his brother, “There’s a copy of the message I sent Vincent.”

Allen looked long at his brother and slowly read the pencilled scribbling.

“Will deliver all we have on hand in thirty-six hours. Hope it will keep you going the few days until we can get a real shipment out. Things are a little rough out here.”

“How are you going to do it?” demanded Allen, upon finishing.

“I’m trying to show y’,” answered George, and Allen realized for the first time that they had left Central and were out in the caverns.

George led the way for five minutes and stopped before an object bulking blackly in the dimness. He turned on the section lights and said, “Sand truck!”

The sand truck was not an imposing object. With the low, driving car in front and the three squat, open-topped freight-cars behind, it presented a picture of obsolete decrepitude. Fifteen years ago, it had been relegated to the dust-heap by the sand-sleds and rocket-freights.

The Ganymedan was speaking, “Checked it an hour ago, m’self, and ’tis still in wairking order. It has shielded bearings, air conditioning unit t’ the driving car, and an intairnal combustion engine.”

The other looked up sharply. There was an expression of distaste on his face. “You mean it burns chemical fuel.”

“Yup! Gas’line. That’s why I like it. Reminds me o’ Ganymede. On Gannie, I had a gas engine that—”

“But wait a while. We haven’t any of that gasoline.”

“No, rackon not. But we gots lots o’ liquid hydrocarbons round the place. How about Solvent D? That’s mostly octane. We’ve got tanks o’ it.”

Allen said, “That’s so—but the truck holds only two.”

“I know it. I’m one.”

“And I’m the other.”

George grunted, “I rackond y’d say that—but this isn’t going t’ be a push-button machine job. Rackon y’r up t’ it, —Airthman.”

“I reckon I am—Gannie.”

The sun had been up some two hours before the sand-truck’s engine whirred into life, but outside, the murk had become, if anything, thicker.

The main driveway within the caverns was alium with activity. Grotesque figures with eyes peering through the thick glass of improvised air-helmets stepped back as the truck’s broad, sand-adapted wheels began their slow turn. The three cars behind had been piled high with purple blooms, canvas covers had been thrown over them and bound down tightly,—and now the signal was given to open the doors.

The lever was jerked downwards and the double doors separated with sand-clogged protests. Through a gray whirl of inblown sand, the truck made its way outwards, and behind it sand-coated figures brushed at their air-helmets and closed the doors again.

CHAPTER FOUR

The Testing-Ground

George Carter, inured by long Ganymedan custom, met the sudden gravity change as they left the protective
Gravitor fields of the caverns, with a single long-drawn breath. His hands held steady upon the wheels. His Terrestrial brother, however, was in far different condition. The hard nauseating knot into which his stomach tied itself loosened only very gradually, and it was a long time before his irregular sterterous breathing approached anything like normality again.

And throughout, the Earthman was conscious of the other’s side-long glance and of just a trace of a smile about the other’s lips.

It was enough to keep the slightest moan from issuing forth, though his abdominal muscles cramped and icy perspiration bathed his face.

The miles clicked off slowly, but the illusion of motionlessness was almost as complete as that in space. The surroundings were gray—uniform, monotonous and unvarying. The noise of the engine was a harsh purr and the clicking of the air-purifier behind like a drowsy tick. Occasionally, there was an especially strong gust of wind, and a patter of sand dashed against the window with a million tiny, separate pings.

George kept his eye strictly upon the compass before him. The silence was almost oppressive.

And then the Ganymedan swivelled his head, and growled, “What’s wrong with the domned vent’lator?”

Allen squeezed upward, head against the low top, and then turned back, pale-faced, “It’s stopped.”

“It’ll be hours ’fore the storm’s over. We’ve got t’ have air till then. Crawl in back there and start it again.” His voice was flat and final.
“Here,” he said, as the other crawled over his shoulder into the back of the car. “Here’s the tool-kit. Y’v got ’bout twenty minutes ’fore the air gets too foul t’ breathe. ’Tis pretty bad now.”

The clouds of sand hemmed in closer and the dim yellow light above George’s head dispelled only partially the darkness within.

There was the sound of scrambling from behind him and then Allen’s voice, “Damn this rope. What’s it doing here?” There was a hammering and then a disgusted curse.

“This thing is choked with rust.”

“Anything else wrong?” called out the Ganymedian.

“Don’t know. Wait till I clear it out.”

More hammering and an almost continuous harsh, scraping sound followed.

Allen backed into his seat once more. His face dripped rusty perspiration and a swab with the back of an equally damp, rust-covered hand did it no good.

“The pump is leaking like a punctured kettle, now that the rust’s been knocked loose. I’ve got it going at top speed, but the only thing between it and a total breakdown is a prayer.”

“Start praying,” said George, bruskly. “Pray for a button to push.”

The Earthman frowned, and stared ahead in sullen silence.

At four in the afternoon, the Ganymedian drawled, “Air’s beginning t’ thin out, looks like.”

Allen snapped to alertness. The air was foul and humid within. The ventilator behind swished sibilantly between each click and the clicks were spacing themselves further apart. It wouldn’t hold out much longer now.

“How much ground have we covered?”

‘Bout a third o’ the distance,” was the reply. “How ’r y’ holding out.”

“Well enough,” Allen snapped back. He retired once more into his shell.

Night came and the first brilliant stars of a Martian night peeped out when with a last futile and long-sustained swi-i-s-s-sh, the ventilator died.

“Damn!” said George. “I can’t breathe this soup any longer, anyway. Open the windows.”

The keenly cold Martian windswept in and with it the last traces of sand. George coughed as he pulled his woollen cap over his ears and turned on the heaters.

“Y’ can still taste the grit.”

Allen looked wistfully up into the skies, “There’s Earth—with the moon hanging right on to her tail.”

“Airth?” repeated George with fine contempt. His finger pointed horizonwards, “There’s good old Jupe for y’.”

And throwing back his head, he sang in a full-throated baritone:

“When the golden orb o’ Jove
Shines down from the skies above
Then my spirit longs to go
To that happy land I know
Back t’ good, old Ganyme-e-e-e-e-e.”

The last note quavered and broke, and quavered and broke again and still again in an ever increasing rapidity of tempo until its vibrating ululation pierced the air about ear-shatteringly.

Allen stared at his brother wide-eyed, “How did you do that?”

George grinned, “That’s the Gannie quaver. Didn’t y’ ever hear it before.”

The Earthman shook his head, “I’ve heard of it, but that’s all.”

The other became a bit more cordial, “Well, o’ course y’ can only do it in a thin atmosphere. Y’ should hear me on Gannie. I c’d shake y’ right off y’r chair when I’m going good. Here! Wait till I gulp down some coffee, and then I’ll sing y’ vairse twenty-four o’ the ‘Ballad o’ Ganymede’.”

He took a deep breath:

“There’s a fair-haired maid I love
Standing in the light o’ Jove
And she’s waiting there for me-e-e-e-e-e.
Then—"
Allen grasped him by the arm and shook him. The Ganymedian choked into silence.

“What’s the matter?” he asked sharply.
“There was a thumping sound on the roof just a second ago. There’s something up there."
George stared upwards, “Grab the wheel. I’ll go up.”
Allen shook his head, “I’m going myself. I wouldn’t trust myself running this primitive contraption.”

He was out on the running board the next instant.

“Keep her going,” he shouted, and threw one foot up onto the roof.

HE FROZE in that position when he became aware of two yellow slits of eyes staring hard into his. It took not more than a second for him to realize that he was face to face with a keasel, a situation which for discomfort is about on a par with the discovery of a rattlesnake in one’s bed back on Earth.

There was little time for mental comparisons of his position with Earth predicaments, however, for the keasel lunged forward, its poisonous fangs agleam in the starlight.

Allen ducked desperately and lost his grip. He hit the sand with a slow-motion thud and the cold, scaly body of the Martian reptile was upon him.

The Earthman’s reaction was almost instinctive. His hand shot out and clamped down hard upon the creature’s narrow muzzle.

In that position, beast and man stiffened into breathless statuary. Then man was trembling and within him his heart pounded away with hard rapidity. He scarcely dared move. In the unaccustomed Martian gravity, he found he could not judge the movements of his limbs. Muscles knotted almost of their own accord and legs swung when they ought not to.

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Any thrifty, well-groomed tar
Knows Thin Gillettes are best by far
For fast and easy shaves each time—
And yet four blades cost just a dime!

Precision made to fit your razor exactly!

The Thin Gillette Blade Is Produced By The Maker Of The Famous Gillette Blue Blade
He tried to lay still—and think.

The keasel squirmed and from its lips, clamped shut by Earth muscles, issued a tremulous whine. Allen's hand grew slick with perspiration and he could feel the beast's muzzle turn a bit within his palm. He clamped harder, panic-stricken. Physically, the keasel is no match for an Earthman, even a tired, frightened, gravity-unaccustomed Earthman—but one bite, anywhere, was all that was needed.

The keasel jerked suddenly; its back humped and its legs threshed. Allen held on with both hands and could not let go. He had neither gun nor knife. There was no rock on the level desert sands to crack its skull against. The sand-truck had long since disappeared into the Martian night and he was alone—alone with a keasel.

In desperation, he twisted. The keasel's head bent. He could hear its breath whistling forth harshly—and again there was that low whine.

Allen writhed above it and clamped knees down upon its cold, scaly abdomen. He twisted the head, further and further. The keasel fought desperately, but Allen's Earthly biceps maintained their hold. He could almost sense the beast's agony in the last stages, when he called up all his strength—and something snapped.

And the beast lay still.

He rose to his feet, half-sobbing. The Martian night wind knifed into him and the perspiration froze on his body. He was alone in the desert.

Reaction set in. There was an intense buzzing in his ears. He found it difficult to stand. The wind was biting—but somehow he didn't feel it anymore.

The buzzing in his ears resolved itself into a voice—a voice calling weirdly through the Martian wind.

"Alln', where are y'? Domn' y', y' tanderfoot, where are y'? All'n! All'n!"

New life swept into the Earthman. He tossed the keasel's carcass onto his shoul-

ders and staggered on towards the voice.

"Here I am, G—Gannie. Right here."

He stumbled blindly into his brother's arms.

George began harshly, "Y' blasted Airthman, can't y' even keep y'r footing on a sandtruck moving at ten miles per? Y' might've—"

His voice died away in a semi-gurgle.

Allen said tiredly, "There was a keasel on the roof. He knocked me off. Here, put it somewheres. There's a hundred dollar bonus for every keasel skin brought in to Aresopolis."

He had no clear recollection of anything for the next half hour. When things straightened out, he was in the truck again with the taste of warm coffee in his mouth. The engine was rumbling once more and the pleasant warmth of the heaters surrounded him.

George sat next to him silently, eyes fixed on the desert ahead. But once in a while, he cleared his throat and shot a lightning glance at his brother. There was a queer look in his eyes.

Allen said, "Listen, I've got to keep awake,—and you look half dead yourself—so how about teaching me that 'Gannie quaver' of yours. That's bound to wake the dead."

The Ganymedian stared even harder and then said gruffly, "Sure, watch m' Adam's apple while I do 't again."

CHAPTER FIVE

The Blooms Go Through

T
HE sun was half-way to zenith when they reached the canal.

An hour before dawn there had come the crackling sound of hoarfrost beneath the heavy wheels and that signified the end of the desert area and the approach of the canal oasis. With the rising of the sun, the crackling disappeared and the softening mud underneath slowed the
sand-adapted truck. The pathetic clumps of gray-green scrub that dotted the flat landscape were the first variant to eternal red sand since the two had started on their journey.

And then Allen had leaned forward and grasped his brother by the arm, “Look, there’s the canal itself right ahead.”

The “canal”—a small tributary of the mighty Jefferson Canal—contained a mere trickle of water at this season of the year. A dirty winding line of dampness, it was, and little more. Surrounding it on both sides were the boggy areas of black mud that were to fill up into a rushing ice-cold current an Earth-year hence.

The sand-truck nosed gingerly down the gentle slope, weaving a tortuous path among the sparsely-strewn boulders, brought down by the spring's torrents and left there as the sinking waters receded.

It sloughed through the mud and splashed clumsily through the puddles. It jounced noisily over rocks, muddied itself past the hubs as it made its way through the murky mid-stream channel and then settled itself for the upward pull out.

And then with a suddenness that tossed the two drivers out of their seats, it side-slipped, made one futile effort to proceed onwards, and thereafter refused to budge.

The brothers scrambled out and surveyed the situation. George swore lustily, voice more thickly accented than ever.

“B’ Jupe ‘n’ damn, we’re in a pickled situation f'r fair. 'Tis wallowing in the mud there like a blasted pig.”

Allen shoved his hair back wearily, “Well, don’t stand there looking at it. We’re still a hundred miles or better from Aresopolis. We’ve got to get it out of there.”

“Sure, but how?” His imprecations dropped to sibilant breathings as he reached into the truck for the coil of rope in the back. He looked at it doubtfully. “Y’ get in here, All’n, and when I pull, press down with y’r foot on that pedal.”

He was tying the rope to the front axle even as he spoke. He played it out behind him as he slogged out through ankle-deep mud, and stretched it taut.

“Alright now, give!” he yelled. His face turned purple with effort as his back muscles ridged. Allen, within the car, pressed the indicated pedal to the floor, heard a loud roar from the engine and a spinning whir from the back wheels. The truck heaved once, and then sank back.

“'Tis no use,” George called. “I can’t get a footing. If the ground were dry, I c’d do it.”

“If the ground were dry, we wouldn’t be stuck,” retorted Allen. “Here, give me that rope.”

“D’ y’ think y’ can do it, if I can’t?” came the enraged cry, but the other had already left the car.

Allen had spied the large, deep-bedded boulder from the truck, and it was with relief that he found it to be within reaching distance of the rope. He pulled it taut and tossed its free end about the boulder. Knotting it clumsily, he pulled, and it held.

His brother leaned out of the car window, as he made his way, back, with one lumped Ganyomedan fist agitating the air. “Hi, y’ nitwit. What’re y’ doing? D’ y’ expect that overgrown rock t’ pull us out?”

“Shut up,” yelled back Allen, and feed her the gas when I pull.”

He paused midway between boulder and truck and seized the rope.

“Give!” he shouted in his turn, and with a sudden jerk pulled the rope towards him with both hands.

The truck moved; its wheels caught hold. For a moment it hesitated with the engine blasting ahead full speed, and George’s hands trembling upon the wheel. And then it went over. And almost simultaneously, the boulder at the other end of
the taut rope lifted out of the mud with a liquid smacking sound and went over on its side.  
Allen slipped the noose off it and ran for the truck.  
"Keep her going," he shouted, and hopped on to the running board, rope trailing.  
"How did y' do that?" asked George, eyes round with awe.
"I haven't got the energy to explain it now. When we get to Aresopolis and after we've had a good sleep, I'll draw the triangle of forces for you, and show you what happened. No muscles were involved. Don't look at me as if I were Hercules."

George withdrew his gaze with an effort, "Triangle o' forces, is it? I never heard o' it, but if that's what it c'n do, education's a great thing."

"Comet-gas! Is any coffee left." He stared at the last thermos-bottle, shook it near his ear dolefully, and said, "Oh, well, let's practice the quaver. It's almost as good and I've practically got it perfected."

He yawned prodigiously, "Will we make it by nightfall?"
"Maybe!"
The canal was behind them now.

THE reddening sun was lowering itself slowly behind the Southern Range. The Southern Range is one of the two "mountain chains" left on Mars. It is a region of hills; ancient, time-worn, eroded hills behind which lies Aresopolis.

It possesses the only scenery worth mentioning on all Mars and also the golden attribute of being able, through the updrafts along its sides, to suck an occasional rain out of the desiccated Martian atmosphere.

Ordinarily, perhaps, a pair from Earth and Ganymede might have idled through this picturesque area, but this was definitely not the case with the Carter twins.

Eyes, puffed for lack of sleep, glistened once more at the sight of hills on the horizon. Bodies, almost broken for sheer weariness tensed once more when they rose against the sky.

And the truck leaped ahead,—for just behind the hills lay Aresopolis. The road they travelled was no longer a rule-edge straight one, guided by the compass, over table-top-flat land. It followed narrow, twisting trails over rocky ground.

They had reached Twin Peaks, then, when there was a sudden sputter from the motor, a few halting coughs and then silence.

Allen sat up and there was weariness and utter disgust in his voice, "What's wrong with this everlastingly-to-be-dammed machine now?"

His brother shrugged, "Nothing that I haven't been expecting for the last hour. We're out o' gas. Doesn't matter at all. We're at Twin Peaks—only ten miles fr'm the city. We c'n get there in an hour and then they c'n send men out here for the blooms."

"Ten miles in an hour!" protested Allen. "You're crazy." His face suddenly twisted at an agonizing thought, "My God! We can't do it under three hours and it's almost night. No one can last that long in a Martian night. George, we're—"

George was pulling him out of the car by main force, "By Jupe 'n' domn, All'n, don't let the tenderfoot show through now. We c'n do it in an hour. I tell y'. Didn't y' ever try running under sub-normal gravity? It's like flying. Look at me."

He was off, skimming the ground closely, and proceeding in ground-covering leaps that shrank him to a speck up the mountain side in a moment.

He waved, and his voice came thinly, "Come on!"

Allen started,—and sprawled at the third wild stride, arms flailing and legs straddled wide. The Ganymedan's laughter drifted down in heartless gusts.
Allen rose angrily and dusted himself. At an ordinary walk, he made his way upwards.

"Don't get sore, All'n," said George. "It's just a knack, and I've had practice on Gannie. Just pretend y'r running along a feather bed. Run rhythmically—a sort o' very slow rhythm—and run close t' the ground; don't leap high. Like this. Watch me!"

The Earthman tried it, eyes on his brother. His first few uncertain strides became surer and longer. His legs stretched and his arms swung as he matched his brother, step for step.

George shouted encouragement and speeded his pace, "Keep lower t' the ground, All'n. Don't leap 'fore y'r toes hit the ground."

Allen's eyes shone and, for the moment, weariness was forgotten, "This is great! It is like flying—or like springs on your shoes."

"Y' ought t' have lived on Gannie with me. We've got special fields f'r sub-gravity races. An expart racer c'n do forty miles an hour at times—and I c'n do thirty-five myself. —O' course, the gravity there's a bit lower than here on Mars."

CHAPTER SIX

Aresopolis

LONG hair streamed backwards in the wind and skin reddened at the bitter-cold air that blew past. The ruddy patches of sunlight travelled higher and higher up the slopes, lingered briefly upon the very summits and went out altogether. The short Martian twilight started upon its rapidly darkening career. The Evening Star—Earth—was already glistening brightly, its attendant moon somewhat closer than the night previous.

The passing minutes went unheeded by Allen. He was too absorbed by the wondrous new sensation of sub-gravity running, to do anything more than follow his brother. Even the increasing chilliness scarcely registered upon his consciousness.

It was George, then, upon whose countenance a tiny, puckered uneasiness grew into a vast, panicky frown.

"Hi, All'n, hold up!" he called. Leaning backward, he brought himself to a short, hopping halt full of grace and ease. Allen tried to do likewise, broke his rhythm, and went forward upon his face. He rose with loud reproaches.

The Ganymedan turned a deaf ear to them. His gaze was sombre in the dusk, "D' y' know where we are, All'n?"

Allen felt a cold constriction about his windpipe as he stared about him quickly. Things looked different in semi-darkness, but they looked more different than they ought. It was impossible for things to be so different.

"We should've sighted Old Baldy by now, shouldn't we have?" he quavered.

"We sh'd've sighted him long ago," came the hard answer. "'Tis that damned quake. Landslides must've changed the trails. The peaks themselves must've been screwed up—" His voice was thin-edged, "Allen, 'tisn't any use making believe. We're dead lost."

For a moment, they stood silently—uncertainly. The sky was purple and the hills retreated into the night. Allen licked blue-chilled lips with a dry tongue.

"We can't be but a few miles away. We're bound to stumble on the city if we look."

"Consider the situation, Airthmen," came the savage, shouted answer, "'Tis night, Martian night. The temperature's down past zero and plummeting every minute. We haven't any time t' look;—we've got t' go straight there. If we're not there in half an hour, we're not going t' get there at all."

Allen knew that well, and mention of the cold increased his consciousness of it.
He spoke through chattering teeth as he drew his heavy, fur-lined coat closer about him.

"We might build a fire!" The suggestion was a half-hearted one, muttered indistinctly, and fallen upon immediately by the other.

"With what?" George was beside himself with sheer disappointment and frustration. "We've pulled through this far, and now we'll probably freeze to death within a mile of the city. C'mon, keep running. It's a hundred-t'-one chance."

But Allen pulled him back. There was a feverish glint in the Earthman's eye, "Bonfires!" he said irrelevantly. "It's a possibility. Want to take a chance that might do the trick?"

"Nothin else t' do," growled the other. "But hurry. Every minute I—"

"Then run with the wind—and keep going."

"Why?"

"Never mind why. Do what I say—run with the wind!"

There was no false optimism in Allen as he bounded through the dark, stumbling over loose stones, sliding down declivities, always with the wind at his back. George ran at his side, a vague, formless blotch in the night.

The cold was growing more bitter, but it was not quite as bitter as the freezing pang of apprehension gnawing at the Earthman's vitals.

Death is unpleasant!

And then they topped the rise, and from George's throat came a loud, "'B' Jupe 'n' done!" of triumph.

The ground before them, as far as the eye could see, was dotted by bonfires. Shattered Aresopolis lay ahead, its homeless inhabitants making the night bearable by the simple agency of burning wood.

And on the hilly slopes, two weary figures slapped each other on the backs, laughed wildly, and pressed half-frozen, stubbly cheeks together for sheer, unadulterated joy.

They were there at last!

THE Aresopolis lab, on the very outskirts of the city, was one of the few structures still standing. Within, by make-shift light, haggard chemists were distilling the last drops of extract. Without, the city's police force remnants were clearing desperate way for the precious flasks and vials as they were distributed to the various emergency medical centers set up in various regions of the bonfire-pocketed ruins that were once the Martian metropolis.

Old Hal Vincent supervised the process and his faded eyes ever and again peered anxiously into the hills beyond, watching hopefully but doubtfully for the promised cargo of blooms.

And then two figures reeled out of the darkness and collapsed to a halt before him.

Chill anxiety clamped down upon him, "The blooms! Where are they? Have you got them?"

"At Twin Peaks," gasped Allen. "A ton of them and better in a sand truck. Send for them."

A group of police ground-cars set off before he had finished, and Vincent exclaimed bewilderedly, "A sand-truck? Why didn't you send it in a ship? What's wrong with you out there, anyway? Earthquake—"

He received no direct answer. George had stumbled towards the nearest bonfire with a beatific expression on his worn face.

"Ahh, 'tis warm!" Slowly, he folded and dropped, asleep before he hit the ground.

Allen coughed gaspingly, "Huh! The Gannie tenderfoot! Couldn't—ulp—take it!"

And the ground came up and hit him in the face.
ALLEN woke with the evening sun in his eyes and the odor of frying bacon in his nostrils. George shoved the frying pan towards him and said between gigantic, wolfing mouthfuls, “Help yourself.”

He pointed to the empty sand-truck outside the labs, “They got the stuff alright.”

Allen fell to quietly. George wiped his lips with the back of his hand and said, “Say, All’n, How’d y’ find the city. I’ve been sitting here, trying t’ figure it all out.”

“It was the bonfires,” came the muffled answer. “It was the only way they could get heat and fires over square miles of land create a whole section of heated air which rises, causing the cold surrounding air of the hills to sweep in.” He suited his words with appropriate gestures. “The wind in the hills was heading for the city to replace warm air and we followed the wind: —Sort of a natural compass, pointing to where we wanted to go.”

George was silent, kicking with embarrassed vigor at the ashes of the bon-fire of the night before.

“Lis’n, All’n, I’ve had y’ a’wrong. Y’ were an Airthman tanderfoot t’ me till—” He paused, drew a deep breath and exploded with, “Well, by Jupe’n’ donn, y’r my twin brother and I’m proud o’ it. All Airth c’dn’t drown out the Carter blood in y’.”

The Earthman opened his mouth to reply but his brother clamped one palm over it, “Y’ keep quiet, till I’m finished. After we get back, y’ can fix up that mechanical picker or anything else y’ want. I drop my veto. If Airth and machines c’n tairn out y’r kind o’ man, they’re alright. But just the same,” there was a trace of wistfulness in his voice, “y’ got t’ admit that everytime the machines broke down—from irrigation-trucks and rocket-ships to ventilators and sand-trucks—’twas men who had t’ pull through in spite o’ all that Mars could do.”

Allen wrenched his face from out behind the restraining palm.

“The machines do their best,” he said, but not too vehemently.

“Sure, but that’s all they can do. When the emairgency comes, a man’s got t’ do a damn lot better than his best or he’s a goner.”

The other paused, nodded, and gripped the other’s hand with sudden fierceness, “Oh, we’re not so different. Earth and Ganymede are plastered thinly over the outside of us, but inside—”

He caught himself.

“Come on, let’s give out with that old Gannie quaver.”

And from the two fraternal throats tore forth a shrieking eldritch yell such as the thin, cold Martian air had seldom before carried.

THE END

A BIG O.K. FROM U.S.A.

[Image with Pepsi-Cola advertisement]
IN THE early spring of the year 6938, as soon as the winter's snows had melted, a sturdy band of fighting men set forth from the tribal settlement around what once had been known as San Francisco Bay, and cut through the passes of the Sierras, eastward bound.

Broadshouldered and mighty-thewed they were, with sandy hair and fair skins. Their foreheads were high and intelligent. But they were clothed in hides and furs, and armed with bows and arrows and crude stone axes.

A light of consecration shone in their clear blue eyes as they trudged resolutely eastward, for theirs was as holy a crusade as ever undertaken.

To understand what lode-stone beckoned this little band, we must go back to 1938, and then trace the history of the intervening years.

Shortly before noon, Eastern Standard Time, on September 23, 1938, in the midst of the barren expanse of reclaimed Long Island swamp-land which was to be the New York World’s Fair, a group of archeologists, historians, scientists, editors and librarians were gathered around a fifty-foot-deep narrow hole in the ground.

Above the mouth of this hole there hung from a derrick a torpedo-shaped object of cupaloy, seven feet and a half in length, and eight inches in diameter. Within this torpedo was a six-foot pyrex glass tube, into which had been tightly packed a carefully selected collection of objects, well-calculated to give to archeologists of the future as complete a picture of the civilization of 1938 as possible: selected products of factories and laboratories, such as textiles, an electric light bulb, etc.; encyclopedias and magazines, reproduced in micro-film to save space; and a few news-reels to show that generation in action.

The air had been exhausted from this inner envelope of glass, which had then been filled with an inert gas, and hermetically sealed. The tube had been wrapped in tape, completely covered with waterproof compound, and placed in the cupaloy sheath, the segments of which had then been screwed together and sealed with asphalt.

At exactly noon on the day in question, a big bell boomed forth, and the derrick began to lower its torpedo-shaped burden into the hole.

The Chairman of the meeting addressed his colleagues: “We have gathered here to deposit a record of our time for the information of posterity five thousand years hence. Five thousand years ago people quite similar to us lived and died, loved and hated, planned great works. They built temples of stone, made mausoleums, tombs and pyramids. These monuments were intended to last forever; but only a few of them have survived. Only tiny fragments of the civilizations of which they were a part are now known.

“Our own civilization may go the same way unless projects such as are represented by the Time Capsule are successful. Five thousand years may well destroy everything we have done; and we, the people of this day, will be nothing but dim shadows.

“But when the contents of the Capsule are made known to our far-off posterity, they will know how we lived and worked and dressed, what we read, what we worked with, what we valued, and some of the things we did for amusement.

“May this Capsule sleep well. When it is awakened five thousand years from now, may its contents constitute a suitable gift to our descendants.”

The Time Capsule clanked against the bottom of the shaft fifty feet down in the ground, the booming of the big bell ceased, the lowering-rope was unhooked and
drawn up, and the distinguished guests shook hands and departed.

The projectile had embarked upon its five-thousand-year journey through time.

A BOVE the mouth of the shaft, there was erected the Westinghouse Building of the World’s Fair. A periscope enabled visitors, in the summer of 1939, to peer down into the shaft and see the top of the Time Capsule resting forty-two and a half feet below. The building itself, in addition to its electrical exhibit, housed an exact replica of the Capsule and its contents, and a complete natural-size collection of objects from which the microfilms had been made.

“The Book of Record of the Time Capsule” was on sale at the Fair and copies of it were distributed all over the world—placed in libraries, museums and archives—so that information would be available to guide future historians to the Capsule itself when the year 6938 should finally roll around.

Winter of 1940-41. The World’s Fair was at an end. Everywhere throughout the fairgrounds, wrecking-crews were demolishing the buildings which had housed the greatest show of all time.

As the Westinghouse Building came down, workmen removed the retaining pipe which had led to the Time Capsule, and poured melted pitch into the hole, and concrete on top of that. Over the mouth of the hole was set a simple marker of stone, with a bronze plate which read:

"THE TIME CAPSULE,
1938’s Message to 6938
Do not open for 5000 years."

Some few of the World’s Fair buildings were not torn down. Around them as a nucleus, there grew up a thriving village, with a plaza surrounding the stone marker. This plaza was officially christened “Time Square,” not to be confused however with the plural of the same name over in Manhattan.

In the depression of 1955, Congress allotted funds for the building of a national archeological museum fronting on Time Square, and here were kept the replica of the Capsule and the supporting exhibits which had been shown in the Westinghouse Building at the Great Fair.

Then came the attack on America, which had been feared (but not adequately prepared for) ever since the close of the second World War! Wave upon wave of bombing planes swept in out of the Atlantic, laying waste the entire seaboard. Lighter-than-air dirigibles, filled with the helium of Brazil, appeared from the southward to mop-up in the interior.

America finally rallied and drove out the invaders, but not until every large city had become an irreparable fire-swept mass of shattered concrete and twisted steel, inhabited only by roving packs of giant cats and wolfflike dogs, and of equally wild human beasts—scavengers all.

A pestilence decimated such of the rural population as survived.

Only the smaller communities remained, and these soon became autonomous armed camps. Contact with Europe—even with other parts of America—ceased for a generation. But adventurous traders from New England ports, the descendants of ancient Martha’s Vineyard whalers and Salem merchantmen, finally crossed the Atlantic and, returning, reported that Europe had sunk to new levels of bestiality, as the result of the revolution which had followed the return from America of their defeated expeditionary forces.

For a surprisingly long time the canned goods which could be dug from the ruins of the great cities supported the packs of wild men who lived there. These packs made sorties and raids on the nearby towns—mostly for women. And, as their supplies dwindled, the succeeding generations of these denizens of the dead cities
became more fierce, more arrogant, and more crafty, the result of survival of the fittest. Their raids became more far-flung and more devoted to the obtaining of food and other necessaries.

Wild game rapidly returned to the areas between towns, and multiplied abundantly—to be raided by the wolf packs and wild cat packs from the dead cities. Forests grew again. The isolation of the towns put an end to any epidemic spread of disease.

Life in the towns had reverted to a close resemblance to Colonial days, but with two marked exceptions: namely, first that the efficient firearms of 1955 had still been preserved, along with enough re-collection of powder-making and metallurgy to maintain a moderate supply of ammunition; and secondly that for many generations the ruins could be looted for building-materials and other basic supplies. This latter fact was what put an effective end to any continuance of mechanized industry.

Thus even in the towns all factories were abandoned. The machinery rusted, and its functions became forgotten. The factory-buildings became mere objects of wonder, monuments to by-gone days. Venturesome children explored them, as they crumbled.

Books are very convenient things for kindling fires, and for stuffing cracks to keep the wind away. So, with the exception of Bibles and a few well-thumbed classics, books ceased to exist. The Carnegie Libraries were turned to other uses.

NOT for five hundred years did America begin to rise from the abyss of ignorance into which it had thus been plunged. And this renaissance was due to the final depletion of available basic materials in the ruined industrial plants of the towns. To obtain supplies, the towns began raiding each other and the nearby cities. Groups of towns formed loosely knit federations for mutual protection and aggression.

The superior weapons of the town-dwellers were killing-off the beast-men of the cities. The real-men population of the towns began to increase.

And yet it was the beast-men who were responsible for the first re-discovery of the Time Capsule.

In the year 2900, a group of young real-men intellectuals in a small community called Concord, in what had formerly been Massachusetts, and where the remains of a public library had somehow been preserved, decided that it would be less work and considerably more fun to scratch for a living with their brains rather than with their hands. They were among the few people in America, other than the clergy, who happened still to be able to read. So, in the remaining fragments of the local library, they read-up about one or two glorious wars and armies of the past, and about steel-casting and machine-tools and the manufacture of rifles. And at one of their conferences there was born the filibustering idea of reviving organized war and the munitions business.

So they emigrated to Connecticut with their families, carrying with them a small collection of books; and were never heard from again by their own generation.

BUT about the year 2938 rumors began to reach the Towns that a small oligarchy of real-men had established themselves as rulers over western Connecticut, where they had equipped the beast-men with uniforms and new rifles, and were teaching them to work and to fight.

Gradually the power of this group spread, until all of New England and finally New York City came under their sway.

The conquest of New York City brought to culmination a project which the fathers and mothers of this group had carried with them from Massachusetts.
namely to find a certain alleged repository of ancient wisdom, supposed to be located in a certain place called "Time Square."

They found Times Square, but no repository of ancient wisdom. The whole vast city was combed without result.

And then word was brought to the leaders, about a mysterious place of worship of the beast-men, over on the flats of what once had been Flushing, Long Island. One basis of the success of the oligarchy had been that they had let strictly alone the religion of their minions. And so they had always meticulously avoided Flushing, the mecca of the city beast-men. But at last one of the ruling group sufficiently won the confidence of his subordinates to get taken, disguised, to the holy of holies.

There he found Time Square, with the stone marker still in place, and the bronze plate, reading:

"THE TIME CAPSULE, 1938's Message to 6938. Do not open for 5000 years."

So the myth of the repository of wisdom was true! But the beast-men knew just enough of chronology to realize that the five-thousand-year period was nowhere near up; and so they refused to permit their rulers to profane their buried god.

However, because of some dimly-sensed connection with their god, they had preserved the adjoining Time Museum throughout all these thousand years. And here, in the replica of the Capsule and its contents, and in the collection of original materials, the rulers of the North East Empire found what they had been seeking.

The Time Capsule, although still safely buried fifty feet below ground, was furnishing the inspiration for a renaissance. Factories arose again in what had been New England. Colleges reopened.

Social and economic distinctions were rigidly defined: the ruling oligarchy; the workers (i.e., the entire rest of the true humans); and the fighters (i.e., the beast-men.)

THE rapid industrial progress made by the Empire of the North East had the effect of more closely knitting together for self-defense the Federation of Towns to the west of the Alleghanies. For several hundred years these two inconsistent civilizations lived side by side; the industrialized totalitarian North East, and the democratic loosely-organized South West. Gradually the rudiments of industrial processes spread west and south, where the surviving beast-men of the dead cities combined and intermarried with the lower strata of society, to become the servile race.

By the year 3500, friction between the two nations had reached the breaking point. There were two items of controversy. First, the beast-men mercenaries of the North East demanded the liberation of their slave brethren of the West and South. Secondly, the democracy of the West and South demanded that the East disclose to them the secrets of civilization reputed to be buried beneath a shrine on Long Island.

There followed a long and decimating war. At first the well-trained and perfectly equipped beast-men of the North East swept everything before them. The organizing genius of the oligarchy followed them with roads and industries. But eventually the squirrel-rifles and indomitable courage of the free white race of the South and West triumphed. A ragged but victorious army of pioneers entered New York City.

However when the conquerers reached the holy of holies at Flushing, they hesitated to dig-up the buried god of the beast-men. The superstitions of their slaves were strong even with the masters.
And, besides, the replica in the Time Museum seemed to serve every purpose.

With the unification of America in 3600, there dawned a new industrial age. Cities and factories and transporation systems were rebuilt. The peak of 1955 was reached and passed.

Ocean explorations set forth. Europe was found to have reverted to a complete state of savagery where only the race of beast-men survived. Asia was inhabited by a slightly different race of degenerates. South America and Africa had once more become uninhabited jungle and veldt.

The new civilization, which began in the thirty-seventh century, was based upon human slavery, but it was the enslavement of a distinctly inferior race, or rather species—the beast-men. To supply adequate slaves for the ruling humans, not only were the beast-men of America intensively bred, but colonies primarily for slave-raiding were established along the shores of Europe and Asia.

The whole world lived at peace, under one government, for several thousand years. New levels of culture and knowledge were reached. Space-travel, atom-smashing, and all the other wonders of science-fiction of the past, became everyday affairs of the present, and the controversy as to whether our ancestors possessed the knowledge of such things faded into the mists of antiquity.

Mankind not only conquered the forces of nature—he also conquered those less calculable and more treacherous forces of political economy, without the mastery of which all other advances of knowledge become dangerous toys of fire.

CAME the year 5938, at the height of this magnificent era. A second Time Capsule was prepared, bringing the first one up to date: selected products of factories and laboratories; encyclopedias and technical magazines reproduced in microfilm; selected news reels of that generation in action.

On September 23, just four thousand years after the burial of the first Time Capsule, this second Time Capsule was lowered into a crypt beside the other, amid appropriate ceremonies attended by all the leaders of the day.

And, inasmuch as the original Time Capsule constituted the focal point of the religion of the beast-men slaves, their priesthood was graciously permitted to be officially represented.

The hole containing the Second Time Capsule was sealed like the first with pitch and concrete, and was capped by a stone just like the other and bearing a plate which read in the language of that day:

"KRONA CAPSULO,
Mittago De 5938 Ad 6938
No Obri Ant 1000 Anni."

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Replicas of the second Capsule and its contents were placed in the Time Museum on Time Square.

The plans for doing all this had not, however, been fully disclosed in advance to the priesthood of the beast-men slaves. To them it was sacrilege for a man-made thing to be buried beside their god, and to be capped with a profane travesty on the holy inscription of 1938.

So the New York City slaves rose in rebellion, and slew their human masters to every last man, woman and child. Then the rebels moved to destroy the Flushing "antichrist." Every trace of the second stone marker they erased, but they did not dare try to dig up the second Time Capsule for fear of disturbing the rest of the holy first.

Rapidly the rebellion radiated out from New York City, gathering size and momentum like a rolling snowball. Such few members of the human race as managed to escape and flee and survive their flight, trickled through the passes of the Sierras onto the California plains. And there at last they made a stand and held back the savage hordes.

All the rest of America was ruled by a Black Napoleon, who headed a hierarchy of worshipers of the buried god.

ALTHOUGH the empire of the beast-men did not last more than a single generation, it destroyed the splendid civilization which had preceded it. America became a savage jungle like Europe and Asia. Once more, for a thousand years, the great cities fell into twisted ruins of rusting steel and powdering concrete, ranged by packs of giant cats and wolflike dogs and bestial men.

Even west of the Sierras, along the Pacific Coast, the last remaining vestige of the true humans reverted to skin-clad high-grade intelligent savages.

But these savages, illiterate though they were, did not forget the glories of their cultivated ancestors, glories which they were quite unable to understand but revered nevertheless.

One memory they kept steadfast, namely that by the side of another ocean, thousands of miles to the eastward, there was buried a magic receptacle (some accounts said two magic receptacles), containing the secret ingredients of the lost civilization of the past.

This receptacle was reputed to be guarded by evil spirits and forces of nature, to prevent the restoration of the golden age before the date of September 23, 6938. But when that glorious day should finally arrive, civilization would crawl from its crypt like a chrysalis, and spread its wings over the world once more.

So the pitiful little remnant of the human race lived in hopes of "The Day." The legend of the Time Capsule they transmitted to their children and their children's children, and kept an accurate chronology of the passage of the years.

But they had seen chrysalids emerge from the soil, and they had noted how helpless these poor creatures are until their butterfly-wings have had time to stretch and harden in the sun. And so there came to pass a growing determination to be present at the rebirth of civilization on September 23, 6938, so as to protect its tender life during the first hours after its emergence.

THUS it was that, in the early spring of the year 6938, as soon as the winter's snows had melted, a sturdy band of fighting men set forth from the tribal settlement around what once had been known as San Francisco Bay, and cut through the passes of the high Sierras, eastward bound.

Broadshouldered and mighty-thewed they were, with sandy-hair and fair skins. Their foreheads were high and intelligent. But they were clothed in hides and furs,
and armed with bows and arrows and crude stone axes.

A light of consecration shone in their clear blue eyes as they trudged resolutely eastward, for theirs was as holy a crusade as ever undertaken. Theirs was the mission to restore civilization to a world steeped for centuries in ignorance and barbarism.

The roving tribes of wild beast-men whom they encountered, gave them but little resistance. A bountiful supply of game animals fulfilled their need for food. Following the trails laid down by ancient maps, the band traversed the river valleys of what once was Nevada. They skirted the great salt desert, filed through the passes of the Rocky Mountains, and crossed the long reaches of the central prairies.

But when they came to where the maps showed a group of great lakes, they found instead another wide spread of salt desert there.

For some time this confused them. But finally, inasmuch as everything else except water was exactly in accordance with the maps, they decided to press on. Skirting the dead lake-bottoms, they reached the Hudson River, forded it, and turned southward along the east side of the wide river.

To their surprise, the ruins of New York City were practically deserted except for cat-beasts and wolves. Enough of the twisted remains of one of the East River bridges remained to enable them to pass over to the deserted wilds of what had been Long Island.

No black priesthood now guarded Time Square in Flushing, for even the religion of the beast-men appeared to have vanished. All the buildings around the square had crumbled, although the Time Museum (stripped of its contents) remained nearly intact. The racial memory of the humans had preserved an accurate picture of this place, and the expedition found and identified it without difficulty. The stone marker was still standing, although its bronze plate was gone. Not that any of these men could have read its inscription, if it had remained. For although reading was not a wholly lost art, the English language had long since passed into the limbo of dead and forgotten tongues.

The scribes of the party figured out that there was still about a month before "The Day"—September 23, 6938—so they camped out in the most habitable of the nearby ruins, and waited for the resurrection.

Game birds and small animals were abundant on Long Island, as this latitude had become subtropical through the march of years. Led by some instinctive association of the Time Museum with the Time Capsule, the men cleaned out the building and repaired it insofar as they were able.

The Day arrived, and the whole party gathered round to see the emergence of the chrysalis.

Quite a different scene this, from that envisioned by those who had sunk the first Time Capsule in 1938, or those who had sunk the second Time Capsule in 5639! Unheard by this little group of reverend neo-primitives, with their handmade leather garments, and their crude tools and weapons, there echoed through Time Square the words of the dedicatory exercises spoken with such assurance five thousand years before:

"We may well imagine when the Time Capsule is opened, that the all-seeing eye of television will make its contents visible to countless millions who will participate in the ceremony in their far off homes. . . .

"Probably the persons who open the Capsule will have a physical appearance very like our own, except that they should have learned the
principle of breeding a better race. . . . They should be, and probably will be, a race of supermen and superwomen, as judged by our standards.

“Public sports and pageants of tremendous scope and significance will very likely be popular. Every community will have its theater, and all will take part from time to time. Local orchestras and great choruses will be common.

It will be a healthy world governed by wholesome people. The abnormal will have no place in it.”

And so on. This prophecy of long ago was unknown to the actual gathering, which so thoroughly failed to fulfill it. And yet this group of white savages was, in reality, far more important, far more significant, than the one which their remote ancestors had envisioned. For here stood no mere archeologists, impelled by mere scientific curiosity to learn how the ancients lived and loved and worked and played and died. The entire fate of civilization—nay even of the human race itself—was at stake, to be gained or lost forever.

But the long-awaited chrysalis did not emerge.

Perhaps the date had been miscalculated, although the scribes of the tribe were reasonably sure of the year. So the members of the expedition waited for a week, respectfully and reverently, yet with growing perturbation. Then at last they decided to dig.

In spite of the crudeness of their tools, they hacked away the pavement and followed down along two crumbling shafts of ancient cement.

At the final finding of two long narrow spindles of encrusted copper, their joy knew no bounds. Here were the chrysalids! Now to release the Spirit of Civilization imprisoned within one or both of them!

But it took many days of hammering and chipping before, late one evening to the flickering light of camp-fires, they finally got the ends off of both the cylinders. The shrunken waterproofing was unwrapped from the glass inner shells. These shells were easily cracked open. The contents were pulled out, and passed from hand to hand, and examined by the fire-light.

There was not a single object that any of these sturdy men recognized, or had ever heard of!

Most of the contents appeared to consist of long strips of narrow silvery tape with darker markings.

A piece of this tape, held close to one of the camp-fires for inspection, caught fire, and fizzed and sputtered with a pungent smell. The men gathered around and sniffed.

Here at last was something! Big medicine!

Perhaps in this smoke and smell was embodied the Spirit of the Past. Perhaps by letting this tape ignite they had stumbled upon the correct method for invoking the Spirit.

So, after consultation, they heaped all the film upon one of their camp-fires, and danced about the resulting blaze to the accompaniment of appropriate incantations by their priests.

The message from 1938 to 6938 had been delivered.

Civilization had returned for a brief glimpse of the world of man, before deserting it forever.

THE END
BEYOND DOUBT

Of course the Easter island images are religious in origin,—that is, they are if politics is a religion. . . .

By Lyle Monroe and Elma Wentz

From the June number of The Science Review

SAVANT SOLVES SECRET OF EASTER ISLAND IMAGES
According to Professor J. Howard Erlenmeyer, Sc.D., Ph.D., F. R. S., director of the Archeological Society’s Easter Island Expedition. Professor Erlenmeyer was quoted as saying, ‘There can no longer be any possible doubt as to the significance of the giant monolithic images which are found in Easter Island. When one considers the primary
place held by religious matters in all primitive cultures, and compares the design of these images with artifacts used in the rites of present day Polynesian tribes, the conclusion is inescapable that these images have a deep esoteric religious significance. Beyond doubt, their large size, their grotesque exaggeration of human form, and the seemingly aimless, but actually systematic, distribution gives evidence of the use for which they were carved, to wit; the worship of . . . ."

WARM, and incredibly golden, the late afternoon sun flooded the white-and-green city of Nuria, gilding its maze of circular criss-crossed streets. The Towers of the Guardians, rising high above the lushly verdant hills, gleamed like translucent ivory. The hum from the domed buildings of the business district was muted while merchants rested in the cool shade of luxuriant, mostly green trees, drank refreshing okrada, and gazed out at the great hook-prowed green-and-crimson ships riding at anchor in the harbor—ships from Hindos, from Cathay, and from the far-flung colonies of Atlantis.

In all the broad continent of Mu there was no city more richly beautiful than Nuria, capital of the province of Lac. But despite the smiling radiance of sun, and sea, and sky, there was an undercurrent of atmospheric tenseness—as though the air itself were a tight coil about to be sprung, as though a small spark would set off a cosmic explosion.

Through the city moved the sibilant whispering of a name—the name was everywhere, uttered in loathing and fear, or in high hope, according to the affiliations of the utterer,—but in any mouth the name had the potency of thunder.

The name was Talus.

Talus, apostle of the common herd; Talus, on whose throbbing words hung the hopes of a million eager citizens; Talus, candidate for governor of the province of Lac.

In the heart of the tenement district, near the smelly waterfront, between a narrow side street and a garbage alley was the editorial office of Mu Regenerate, campaign organ of the Talus-for-Governor organization. The office was as quiet as the rest of Nuria, but with the quiet of a spent cyclone. The floor was littered with twisted scraps of parchment, overturned furniture, and empty beer flagons. Three young men were seated about a great, round, battered table in attitudes that spoke their gloom. One of them was staring cynically at an enormous poster which dominated one wall of the room. It was a portrait of a tall, majestic man with a long, curling white beard. He wore a green toga. One hand was raised in a gesture of benediction. Over the poster, under the crimson-and-purple of crossed Murian banners, was the legend:

TALUS FOR GOVERNOR!

The one who stared at the poster let go an unconscious sigh. One of his companions looked up from scratching at a sheet of parchment with a stubby stylus.

“What’s eating on you, Robar?”

THE one addressed waved a hand at the wall. “I was just looking at our white hope. Ain’t he beautiful? Tell me, Dolph, how can anyone look so noble, and be so dumb?”

“God knows. It beats me.”

“That’s not quite fair, fellows,” put in the third, “the old boy ain’t really dumb; he’s just unworldly. You’ve got to admit that the Plan is the most constructive piece of statesmanship this country has seen in a generation.”

Robar turned weary eyes on him. “Sure. Sure. And he’d make a good governor, too. I won’t dispute that; if I didn’t think the Plan would work, would I be here, living from hand to mouth and breaking my heart on this
bloody campaign? Oh, he's noble all right. Sometimes he's so noble it gags me. What I mean is: Did you ever work for a candidate that was so bull-headed stupid about how to get votes and win an election?"

"Well . . . no."

"What gets me, Clevum," Robar went on, "is that he could be elected so easily. He's got everything; a good sound platform that you can stir people up with, the correct background, a grand way of speaking, and the most beautiful appearance that a candidate ever had. Compared with Old Bat Ears, he's a natural. It ought to be just one-two-three. But Bat Ears will be re-elected, sure as shootin'."

"I'm afraid you're right," mourned Clevum. "We're going to take such a shellacking as nobody ever saw. I thought for a while that we would make the grade, but now—Did you see what the King's Men said about him this morning?"

"That dirty little sheet—What was it?"

"Besides some nasty cracks about Atlantis gold, they accused him of planning to destroy the Murian home and defile the sanctity of Murian womanhood. They called upon every red-blooded one hundred percent Murian to send this subversive monster back where he came from. Oh, it stank! But the yokels were eating it up."

"Sure they do. That's just what I mean. The governor's gang slings mud all the time, but if we sling any mud about governor Vortus, Talus throws a fit. His idea of a news story is a nitty little number about comparative statistics of farm taxes in the provinces of Mu . . . What are you drawing now, Dolph?"

"This." He held up a ghoulish caricature of Governor Vortus himself, with his long face, thin lips, and high brow, atop of which rested the tall crimson gover-
nor's cap. Enormous ears gave this sinister face the appearance of a vulture about to take flight. Beneath the cartoon was the simple caption:

BAT EARS FOR GOVERNOR

"There!" exclaimed Robar, "that's what this campaign needs. Humor! If we could plaster that cartoon on the front page of *Mu Regenerate* and stick one under the door of every voter in the province, it 'ud be a landslide. One look at that mug and they'd laugh themselves sick—and vote for our boy Talus!"

HE HELD the sketch at arms length and studied it, frowning: Presently he looked up. "Listen, dopes—Why not do it? Give me one last edition with some guts in it. Are you game?"

Clevum looked worried. "Well...I don't know...What are you going to use for money? Besides, even if Oric would crack loose from the dough, how would we get an edition of that size distributed that well? And even if we did get it done, it might boomerang on us—the opposition would have the time and money to answer it."

Robar looked disgusted. "That's what a guy gets for having ideas in this campaign—nothing but objections, objections!"

"Wait a minute, Robar," Dolph interposed. "Clevum's kicks have some sense to them, but maybe you got something. The idea is to make Joe Citizen laugh at Vortus, isn't it? Well, why not fix up some dodgers of my cartoon and hand 'em out at the polling places on election day?"

Robar drummed on the table as he considered this. "Umm, no, it wouldn't do. Vortus' goon squads would beat the hell out of our workers and high jack our literature."

"Well, then how about painting some big banners with old Bat Ears on them? We could stick them up near each polling place where the voters couldn't fail to see them."

"Same trouble. The goon squads would have them down before the polls open."

"Do you know what, fellows," put in Clevum, "what we need is something big enough to be seen and too solid for Governor's plug-uglies to wreck. Big stone statues about two stories high would be about right."

Robar looked more pained than ever. "Clevum, if you can't be helpful, why not keep quiet? Sure, statues would be fine—if we had forty years and ten million simoleans."

"Just think, Robar," Dolph jibed, with an irritating smile, "if your mother had entered you for the priesthood, you could integrate all the statues you want—no worry, no trouble, no expense."

"Yeah, wise guy, but in that case I wouldn't be in politics—Say!"

"'S trouble?"

"Integration! Suppose we could integrate enough statues of old Picklepuss—"

"How?"

"Do you know Kondor?"

"The moth-eaten old duck that hangs around the Whirling Whale?"

"That's him. I'll bet he could do it!"

"That old stumblebum? Why, he's no adept; he's just a cheap unlicensed sorcerer. Reading palms in saloons and a little jackleg horoscopy is about all he's good for. He can't even mix a potent love philtre. I know; I've tried him."

"Don't be too damn certain you know all about him. He got all tanked up one night and told me the story of his life. He used to be a priest back in Egypt."

"Then why isn't he now?"

"That's the point. He didn't get along with the high priest. One night he got drunk and integrated a statue of the high priest right where it would show up best and too big to be missed—only
he stuck the head of the high priest on the body of an animal."

"Whew!"

"Naturally when he sobered up the next morning and saw what he had done all he could do was to run for it. He shipped on a freighter in the Red Sea and that's how come he's here."

Clevum's face had been growing longer and longer all during the discussion. He finally managed to get in objection.

"I don't suppose you two red hots have stopped to think about the penalty for unlawful use of priestly secrets?"

"Oh, shut up, Clevum. If we win the election, Talus 'll square it. If we lose the election—Well, if we lose, Mu won't be big enough to hold us whether we pull this stunt or not."

ORIC was hard to convince. As a politician he was always affable; as campaign manager for Talus, and consequently employer of Robar, Dolph, and Clevum, the boys had sometimes found him elusive, even though chummy.

"Ummm, well, I don't know—" he had said, "I'm afraid Talus wouldn't like it."

"Would he need to know until it's all done?"

"Now, boys, really, ah, you wouldn't want me to keep him in ignorance . . ."

"But, Oric, you know perfectly well that we are going to lose unless we do something, and do it quick."

"Now, Robar, you are too pessimistic." Oric's pop eyes radiated synthetic confidence.

"How about that straw poll? We didn't look so good; we were losing two to one in the back country."

"Well . . . perhaps you are right, my boy." Oric laid a hand on the younger man's shoulder. "But suppose we do lose this election; Mu wasn't built in a day. And I want you to know that we appreciate the hard, unsparing work that you boys have done, regardless of the outcome. Talus won't forget it, and neither shall, uh, I . . . It's young men like you three who give me confidence in the future of Mu—"

"We don't want appreciation; we want to win this election."

"Oh, to be sure! To be sure! So do we all—none more than myself. Uh—how much did you say this scheme of yours would cost?"

"The integration won't cost much. We can offer Kondor a contingent fee and cut him in on a spot of patronage. Mostly we'll need to keep him supplied with wine. The big item will be getting the statues to the polling places. We had planned on straight commercial apportionment."

"Well, now, that will be expensive."

"Dolph called the temple and got a price—"

"Good heavens, you haven't told the priests what you plan to do?"

"No, sir. He just specified tonnage and distances."

"What was the bid?"

Robar told him. Oric looked as if his first born were being ravaged by wolves. "Out of the question, out of the question entirely," he protested.

But Robar pressed the matter. "Sure it's expensive—but it's not half as expensive as a campaign that is just good enough to lose. Besides—I know the priesthood isn't supposed to be political, but isn't it possible with your connections for you to find one who would do it on the side for a smaller price, or even on credit? It's a safe thing for him; if we go through with this we'll win—it's a cinch."

Oric looked really interested for the first time. "You might be right. Mmmm—yes." He fitted the tips of his fingers carefully together. "You boys go ahead with this. Get the statues made. Let me worry about the arrangements for ap-
portation.” He started to leave, a pre-occupied look on his face.

“Just a minute,” Robar called out, “we’ll need some money to oil up old Koñdor.”

Oric paused. “Oh, yes, yes. How stupid of me.” He pulled out three silver pieces and handed them to Robar. “Cash, and no records, eh?” He winked.

“While you’re about it, sir,” added Clevum, “how about my salary? My landlady’s getting awful temperamental.”

Oric seemed surprised. “Oh, haven’t I paid you yet?” He fumbled at his robes. “You’ve been very patient; most patriotic. You know how it is—so many details on my mind, and some of our sponsors haven’t been prompt about meeting their pledges.” He handed Clevum one piece of silver. “See me the first of the week, my boy. Don’t let me forget it.” He hurried out.

Kondor glanced cautiously around. “Careful, my son. Some one might be listening . . . Do you want original integration, or simply re-integration?”

“What’s the difference?”

Kondor rolled his eyes up, and inquired of the ceiling, “What do they teach in these modern schools? Full integration requires much power, for one must disturb the very heart of the aether itself; re-integration is simply a re-arrangement of the atoms in a predetermined pattern. If you want stone statues, any waste stone will do.”

“Re-integration, I guess. Now here’s the proposition—”

THAT will be enough for the first run. Have the porters desist.”

Kondor turned away and buried his nose in a crumbling roll of parchment, his rheumy eyes scanning faded hieroglyphs. They were assembled in an abandoned gravel pit on the rear of a plantation belonging to Dolph’s uncle. They had obtained the use of the pit without argument, for, as Robar had reasonably pointed out, if the old gentleman did not know that his land was being used for illicit purposes, he could not possibly have any objection.

Their numbers had been augmented by six red-skinned porters from the Land of the Inca—porters who were not only strong and untiring but possessed the desirable virtue of speaking no Murian. The porters had filled the curious ventless hopper with grey gravel and waited impassively for more toil to do. Kondor put the parchment away somewhere in the folds of his disreputable robe, and removed from the same mysterious recesses a tiny instrument of polished silver.

“Your pattern, son.”

Dolph produced a small waxen image, modelled from his cartoon of Bat Ears. Kondor placed it in front of him, and stared through the silver instrument at
it. He was apparently satisfied with what he saw, for he commenced humming to himself in a tuneless monotone, his bald head weaving back and forth in time.

Some fifty lengths away, on a stone pedestal, a wraith took shape. First was an image carved of smoke. The smoke solidified, became translucent. It thickened, curdled. Kondor ceased his humming and surveyed his work. Thrice as high as a man stood an image of Bat Ears—good honest stone throughout. "Cle-vum, my son," he said, as he examined the statue, "will you be so good as to hand me that jug?"

The gravel hopper was empty.

ORIC called on them two days before the election. Robar was disconcerted to find that he had brought with him a stranger who was led around through the dozens of rows of giant statues. Robar drew Oric to one side before he left, and asked in a whisper, "Who is this chap?"

Oric smiled reassuringly. "Oh, he's all right. Just one of the boys—a friend of mine."

"But can he be trusted? I don't remember seeing him around campaign headquarters."

"Oh, sure! By the way, you boys are to be congratulated on the job of work you've done here. Well, I must be running on—I'll drop in on you again."

"Just a minute, Oric. Are you all set on the apportionment?"

"Oh, yes. Yes indeed. They'll all be distributed around to the polling places in plenty of time—every statue."

"When are you going to do it?"

"Why don't you let me worry about those details, Robar?"

"Well... you are the boss, but I still think I ought to know when to be ready for the apportionment."

"Oh, well, if you feel that way, shall we say, ah, midnight before election day?"

"That's fine. We'll be ready."

ROBAR watched the approach of the midnight before election with a feeling of relief. Kondor's work was all complete, the ludicrous statues were lined up, row on row, two for every polling place in the province of Lac, and Kondor himself was busy getting reacquainted with the wine jug. He had almost sobered up during the sustained effort of creating the statues.

Robar gazed with satisfaction at the images. "I wish I could see the Governor's face when he first catches sight of one of these babies. Nobody could possibly mistake who they were. Dolph, you're a genius; I never saw anything sillier looking in my life."

"That's high praise, pal," Dolph answered. "Isn't it about time the priest was getting here? I'll feel easier when we see our little dollies flying through the air on their way to the polling places."

"Oh, I wouldn't worry. Oric told me positively that the priest would be here in plenty of time. Besides, apportionment is fast. Even the images intended for the back country and the far northern peninsula will get there in a few minutes—once he gets to work."

But as the night wore on it became increasingly evident that something was wrong. Robar returned from his thirteenth trip to the highway with a report of no one in sight on the road from the city.

"What'll we do?" Cle-vum asked.

"I don't know. Something's gone wrong; that's sure."

"Well, we've got to do something. Let's go back to the temple and try to locate him."

"We can't do that; we don't know what priest Oric hired. We'll have to find Oric."

They left Kondor to guard the statues and hurried back into town. They found
Oric just leaving campaign headquarters. With him was the visitor he had brought with him two days before. He seemed surprised to see them. “Hello, boys. Finished with the job so soon?”

“He never showed up,” Robar panted.

“Never showed up? Well, imagine that! Are you sure?”

“Of course we’re sure; we were there!”

“Look,” put in Dolph, “What is the name of the priest you hired to do this job? We want to go up to the temple and find him.”

“His name? Oh, no, don’t do that. You might cause all sorts of complications. I’ll go to the temple myself.”

“We’ll go with you.”

“That isn’t necessary,” he told them testily. “You go on back to the gravel pit, and be sure everything is ready.”

“Good grief, Oric, everything has been ready for hours. Why not take Clevum along with you to show the priest the way?”

“I’ll see to that. Now get along with you.”

Reluctantly they did as they were ordered. They made the trip back in moody silence. As they approached their destination Clevum spoke up, “You know, fellows—”

“Well? Spill it.”

“That fellow that was with Oric—wasn’t he the guy he had out here, showing him around?”

“Yes; why?”

“I’ve been trying to place him. I remember now—I saw him two weeks ago, coming out of Governor Vortus’ campaign office.”

After a moment of stunned silence Robar said bitterly, “Sold out. There’s no doubt about it; Oric has sold us out.”

“Well, what do we do about it?”

“What can we do?”

“Blamed if I know.

“Wait a minute, fellows,” came Clevum’s pleading voice, “Kondor used to be a priest. Maybe he can do apporation.”

“Say! There’s a chance! Let’s get going.”

But Kondor was dead to the world. They shook him. They poured water in his face. They walked him up and down. Finally they got him sober enough to answer questions.

Robar tackled him. “Listen, pop, this is important: Can you perform apporation?”

“Huh? Me? Why, of course. How else did we build the pyramids?”

“Never mind the pyramids. Can you move these statues here tonight?”

Kondor fixed his interrogator with a bloodshot eye. “My son, the great Arcane laws are the same for all time and space. What was done in Egypt in the Golden Age can be done in Mu tonight.”

Dolph put in a word. “Good grief, pop, why didn’t you tell us this before.”

The reply was dignified and logical. “No one asked me.”

KONDOR set about his task at once, but with such slowness that the boys felt they would scream just to watch him. First, he drew a large circle in the dust. “This is the house of darkness,” he announced solemnly, and added the crescent of Astarte. Then he drew another large circle tangent to the first. “And this is the house of light.” He added the sign of the sun god.

When he was done, he walked widdershins about the whole three times the wrong way. His feet nearly betrayed him twice, but he recovered, and continued his progress. At the end of the third lap he hopped to the center of the house of darkness and stood facing the house of light.

The first statue on the left in the front row quivered on its base, then rose into
the air and shot over the horizon to the east.

The three young men burst out with a single cheer, and tears streamed down Robar's face.

Another statue rose up. It was just poised for flight when old Kondor hic-coughed. It fell, a dead weight, back to its base, and broke into two pieces. Kondor turned his head.

"I am truly sorry," he announced; "I shall be more careful with the others."

And try he did—but the liquor was regaining its hold. He wove to and fro on his feet, his aim with the images growing more and more erratic. Stone figures flew in every direction, but none travelled any great distance. One group of six flew off together and landed with a high splash in the harbor. At last, with more than three fourths of the images still untouched he sank gently to his knees, keeled over, and remained motionless.

Dolph ran up to him, and shook him. There was no response. He peeled back one of Kondor's eyelids and examined the pupil. "It's no good," he admitted. "He won't come to for hours."

Robar gazed heartbrokenly at the shambles around him. There they are, he thought, worthless! Nobody will ever see them—just so much left over campaign material, wasted! My biggest idea!

Clevum broke the uncomfortable silence. "Sometimes," he said, "I think what this country needs is a good earthquake."

"...the worship of their major deity. Beyond doubt, while errors are sometimes made in archeology, this is one case in which no chance of error exists. The statues are clearly religious in significance. With that sure footing on which to rest the careful scientist may deduce with assurance the purpose of..."

THE END

OLD MR. BOSTON SAYS: "MY APRICOT NECTAR IS A TREAT YOU'LL CHEER!"

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OLD MR. BOSTON APRICOT NECTAR
ALSO BLACKBERRY, PEACH, WILD CHERRY—70 PROOF
What Do You Mean By “Up”?  
That was the question that made geographers discover the Earth was NOT round....

By Malcolm Jameson

WHAT do you mean, “up”? Why, the opposite of down, of course—the vertical—in the direction of the zenith.

Ah, toward the zenith! But where is the zenith? Precisely, that is. There the fun begins.

Ask anybody. When he is through telling you, ask him why. And after he has explained that (if he can), say, “Oh, you mean that kind of zenith!” If he is a serious, scientific minded fellow, that may disconcert him a bit. But it shouldn’t, for there is no commonly accepted definition of what is “up.” It all depends on what you want to use it for. There are several different kinds.

Here is one dictionary’s definition: “UP—toward the zenith.” So we look up zenith. This is what it says about zenith: “As used in ordinary language and astronomy—The highest point in the heavens to a spectator at any given place; the point from which if the Earth were absolutely spherical a perpendicular let fall would pass through its center.”

Get that if clause! There are two things in that definition that ball us up. First, the Earth is not absolutely spherical. The other is that there is no one at the zenith to drop perpendiculars on us, even if they had told us perpendicular to what. If there are any perpendiculars to be drawn, they will have to be erected from where we stand and not dropped from anywhere.

And, as we shall see, there are other difficulties to be dealt with in doing that.

In all charity, let’s concede at the outset that the average man is on the right track even if his ideas on the subject are a little fuzzy. However he may express himself, somewhere in the back of his mind is the idea that the nadir-zenith line is the infinite extension both ways of the line connecting the center of the Earth (and presumably the Earth’s center of gravity as well) and himself. He won’t get far with it, practically, unless he happens to live at one of the poles or along the equator, but basically there is nothing wrong with it. What is wrong with all his efforts to apply his theory is that the Earth is not a regular sphere—or a regular anything. It is a spheroid, and a spheroid of peculiar and individual characteristics at that. It is a headache; ask the next geodetic engineer you meet.

But to get back to our quest for the zenith.

FOR our first group of questers let’s take the plumb-bobbers. That will also include the spirit-level addicts and the artificial horizon fans, for both bubbles and panfuls of mercury are responsive to the same force that makes a plumb-bob work—gravity. They will tell you that to find the zenith all you have to do is swing a plumb-bob and sight skyward along the string. That is “up.”

As a matter of fact, for ordinary purposes that is a fairly reliable method. You can build a reasonably vertical wall, using it. But it is subject to gross errors, such as the deflection caused by nearby massive mountains or ocean deeps. But even if there were no mountains or oceans, and instead a flat sandy waste all about you, the plumb-bob still won’t point to the center of the Earth except in special cases.
For gravity has the peculiarity of weakening directly as the square of the distance to the attracting body. Over most of the Earth the particular bulge you happen to be standing on works on you more vigorously than the mass as a whole.

To get away from local errors, such as are caused by unseeable and unweighable vast masses of subterranean rock of varying densities, the best place to go is to the middle of a big ocean. There you have the horizon in plain sight all around. All you have to do is erect your perpendicular from where you are and you have scored a bull’s eye. On the upper end of it is your zenith. Now run down the same perpendicular toward your nadir. Do you go through the center of the Earth, or even very close to it? You do not. That nadirward line is the radius of curvature of the ocean surface your ship happens to be riding on. Go a few degrees north or south and that degree of curvature will be something else, with a corresponding shift in the location of the center of it. It is true those centers lie somewhere in the vicinity of the center of the Earth, but the disparity is considerable at the maximum. It is measureable not in centimeters, but miles.
THE varying curvature of the Earth's surface is a resultant of three factors which have been operating continuously and variously throughout the ages. Those are gravity, centrifugal force and the viscosity of Earth matter. To forestall the possible charge that I am splitting hairs and making much of infinitesimal variations, let me remind the reader that it is just these discrepancies that I am writing about that led to the discovery that the Earth was not a perfect sphere.

Have a look at the figure.

Supposing that three ships at the moment the sun was at the equinox should observe its meridian passage (they being on the same meridian.) After correcting for horizontal parallax, refraction, and such things, they find their latitudes to be zero, thirty degrees, and sixty degrees respectively. Those figures are the measure of the sun's depression from the zenith, which is arrived at by subtracting the observed altitude above the horizon from ninety degrees. If they could have measured accurately the distance between them, and the distance from the northernmost one to the pole, those distances must have all been equal if measured along a sphere. On land, where accurate observation of the sun's latitude is possible and where measurement between points of observation is also possible, it is found that they are far from being the same. No two degrees of latitude are quite the same length, nor are they the right distance north of the equator.

Geodecists have been worrying over these discrepancies for centuries. In 1801 the French thought they had learned it all and established the meter, but the Clarke spheroid of 1866—the last word unless they have revised it lately—showed their error. The meter is not exactly one ten millionth of the distance from pole to equator. There is still some error, but the only way to eliminate it completely is to measure a meridian carefully from pole to pole and nail down each slippery zenith. So far only a few large arcs have been measured—a long one across some of our western states, another in tropical India. Little work has been done in the southern hemisphere.

But again, where is up?

It all depends.

THE END

RAY STANTON walked out of the deserted museum and entered the still-functioning Martian automatic subway. The station was empty: Stanton was used to that. He stood waiting for a second until, with a whoosh of pneumatic pressure, the door connecting the station with the train which had halted just outside slid open. He entered and adjusted himself to the uncomfortable, Martian-sized seats.

Stanton opened his notebook on his lap, but he could pay no attention to it. The train moved off with a gentle, rapid acceleration, and almost immediately slowed again for the next station. The doors slid open; and the doors slid closed again. No one, of course, entered.

Ray Stanton, seeing all the evidences of a mechanically and intellectually superhuman civilization about him, felt almost ashamed of being an Earthman. His reason told him that it was the Martians themselves who had started the war which ended in their total annihilation, but his emotions would not let him forget that it was his own race who had destroyed the builders of all this.

He almost leaped from his seat in amaze. What was that? Something moving shared the car with him. A Martian? It looked like one, but he sat back when the gleam of metal caught his eye. It was merely a robot, doing the job assigned to it by its makers.

The train decelerated again, and Stanton looked to see the robot clump awkwardly out of the car. The robot rose and went to the door, but Stanton looked on with incredulosity in his eyes at the robot's strange actions. Instead of exiting, the robot grasped the edge of the door in his steel tentacles, clutched it with all his metal muscles straining, and fought it to prevent its opening! . . .

The story of the strange catacombs beneath the dead and deserted Mars is told in S. D. Got tesman's lead novelette, "Mars-Tube," complete in the next Astonishing Stories. The June issue will appear April 25th.
OUR DIRECTOR

When the toxicity of a hydroponics solution increases by leaps and bounds, you can expect a man to blame it on the poisonous personality of his upstart Director.

By John E. Harry

CHAPTER ONE
Introducing Mr. Perry

Jim Perry, Director of the Section of Solutions, picked up a flattened cigarette pack from his desk and fished about in it aimlessly to verify his remembrance that it was empty. He shook his head mournfully. These things always seemed to be happening to him. Probing a finger into the package again, on a desperate last-hope chance that his senses might have lied—they hadn’t!—he swivelled his chair about to face the
desk of his assistant, across the room from him. "Charlie, my boy," he began wheedlingly, "how'd you like to run up to the canteen and get me a pack of ciggies?"

Charlie Hammond looked up and scowled blackly. "No!"

"Tut-tut, Charles!" reproved Perry mildly. "Is that the way to address your superior?"

"I'm sorry," returned Charlie apologetically. "I meant, 'No, sir!'"

"Charles, Charles," chided Jim Perry, shaking his head sadly. "You have become very insubordinate of late. I fear that I must take stern measures."

Charlie showed his teeth. "This is a sneer," he mentioned by way of explanation.

"You sneer, do you?"

"I do!"

"Ah, but you won't sneer for long. I shall recommend your transfer to the manual labor section of the nitrate mines."

"You wouldn't!"

"Heh, heh!"

"All right, you leech, I give in. You can have one of mine." He tossed a pack across the room to Perry, who caught it skilfully, as if he'd had a bit of practice at that sort of thing.

"Thank you, Charles," he said, lighting up. He laid the pack on his desk. "I'll just keep this here in case I want another this morning." He hummed a little tune as he went back to figuring the osmotic pressure of a four-salt solution that had been giving his section a bit of trouble.

"You know, Charlie," he interrupted himself to add, "the last assistant I had was much superior to you. In every respect. Properly deferential; always said 'sir' when addressing me; fairly jumped to do my bidding. A desirable type."

"Why'n't I didn't you keep him, then?"

"Oh, he was just unconscious. Couldn't as much as figure the pH of a neutral solution. Congressional appointee. Every now and then Congress thinks that they can do a better job of picking a man for this outfit than the Coördinato himself can; and then they send out some dope to plague the lives of the honest employees. This fellow was true to type. Didn't know beans. But he had what you lack. He was a perfect gentleman. Politeness—his watchword. Superior to you in every respect."

Charlie merely grunted. "Bet he was a teacher's pet at school, too."

PERRY ignored the retort; he was busily weighting down all the loose papers on his desk. Charlie watched him with interest.

"What's that for?" he asked.

"So the wind won't blow them away."

"There's no wind here, you fool. Sure—you've actually done field work in a temporary shack that had windows; but why not stop showing it off? Hell, even I had to do that to get a degree. But you don't catch me acting as if I were still out in the sticks."

"Silence, pup!" roared Perry in a voice that rattled the inkstands. "Besides, maybe one of these goddam air conditioning units'll go mad some day, and blow papers all over the place. Prepared for any eventually; that's me. Always looking ahead."

"Why don't you catch the papers as they go by? Or are you intending to get your morning's snooze?"

"I," retorted Perry with dignity, "intend to repair to the canteen and blow the foam off a flagon or two." He paused dramatically for a moment. "You may accompany me, if you wish," he added graciously.

"On Government time?" inquired Charlie, horrified.

"Coming?" growled Perry.

"You bet I am!" grinned Charlie.

As they passed through the outer of-
Office to get to the corridor, Jim Perry stopped and tickled his secretary under the chin. "If anyone should be interested, Gertrude," he remarked cozily, "you may whisper in their ear that you have heard it rumored Mr. Hammond and Mr. Perry are personally running a toxicity test on a suspicious solution. You might add, too, if you were in the mood, that aforementioned gentlemen are not expected back until after lunch."

Gertrude looked pained. "And in case of emergency I'll ring the canteen." Then, as the outer door closed behind the retreating backs of Mr. Perry and Mr. Hammond, she tch-tched despondently to herself. "So that's how to be successful! And here I am, with all my energy going to waste, working for a measly two credits a day!" She shook her head feebly, overwhelmed by the injustice of it all, as she slowly opened a desk drawer, drew out the latest copy of a popular magazine, and engrossed herself in one of the stories.

CHAPTER TWO
Hydroponics Station No. 23

Jim Perry had been Director of the Section of Solutions, Federated Union of North America Hydroponics Station No. 23, for the past five years; and, in the nature of things, confidently expected to be elevated to the rank of General Director of the station when Lucius Hymen, who was then the big bug, passed on to greener pastures either in this or another world. It was a natural expectation. The Section of Solutions plays by far the greatest part in a hydroponics station; the Director of this section is therefore chosen on his ability to shoulder responsibility and keep things moving smoothly; qualities equally valuable to the General Director of the station. Neither the Section of Illumination, which handles the giant ultra-violet radiators that make the plants grow; the Section of Plant Care, which seeds and harvests the plants and cares for them during their growth period; nor the Section of Development, which is interested only in the development of fast-growing and heavy-producing strains of fruits and vegetables, has one-tenth so much direct effect on the final plant as has the Section of Solutions.

Let the amount of manganese sulphate, say, in a solution, change by as much as one milligram per liter of water and the yield may be ten percent below normal. Let the pH vary by two points and a crop may be cut a fourth. Let the osmotic pressure climb a bit too high; let the solution water get a trace of a toxic element; let the stock solution of trace elements be used too sparingly; and you have a dying crop on your hands. Those tendencies are accentuated by the plant strains developed especially for growth in nutrient
chemical solutions. Tomatoes that ripen in thirty-three days from the date of planting; potatoes that make fifty-seven tons in a quarter-acre solution tank; these are not plants to be handled carelessly.

And, for that reason, Solution Section men can be found taking samples from the tanks at every hour of the day and night. They run quantitative determinations to check the presence of all necessary elements, and the absence of those that are toxic; they watch the pH of the solutions like hawks to see that the acidity is always just right for the growing plant; and they are always conscious that on them lies the responsibility for the proper growth of food for a hundred million people.

The hydroponics stations themselves are ancient. The first one was set up about 2000 AD; some fifty-odd years after the fall of the medieval British Empire paved the way for the birth and expansion of the sister Federated Unions of North and South America. Problems of over-population and drought forced a famine upon the North American Union; in desperation a skyscraper was condemned and dedicated to the growth of plants in water solutions, in the city that was then New York. The discovery of an uranium isotope (U 235) which made possible the first practical development of atomic power, had made available the power to supply ultraviolet light for the plant requirements. The experiment was a huge success; starvation was averted without rigid rationing; and the construction of other Hydroponics Stations was immediately begun.

Now, in the year 2319, none of the original stations stood any longer; but the government operated others built since then. A hundred-odd stations supplied the plant food needs of the nation; the huge amount of food they produced made possible a population of nearly ten billion souls in the North American Union. Towering cities swept up to the skies; men lived and loved, were sordid and magnificent, much as in the days of old. In the vast areas between cities, where the Hydroponics Station buildings were the only outposts of civilization, huge herds of meat animals were grazed, watched by fierce fighters whose life work was guarding their charges against beasts of prey, so that they could be eaten by the dwellers of the cities.

Jim Perry knew, of course, that it was an almost invariable rule to promote the head of the Section of Solutions to the general directorship whenever the chief of a station left his post. His return to his office that afternoon, therefore, presented him with something of a shock. Gertrude had lain an official letter, sent by facsimile beam from the Regional Office, on his desk.

The letter announced that a request by Lucius Hymen, Director of Hydroponics Station No. 23, for retirement due to ill health, had been granted. It also announced that Mr. Hymen’s successor, a Mr. Thomas Post, had been appointed by Congressional action in the national capital at Chicago; and that Mr. Post would relieve Mr. Hymen of his responsibilities as soon as he could come West from that city. Jim read the letter through, blinked and read it again; then he collapsed into his chair and used it to gently fan his brow.

“Charles!” he gasped. “Charles! Get me a glass of water!”

Charlie grabbed the letter, instead, and read it through. “Well, I’ll be—”

“Change that order. Make it a glass of Scotch.”

“No, you’re talking my language,” grinned Charlie. He went to the outer office door and called through. “Gertrude! Gertrude! Park your chewing gum and dig out the bottle. The boss has just been bitten by a snake!”
GERTRUDE’S desk was a tricky little gadget, with secret drawers and stuff, in case of snoopers. She did mysterious things with springs and latches; and, suddenly, there was a bottle of Scotch in her hand. Apparently it had been used to cure snakebites before; for it was about three-fourths gone. She came dashing into the inner office, waving the bottle like a club. “Was it a big snake?” she cried.

Jim reached for the bottle. “Gimme.”

Charlie shook a reproving forefinger at him. “Tut-tut, James, get hold of yourself. There’ll be no more of this guzzling in office hours. Suppose Thomas should walk in unannounced? You’d be down in the nitrate mines so fast it’d make your head swim.”

Jim put his chin in his hand. “That louse!” he said disgustedly. “Stealing my job!”

“Well,” said Charlie hopefully, “he’ll probably be every inch a gentleman. If he lives up to expectations of Congressional appointees.”

Jim groaned. “Oh, my God! He won’t know anything—I’ll have to take care of everything for him, two to one. How’m I going to do his work and all mine both?”

“Just do his,” suggested Charlie. “Me and Gertrude’ve been doing all yours for the last three years; no reason to stop now.”

Gertrude broke in. “Ten to one this Post is a politician with more pull than a fifty-rocket towing scow. He probably worked a little auto-suggestion on Hymen to get him sick enough to retire.”

Jim glared at her. “Woman! Are you still here, wasting Government time with idle chatter? Get back to your grindstone before I send you off to dig nitrate.”

Gertrude was unperturbed. “First, the bottle,” she ordered Charlie; and, when he gave it to her, walked to the door. She paused for one parting shot. “When this new guy gets hep to you, you’ll do no more threatening, I’ll bet. You’ll probably be digging nitrate yourself until you have a long white beard.” She slammed the door as Jim started after her.

When she had gone, Charlie slapped Jim on the back sympathetically. “Tough luck!” he said. Charlie’s sorrow was neither counterfeit nor unselfish. Had Jim been promoted, Charlie would undoubtedly have succeeded him as Section Director. “Too bad you couldn’t have been upped to that job. Now there’ll be no ten thousand a year for you. And no eight thou for me. Hell, ain’t it!”

Jim agreed. “You know, it must have been great, living back in the middle ages—eighteen, nineteen hundreds. Way I understand it, the government didn’t run everything yet then.”

“No!” ejaculated Charlie.

“Sa fact. You worked for ordinary people, not the government. No Congress to send out special appointees and gum things up in general. Musta been pretty slick, hey?”

“You bet!” agreed Charlie. “Oh, well, look at the bright side of things. Maybe this guy is only half as dumb as you figure. Maybe he even knows that a hydroponics station is the place where plant food is grown.”

Jim was gloomy. “Fat chance! We’ll be lucky if this station actually is growing plants any more after he’s been here a month.”

But even Jim didn’t guess how much truth that casual remark held.

CHAPTER THREE

Enter the Serpent

WHEN the new director did come, Jim and Charlie found that he knew that the station grew plants, and that was about all. He was a departure from tradition in appointment. Some overbrained senator in Chicago had thought up the
bright idea of replacing the hydroponics career men now in charge of the stations with administrators, for "more efficient" functioning. He could administrate to beat the devil, but he didn’t know anything about the work that was being carried on. The first thing he did was call a meeting of the four directors and their assistants, in the big director’s office. Jim Perry, with a dreamy look in his eyes, sat tapping the fingernails of his left hand with a pencil held in his right, while the new General Director, a round, sleek little man, began boiling genially at them.

"Great pleasure to me—appointed this station—fine lot of personnel—perfect equipment—smoothly operating unit—hope to keep it that way—few suggestions to make—hope they will be taken in proper spirit—expenses must be lowered—especially administrative expenses—some items out of line—Herumph! Herumph!" He glared at Perry, who was still happily tapping his fingernails with a pencil. "Mr. — er — Mr. — you with the long face!" he bellowed. "Could you stop that asinine play with your pencil for a moment and give me your attention?"

Perry looked up and his eyes poked Post as one might poke a long-dead rabbit with a stick. On top of everything else, this—this insect was going to assert authority. Oh, no, he wasn’t! "Mr. Post," began Jim in a tone that made Charlie hug himself in anticipation, "I am giving you my attention. My very close attention. Much closer attention than is warranted by what you have to say. I am willing to wager, Mr. Post, that I can come closer to repeating your—speech—word for word than you can. You’d have me stumped, though, if you asked me what it meant. But, then, that question would stump anybody, because it obviously didn’t mean anything."

Three directors and four assistant directors glanced sidelong at one another and covered irrepressible twitches of their lips with discreet coughs and hastily-applied handkerchiefs. Post’s eyes dropped before Jim’s icy, outraged glare. He snorted loudly once or twice, red-faced, stuttered a bit, and started up where he had left off.

"Administrative expenses—much too high. Certain items are far out of line. Paper, for instance. Pencils. Use of long-distance interphone. I have had the honor—kaff, kaff—of heading a number of government bureau offices, by virtue of Congressional appointment, and in every case I have managed to lower expenses by ten to twenty-five per cent. I would like to be able to do the same here!"

Davis, Director of the Section of Illumination, broke the momentary pause. "This isn’t a bureau office, Post," he protested; Post stiffened at the familiar use of his name. "We’re doing work here, not just typing letters. You can cut down on stationery when you use it by the bale, and pencils when you use ’em by the gross, and phone calls when you make ’em by the hundred. But those expenses are only a tiny fraction of our budget here. Most of our money goes for stuff to make plants grow, and you can’t cut down on that. Every cent spent for chemicals is necessary. When an ultra-violet radiator burns out it must be replaced. Tanks have to be cleaned, vegetables have to be packed. Don’t try to cut down expenses drastically to make a good showing on your reports. You’ll make more trouble than you know how to handle."

Post was frowning. "Er—yes, of course, what you say has some truth in it. However, we will see what we can do. Oh, and by the way, Mr.—Mr.—you that were just talking—I would appreciate it, if in the future, you would address me as ‘Mr. Post.’ Merely a—ah—formality, but too much familiarity makes a bad impression on regional executives when they make a tour of inspection."
The whole room goggled. This was unheard-of! Formality between a General Director and his Section Directors. Perry gave a disgusted snort. "If that's all, Mr. Post, I'll be getting back to my office. Two tanks are lying empty, waiting for me to iron out some kinks in a solution. I was just triangulating it when this call came. I trust you'll excuse me."

The others followed him to the door. As they crowded through, Post yelped after them:

"I trust that I can rely on your cooperation in my drive to lower costs, gentlemen!"

They didn't even stop to reply.

In the corridor outside the office, Jim and Charlie fell back while the others, in cursing knots of two or three, drifted toward their own office doors. Charlie looked puzzled.

"I've tried like the devil, Jim, but I can't remember two empty tanks that had to wait until this conference was over before they'd be filled with solution."

"Lord, you're ignorant," retorted Jim. "The two tanks are me and you. Let's hop an escalator up to the canteen level."

But they didn't have much time in the canteen. Hardly had they wiped the foam off their upper lips than a hurry-up call buzzed the intraphone. "It's for you," announced the barman. "Your secretary gabbling something about is this the third tank level and to tell Mr. Perry and Mr. Hammond to report to their office at once. I judge," he added as an afterthought, "that the new boss is there and she's bent on not giving you away, as well as tipping you off as to where you've been." He swiped the stainless steel bar with a damp rag. "She sounded hurry-up."

Perry and Charlie looked at each other and groaned in unison. With one accord they turned and went out the canteen door into the corridor, shoulders slumped des-
pondently. This was even worse than it had looked at first.

They didn’t look despondent when they finally got down to the hundred-thirty-eighth—office—level, however. The canteen was on the hundred-fifty-third level, above the three experimental levels that housed the Section of Development and the twelve apartment levels where the station force lived; the ride down past fifteen levels gave Perry just time enough to work up a good peeve. He marched into his office and found Post examining a drawer-full of doodled-up paper Perry had meant to sort out and throw away. Perry’s voice was wintry when he spoke.

“I trust you had an important reason to see my assistant and me, Mr. Post. We were in the middle of a very necessary bit of solution work.”

Charlie suddenly had a coughing spell. Post looked at him suspiciously before he spoke. “Mr.—er—Perry, I’ve been examining the records of this station covering the past several months and I find that your section carries by far the heaviest expense. How do you explain that fact?”

Perry’s voice had become weary. “Surely you understand, Mr. Post, that my section does by far the most work and has by far the most responsibility. Both the solutions and the tanks that hold them are our worry, and both are extremely tricky. Tanks develop leaks. They must be cleaned regularly. Sometimes the oak planking of which they are made warps and then we have a tank out of plumb. We’re the ones who must take care of all those things. And heaven knows that if you’d ever handled a solution you’d know what work that is. Every element must be properly balanced in relation to every other element; and that balance changes, not only for different plants, but for different strains of the same plant. Compared to us, Illumination and Plant Care have routine jobs. We’re the ones that make the plants grow, don’t you understand? We have the most to take care of that’s why we cost the most.”

“Er—yes,” said Post. “But there are nearly 1500 men in your section. The Section of Illumination has less than two hundred, and Plant Care less than five hundred. That seems to be greatly out of line. Isn’t there any way of cutting down on your personnel?”

“No,” said Perry flatly. “Why, we need better than a thousand men just to wash out the tanks. Less than five hundred are technicians. Hydroponics experts. They’re the ones that make up the solutions and check them to see they stay all right.”

“These men who wash the tanks—why are they necessary?”

PERRY sighed deeply. “Look. Maybe we’d better start at the beginning. You know what hydroponics is, don’t you?”

“Why, yes—growing plants in water solutions.”

“Right!” cried Perry. “Remarkable! You must know, too, that we have simple solutions for some plants, and more complex ones for others. Carrots, for instance, can be grown in a three-salt solution—potassium phosphate, calcium nitrate, and magnesium sulphate are the basic salts we use here for growing our carrots. Other plants—tomatoes, hybrid apples, corn—require four, five, or even six salts dissolved in water for their nutrient solution. To those basic solutions are added a trace of salts of manganese, boron, copper, zinc, and iron; and that gives us a solution in which seeds will grow and mature.

“Now when salts are dissolved in water, they ionize; the acid radical becomes one ion and the basic element becomes another. The plant feeds on whichever of these ions it needs. If it uses the radical ion, which is acid, it leaves the solution
somewhat more basic. If it takes the basic ion it leaves the solution slightly more acid. This acidity is measured in terms of hydrogen ion concentration — abbreviated pH.

"We don’t have this down to an exact thing, but we can say that a quarter-acre tank of carrots, for instance, will change a three-salt solution by about pH 1.5 points every 48 hours. We can correct that, and do; keeping the acidity approximately where we want it. But every time there is a variation, and before it is corrected, some ions re-combine into insoluble salts and are deposited on the walls and bottom of the tank. Follow me?"

Post nodded. "Yes, but—"

"But what has this to do with scrubbing out the tanks? Well, I’ll tell you. The deposits may become soluble under a more acid condition, or a more basic condition, in the tanks. These tanks are used to grow a great variety of foods; some of which need a more acid or a more basic condition for proper growth. But to change the acidity of the solution might mean the re-entry of some deposited salts into the solution; and since the entry of these salts would throw out the entire balance of nutrients, the tank is scrubbed to remove the deposits before any change of solution, with a different pH factor, is made. It works out that they’re scrubbed about once every three months."

“And a thousand men are all really necessary to do this job of scrubbing? It seems rather a lot."

Perry blew up. "Listen!" he roared. "We’ve got a hundred thirty-one levels with a thousand tanks on each level. A hundred thirty tanks to a man. Washed four times a year. That’s better than a tank a day. If you can scrub out one of those quarter-acre tanks in less than a day, hop to it! You’re being wasted in an executive office!"

"Now, Mr.—er—Perry, don’t get excited," soothed Post. "I’m just—er—checking up. Congress expects me to cut down on costs, you know. That’s why I was appointed. I can’t afford to—ah—overlook any bets."

Perry was still outraged. "Well, don’t try to cut down here. If you knew anything at all about hydroponics stations, you’d realize that the Solutions Section here is operating with both personnel and cost far below the average for that section in other stations. And we’re delivering a bill of goods, too. Our production is in the upper tenth bracket; and we haven’t lost a tank of food since I can remember. That’s quite a long time, believe me."

Post nodded thoughtfully. "I see. Well, I’ll have to consider that from all angles. By the way, I noticed that you forwarded a requisition for the replacement of two solution tanks for my—ah—approval. How is it that these tanks need replacing?"

Perry’s voice was that of a man who who has been numbed by repeated blows. He said, listlessly, "They do become unusable. I told you they warp. Not often, but once in a while. Sometimes the wood of which they’re made begins to decay, though they’re specially treated to prevent that. There are a hundred-thirty-one thousand of them here, and it’s only reasonable that some of them should need replacing occasionally."

"But isn’t that cost rather excessive? One thousand ninety-one credits per tank? It seems to me that there should be some more economical way to build them—"

"What would you make them of? The oak planking and the craftsmanship are worth all of what they cost. There’s that much work done on them; else the government wouldn’t charge them to you at that price."

"Couldn’t they be built of some sort of sheet metal?"

"Galvanized iron, I suppose?" snorted
Perry. “Get this, brother—to hold that solution, the metal would have to be something that acid wouldn’t touch. And it’d have to be heavy—an inch thick, at least. Stainless steel could be used; chromium; certain molybdenum alloys; tin; platinum; or gold. Cost rules them out. As I said, they couldn’t be a thin sheet; since that’d have a tendency to buckle and warp. You couldn’t use an enamelled metal; because the size of the tanks and the temperature variations would cause them to expand and contract enough to crack the enamel coating. Nope; oak’s the only bet.”

Post thought for a moment; then he nodded and rose from Perry’s desk and turned to go. “There is—ah—one other thing, Mr.—er—Perry,” he added, laying one finger significantly on the pile of doodled papers he had fished from the desk drawer. “I see that you are not very—ummm—careful with your stationery. This account seemed to be rather out of line when I looked over the administrative expense accounts the other day. I would appreciate it if you would—er—be more careful in your use of this paper in the future.” He glanced at each of them in turn; then bustled importantly out the door.

Jim Perry collapsed into the seat Post had just vacated. “Stationery!” he muttered. “Oh, my God!”

Gertrude didn’t even need to be called. She came hurrying in from the outer office, bearing the bottle of Scotch like a ministering angel.

CHAPTER FOUR

Up Pops Trouble

The next few days were hell on section directors. They all went through the process of explaining their work to Post and trying to justify their expenses; and they were all left with a certainty budgets would be slashed and a request to use less stationery. Jim and Charlie soon had company in their trips to the canteen. All the directors, it seemed, began to have a yen for something to drown their sorrows.

The end of the month was drawing nigh, and Jim, as a consequence, had to OK the payroll vouchers for his section—ten of them, each with better than a hundred fifty names on it. His section was divided into ten units, each under the direction of a lesser chief; these chiefs had to forward names of personnel to him once a month. His OK would forward the lists to the Bureau of Personnel, where the credit payment slips were made out. The papers were stacked on his desk in the morning when he came to work. Jim glanced through them idly.

“Gertrude!” he bellowed. “Come here!” When she appeared in the door from the outer office, he turned to her and inquired, “Did you check all the lists?”

“Yes,” said Gertrude.

“Then why didn’t you initial them for me, and send them out? Must I do even the routine work around here? What are you drawing your pay for? You are drawing pay, aren’t you?”

“Too bad you didn’t tell me this before,” said Gertrude, gathering up the papers. “I’ve had all my male relatives on the list.”

“No lip, young lady,” retorted Perry. “Any mail?”

“Nothing important. Couple of announcements of technicians’ rallies, couple of guys want jobs, and a couple of charities asking for donations. Oh, yes, and an intra-station chit from our little Napoleon. Wants to take away a thousand of your personnel.”

“What?” yelled Perry. “Bring that in here, you dope. Why didn’t I hear of this before?”

Gertrude hadn’t exaggerated. Post’s chit requested that Perry sign a transfer
order (attached) taking the control of the men who scrubbed tanks from his hands. Post wanted them to be directly under the General Director. Perry howled like a banshee after he had read it.

“What’nell’s it going to be next?” he bellowed. “This political Casanova is bound to woo Congress. Change in jurisdiction. Change in status. Change in this or that. Anything that’ll show on the records. Here we have a nice organization built up and on a moment’s notice this—this exploded rocket starts to smear it up. Gertrude! Gertrude! Where in hell’s that girl, now? Oh, there you are. Write me out a chit saying no, by the seventeenth conjunction of the immortal asteroids, we will not give him our scrubmen!”

Gertrude had appeared in the doorway again. “Why don’t you call him up on the intraphone and tell him yourself? Unless, of course, you’re afraid to say so to his face.”

“Afraid? Me? Afraid of that—that political football? Not I. Ring his office, Gertrude!”

The conversation that followed resembled, in some respects, the toy rocket ships, spring-propelled, which youngsters love to scoot about on floors to the discomfort and chagrin of adult relatives trying to carry on a conversation. Like the rockets, it began with a rush and a great noise; like them, too, it continued for a while with energy and zeal somewhat abated; and, still analogous, it finally coasted to a breathless and almost silent stop. Perry turned from the now-opaque visaplate of the phone to find Charlie and Gertrude watching him with something very like derision in their gaze. However, he forestalled any comments.

“Let him have the men,” he said, a crafty gleam in his eye. “He’s got no machinery to take care of them; no payroll voucher lists; no foremen; no setup to handle the incoming chits and assign the work. By the time he gets things organized, he’ll have a belly full of horn- ing in and be mighty glad to let affairs ride as they are.” He signed the transfer order with a flourish.

Charlie looked grim. “My good man, do you realize that you’ve just signed your own demotion order? Instead of more than fifteen hundred men under you, you’ll have only about five hundred. You’re only a third as important as you were!”

In the days that followed, Jim Perry found that losing two-thirds of his personnel meant no diminution in the amount of work that he had to do. To tell the truth, his duties were increased five-fold. For, suddenly, Hydroponics Station No. 23 was smitten with a blight that every Solutions man prays to avoid—toxic solutions.

A nutrient solution is a tricky thing. Since it must be so delicately balanced for every different kind of plant, it can be thrown out of balance by any number of apparently unimportant factors. A toxic solution, of course, is not necessarily one in which plants cannot grow at all; toxicity is generally defined as that characteristic of a solution which will give a reduction of fifty per cent or more from normal yields. Now, there are many ways in which a solution can be thrown out of balance enough to result in toxicity; and it is for this reason that Solutions men check the tanks so often to verify proper conditions.

Toxic solutions themselves are of two kinds; those in which the proper ingredients are used, but in the wrong way; and those in which something foreign has entered. The first of these is merely a matter of care on the part of technicians mixing the solutions, and only rarely causes trouble. When it does, we are apt to find a technician scrubbing out tanks for a time. It is the second possi-
bility that gives nightmares to Solutions Section men all over the North American Union.

A frequent source of toxic solutions used to be visitors. Once, they were allowed to see the growing tanks; and then, quite often, technicians would find rings or bobble pins, metal buttons or tinfoil in the solution, and plant leaves turning yellow at the edge. But now visitors can see only the special inspection tanks maintained for that purpose by the Section of Development, made of glass for full vision, and carefully guarded against objects accidentally or intentionally dropped into the water. Even so, however, toxic solutions pop up every now and then; they have a habit of staying toxic, and it is usually the devil's own job to discover where the unwanted elements are coming from. There are several possibilities. There may be impurities in the chemicals. A simple analysis usually checks that. There may be impurities in the water. Since so much is needed at each station, it is economically impractical to use only distilled water; and so that is open to suspicion. That, too, can be easily checked.

The containers in which the solutions are mixed may not be clean; that is harder to trace down but it can be done.

If the toxicity holds out after these and a few other routine checks are made—and it usually does—the really hard part starts. From there on, the technicians break trail. One station had a psychopathic case among its technicians; it produced from only half its tank for a month before one of the staff caught him poisoning the water. Another had a tricky ventilator that blew fumes into one tank level. The water absorbed some of the fumes from the air, and no food came from the level for two weeks. Another had a tank that poisoned solutions because a nail had been driven into an oak tree years before. A plank with the nail in it was used in a solution tank; and crops from that tank showed iron poisoning.

The list can't be made complete; for, obviously, the hundred-odd stations in this country are apt to run into quite a few little incidents of that nature over a period of years. But it shows what the Solutions Section is up against.

Station No. 23 ran afoul of the trouble one night shortly after Perry had signed away two-thirds of his importance. It was two-thirty in the morning when Perry, who had only just closed his eyes in slumber that held less righteousness than carefree weariness, was roused by the insistent clangor of his apartment intraphone. Every technician on the sixty-seventh level, it seemed, wanted to scream in his ear that the tanks were as foul as a drunkard's breath. Perry cursed long and sulphurously, but he got out of bed again and put on his clothes. He sat on the edge of his bed for a couple of moments; then he called Charlie, put him in charge of the matter, undressed, and crawled back between the sheets.

WHEN Charlie showed up at the office the next morning, he bore evil tidings. “Nothing to be done,” he said in answer to Perry's question. “The tanks are all lousy with sodium. Everything from perborate to oleate. Hell, those tanks have got every sodium salt I've ever heard of in solution, and a lot I haven't.”

Perry held his head and moaned. “What's on the sixty-seventh level?”

“Fresh solution. They just took off a crop of fine peas. Supply to last the retail outlets six days. Had the whole level in that crop. Thousand tanks.”

“Test the peas for off-color contents?”

“Yup. But they're perfect. We took a thousand samples—one from each tankbatch. Nothing wrong with them. Whatever it is, it got in after the peas were off.”

Perry leaned back in his chair and
closed his eyes. “Give me all the details on what happened after the peas were moved.”

“Peas were harvested day before yesterday, very late. Nearly midnight. Tanks drained immediately. Sedimentation serious. A chit came through the office here yesterday morning; requested scrubbing service. I forwarded it to Post’s office right away, since he took the scrubmen out of your hands. That was the first thing in the morning—8 A.M.”

Perry’s eyes hadn’t opened. “The tanks were scrubbed?”

“Yeah. They’re clean as the proverbial hound’s proverbial tooth.”

“Go on. What happened then?”

“Plant Care had the tanks slated for early potatoes, to be harvested in twenty-two days, to supply retail outlets for fourteen days—”

Perry hummed two bars of a popular tune. “Looks as if a hundred million folks are gonna be without potatoes in about twenty-three days.” He opened his eyes. “Don’t stop!”

“The mixing department made up the solution on receipt of a chit from Plant Care.”

“That solution was clocked before use?”

“Two sets of initials on the chart verifying that it was OK.”

“Go on.”

“The solution was placed in the tanks during the two hours from 11 P.M. last night to 1 A.M. this morning. Eleven o’clock is when notification was received that the tanks had been cleaned. Cuttings were placed by Plant Care from midnight to 2:00 A.M. At 2:15 the routine checks began and they all showed the solutions choked with sodium salts. Enough to kill the plants completely.”

“Common salt is pronounced, I suppose?”

“Extremely.”

Perry clicked his tongue. “Tchk! We must speak to the pumping station. Apparently they’ve tapped the Pacific Ocean and we’ve used it for mixing water.” A frown drew his eyebrows together. “Have you emptied the tanks?”

“Yep. They’re empty now, just waiting for your command.”

“Make up fresh solution; enough to fill about ten tanks; and try it out. Test just before and just after running it in. Looks like the stuff is coming from the tanks.”

“Right!” said Charlie, and went out. Perry sat down and began doodling on a piece of stationery, in wanton disregard of Post’s recent command anent said stationery. It was an hour before Charlie came back; and Perry had quite a stack of wastebasket filler by then; but he was no closer to an answer to the problem than he had been before. Charlie held a beaker full of solution in one hand as he came in the door.

“Well?” demanded Perry.

“It’s the tanks, all right,” growled Charlie. “Take a peek at this beaker. Looks innocent, doesn’t it? Innocent, ha? There’s enough sodium chloride in here to foam a dozen beers.”

CHAPTER FIVE

Virtue Triumphant

The men of the Solutions Section found no rest for the next few days, for they were hectic ones. The sixty-seventh level produced no potatoes, and would produce none for a long time to come. Worse still, the infection spread. Whenever a crop was taken from a level and the solution changed, one more level went out of production, its tanks choked with sodium salts.

In desperation, Plant Care stopped rotations, kept the same solution in the tanks, never changed the crops each tank was growing. That kept the production
up, but it played hob with the balance of production against orders from retail outlets. Post grew purple in the face and screamed bloody murder; Perry shrugged his shoulders and spread his hands, and took to calling in Gertrude more frequently, with the remedy. Frantic long-distance interphone calls were made, locating tag-ends of surpluses at other stations. Reports in duplicate, triplicate, and quadruplicate, each in a different color, were submitted to Chicago, to the regional office in Denver, to the district office in Los Angeles. Still the tanks remained out of production. Four levels lay idle.

Finally, Chicago sent an investigator to the station; an expert on toxicity and how to ferret it out. His salary, at two hundred credits a day from the time he left Chicago until the time he returned, was to be charged against the expense vouchers of Station No. 23. When Post got the official letter announcing that fact, televised to him on a locked-beam Government facsimile channel, he went past the stage of screaming. In fact, he couldn't even talk any more. He just sat flapping his hands helplessly and looking as if doom had struck.

The expert was a whirlwind. He scheduled three staff meetings the day he got to the station, to talk over the problem and get all the angles on it. Illumination was in the clear from the first; as was, of course, the Section of Development. Nothing they had or had not done could have caused the toxicity. That left the responsibility for the condition up to Solutions and Plant Care, with suspicions pointing heavily toward the former. Post's neck veins had become permanently enlarged by that time, and he went around vowing to reduce every man in the section to the nitrate mines just as soon as responsibility could be fixed on them.

At his second staff meeting, the expert summarized his knowledge of the case to Post and the eight directors and assistants. He covered the complete story. "And so," he concluded, "we see that the whole matter lies in what happens in the tanks between the time one solution is removed and another is put into its place. During that time sodium gets into the tanks somehow. Now, what operations are performed during that time?"

He spoke to Perry, who glanced up briefly. "As far as I know, all that is done is scrubbing out the tanks."

The other seized on this. "Ah! Now, if a strong soap were used—one in which the sodium is not all combined with oleate radicals—wouldn't that give trouble with available sodium?"

PERRY shook his head. "Unfortunately, I thought of that too. However, we issue a special scrubbing compound—not soap at all—which is especially mild in its operation. Not only that; if soap were used improperly in that manner, the quantity of sodium which would be left behind would be nowhere near enough to give us the reactions we've been getting. Some of those tanks have been flushed with water twenty-five times; and there is still enough sodium left to make a solution fatally toxic. I don't see how that could be caused by soap."

The investigator rubbed his chin ruminatively. "Umm—yes. However, I'd like to talk to the foreman in charge of your scrubbing crews. Would you send out a chit asking him to come up here?"

"You'll have to talk to him," Perry said wearily, indicating Post. "He's in charge of the scrubmen now. Took jurisdiction of them out of my hands."

The man from Chicago raised his eyebrows. "So?" he inquired, turning to Post. "This is rather unusual. All other stations have the scrubmen under the Solutions Section. Oh, well—have the foreman come up here, will you, please?"
By the way, just why was this change made?"

Post's face was reddening. "Umm—well, it was an economy measure. Ah—you understand, I was placed in charge here to reduce costs, if possible—"

"Reduce costs? But how could your assuming personal jurisdiction of these scrubmen reduce costs?"

"Well, it was an—er—idea of my own. You see, these scrubmen constitute nearly a third of the working force of this station, and—ah—and—"

"Yes?" prompted the investigator.

"Well, it seemed to me that by eliminating their jobs a great deal of money could be saved. I therefore developed an—ah—idea that enabled me to do without all but ten of these men—"

"Don't tell me, don't tell me," moaned Perry, rocking back and forth in his chair. "You fired all but ten; and had them dissolve the precipitate by flushing the tanks with—"

"Why, yes. I had the men clean them with a hot solution of lye water."

"Lye water!" cried the toxicity expert. "Sodium hydroxide!" exclaimed Charlie Hammond. "Good Lord! No wonder we had lots of sodium!"

Perry's eyes crossed with rage. "You half witted nincompoop!" he yelled. "Why didn't you tell me about this brain-wave? Afraid I'd put thumbs down on it, ha? Well, you saved a couple of thousand dollars in salary, and ruined about five millions' worth of tanks! And you were going to send my whole section to the nitrate mines—!"

The toxicity expert was grim. "I don't believe that you need worry about the mines, Mr. Perry," he said, with a meaningful glance at Post, "but other people might find themselves—"

The letter came two days later, on the facsimile beam. Post had already been removed, possibly to answer charges of criminal inefficiency. Charlie chortled with glee as he read it aloud to Perry and Gertrude, who came in from her office to hear it.

"—since the solution hydroxide has soaked into the fibers of the oak tanks, the only apparent solution is to discard these tanks and substitute new ones. Our investigating agent also recommends that Mr. Post be held personally responsible for the damage done, and be demoted accordingly. A third recommendation is that in the future all appointments to responsible positions in the Hydroponics Service be made from the permanent personnel of the stations, and that political appointees be given no consideration. The Hydroponics Service Board having acted favorably upon these recommendations and having forwarded them to Congress for approval (which will unquestionably be granted) I feel quite safe in appointing you General Director of Station No. 23 on a temporary basis until Congress can confirm the appointment and make it permanent. This letter will also be your authority to proceed with the task of dismantling the affected tanks and preparing the lumber for shipment, since it can undoubtedly be used for construction or similar purposes by some agency of the Government. This will, of course, entail the loss of most of the value of these tanks; however, under the circumstances it seems to be the only thing—"

Charlie paused for breath, a grin on his face. "Wow! Four levels of tanks to rip out! That's four thousand of them—almost four and a half million credits! And Post kicked about replacing two tanks! He'll be in the nitrate mines so long—"

Perry happily hummed a couple of bars of the "Our Director" march. "Who's the letter from?"

"F. C. Nept, Coördinator of the Hydroponics Service."

"The big boy himself, eh? Well, I guess
that makes me director, all right. At ten thousand credits per annum. Get packed, Gertrude, I guess that me and you will have to move out of this crummy hole."

"Wait a minute, wait a minute!" protested Charlie. "Gertrude stays here! As temporary director of the Solutions Section—that's granted, isn't it? Ah? I'm glad to know that!—as temporary director I insist that she is an employee of this section and cannot be taken away. Remember what the investigator told Post about taking employees from under the Section Directors!"

"Mutiny, by gad!" cried Perry. "I've half a mind to shoot you down to the nitrate mines, right alongside of Post. How'd I get along without Gertrude?"

The object of the argument turned and went to the door of her office. "When you make up your minds which one of you mugs I belong to," she said from the doorway, "just write me a letter about it!"

Perry paused and scowled at her. "We haven't worked out all the angles to the case yet," he growled. "We're going out to deliberate."

"Shall I tell any possible inquirers you're checking a solution, or should I give them the awful truth?"

"Young lady, am I or am I not director of this station? Since I have authority, I might as well use it—it's no good otherwise. In case there are any calls, you may state—quite truthfully, too—that the Director of the Section of Solutions and the General Director of the Station have repaired to the canteen to flip a coin and blow the suds off a couple." The door slammed behind him.

Gertrude shook her head sorrowfully; then she reached into her desk for the popular magazine that lay there and settled herself for a long, enjoyable perusal.
EDITORAMBLINGS

THE exact date of the forthcoming “Denvention” (which is how “Denver Science Fiction Convention of 1941” is being abbreviated) is not definite as we go to press. Apparently it will occur sometime in the early part of July, probably around the 4th, unless some last-minute change is made in plans.

But the fact that the date of the Denvention is not definite need not worry us. What is definite, what is known in advance of every official major science fiction convention, is that it is the affair in the world of science fiction for the year of 1941.

We’ve printed reports of the goings-on at the Chicago Convention (or “Chicon”) of last year; if you read them, and hadn’t been there, and if you didn’t kick yourself four ways from Sunday for not having attended, you’re just not one of the elite. Every one who attended that gala confab, and a lot who didn’t but wished they had, will testify that one of the saddest days of their lives was Tuesday, September 3rd, 1940—that being the day the Chicon ended.

But the Chicon, in the memories of fans ten years from now, will be thought of only as an entr’acte to the Denvention—or so Olon F. Wiggins, the Denver Convention’s Director, advises us. The slogan of the assembly is “The Denver Convention—A Mile-High Ascension”, and Director Wiggins, with the aid of The Denver Science Fictioners and the Convention staff, aims to make that slogan true in fact.

Knowing his reputation as a fan and general science fictionist, we feel sure he’ll accomplish what he sets out to do along these lines.

More details on the Denvention will appear in our next issue. But mark the date down now in your personal calendar of events. You might forget it. And you wouldn’t want to do that.

Returning to more immediate issues, we’d like to point out that some of Astonishing’s readers have developed a pleasant little habit which we would like more to take up. Besides their customary pithy comments on the stories we print, they’ve included, on the reverse side of their letter or on a separate sheet, a listing of all the stories in the issue they are commenting on, with a rating given each story. Some rate them from one to ten on a scale of excellence; some give them one, two, or four stars; some have developed cabalistic symbols of their own. Anyway they do it is good, provided we can figure out what is meant: the idea is to let us know, for each individual story, how much you like it or dislike it compared to all the science fiction stories you’ve ever read, rather than just compared with the other stories in the one issue.

That system makes it easier to choose which letters will be printed in “Viewpoints” too, incidentally. Because it separates the ratings, which we like to receive in order to keep a check on how our stories are received, from the letters, which other readers of the magazine like to read.

When the ratings are incorporated too closely in the letter, it slows down the letter and makes it less interesting. And letters, just as stories, are printed for their interest.

Most Interesting story in the February issue was “Quicksands of Youthwardness”—according to your letters, of course. Your ratings gave second place to Hugh Raymond’s “He wasn’t There!”, closely followed by “The Professor Splits”, by J. Harvey Haggard.

THE EDITOR.

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Imp of the Theremin

Born and bred in an Amati violin played by the Immortals of music, the transition to a theremin playing in a red-hot orchestra was too much even for an imp!

By Ray Cummings

That evening when the imp of the theremin first appeared to Arthur Cantrell, he had not the slightest warning that such an unusual event was about to occur. All afternoon he had been in his studio, teaching a class of beginners how to play on the ether-wave instrument; lining them up before it; showing them how to wave the right hand before the electro-magnetic area that surrounded the upright rod on the instrument’s top, raising and lowering the pitch of the ethereal note. And showing them too, how the left hand, raised and lowered over the antenna-loop, would subdue or intensify the volume.

It was exhausting, exasperating work for Cantrell, this teaching of mere fundamentals. He only did it because he needed the money. Horribly it made him shudder to hear these novices bring from the theremin only a pallid ghost of the immortal music of the old masters. They had no talent; they never would have; but he had to encourage them—because he needed their money.

Now, that night in his dim studio, he was playing for his own diversion; and practicing for his forthcoming concert. The concert wouldn’t bring him much money; but it would give him prestige; bring him more pupils who aspired to master the instrument. His draped studio was illuminated only by the hooded tubelight in its vaulted ceiling. Outside the big draped windows one of the upper traffic ramps with its moving pedestrian sidewalk was dimly visible. But the noise of it was shut out by the double glassite panes. There was nothing here but Cantrell’s music of the spheres—the throb-bing notes of the big theremin welling out of the ether, made audible by Cantrell’s skillfully waving hands, and by the magic of electrical science.

He was playing the Moonlight Sonata of the old master, Beethoven. Intent with his artistic feeling he stood erect before the big cabinet of the theremin. The current was in its oscillators, hidden within the huge mahogany tone-chambers—oscillators of the same frequency so that they were inaudible. And then his graceful, sensitive hand, slowly approaching the rod-antenna, increased the capacity of one of the oscillators to a higher frequency. The difference between them brought the sound.

But Cantrell was thinking of none of this science. He was a musician, no scientist. His soul was throbbing now, as Beethoven’s soul must have throbbed when he conceived the immortal sonata. The big theremin too, was throbbing, as from its depths the rich, throbbing notes welled out, luscious with overtones.

The Moonlight Sonata. To Cantrell his dim studio, with the great metal city shut away outside, now was quivering with moonlight. The slow, reiterated triplet of the sonata was drenched with moonlight, conjuring for Cantrell the vision of a drowsing countryside, a small shimmering stream with quiet willows nodding in a gentle night-breeze. The
music of the theremin had always made pictures for Cantrell; pictures which were extraordinarily real.

His rendition of the Moonlight Sonata tonight left him trembling, so that as its last note throbbed away into the silence of the ether, he dropped into a chair before the theremin. And suddenly, in the shadows of the scrollwork over the tone-chamber of its terraced top, his attention was caught by a little blob of movement. He stared; gulped, and then sat erect, gazing with blank astonishment at the big ether-wave instrument.

And as he stared, from out of the abyss of the theremin's tone-chamber, through one of the F-shaped sound-holes of its scroll, a little figure came wriggling. It panted, squirmed upward. The narrow aperture squeezed it; but as it
came out it widened, took form. It was the
tiny figure of an imp, six inches high.
His grey jacket was tightly belted at his
waist; the sleeves of his yellow blouse
came down his long thin arms to his
wrists. His long thin legs were encased
in deep-red colored tights. On his head
was a flexible, grey, conical cap.

An imp! Carefully he stood up, drawn
to his full six inches of height, balanc-
ing himself on the sloping theremin top,
gripping the edge of a curve of its scroll
for support. And his tiny eyes in his
weird little face glared at Cantrell bel-
ligerently.

“Well,” Cantrell said, and gulped his
astonishment. “Who—what the devil are
you?”

“I live in there,” the little imp said;
and gestured with a tiny hand down into
the abyss of the theremin’s tone-chamber
beneath him. “That’s my home now, and
it’s all right so far as you are concerned
except that I’ve got a complaint to make.” He was breathless, with his tiny
aggrieved words tumbling over one an-
other.

“Well,” Cantrell murmured. What
could one say to a thing like that? Ob-
viously nothing. And then Cantrell stam-
mered,

“How—why is it I’ve never seen you
before? You don’t live down in there?”

“Yes I do. And I don’t know why
you’ve never seen me before. That’s none
of my business anyway. I’ve been right
here. I’m no scientist any more than you
are.”

“Scientist?” Cantrell murmured.

“Sure. You’ve got a lot of weird,
etheric vibrations in this theremin,” the
little imp said. “A lot more than there
ever were in the violin, where I used
to live. I guess they’ve made me visible.
I hoped they would. I’ve been out a lot
times before, but you didn’t happen to
notice me. I tell you I’ve got a complaint
to make—”

“Etheric vibrations making you vis-
ible?” Cantrell echoed. He was so startled,
confused, that all he seemed able to do
was echo the little imp’s aggressive words.

“Sure,” the little imp said. “You’re
an artist. Music always makes you see
pictures, doesn’t it? You think they’re
visions, but they’re not. They’re made
visible, just as the vibrations of the there-
min makes music audible.” The little imp
waved his arm with a disdainful gesture.
“What of it? You can see me, even if
no one else can. And what I’m telling
you now, I won’t stand it any more. It
was all right in the violin, but—”

“You were in a violin?” Cantrell inter-
rupted. “And now you live in my there-
min—”

“Sure I was in a violin,” the little imp
declared. “You remember? That old
Amati violin that you pawned when you
bought this theremin? Me? I’m from
Cremona. I was always in the violin. It
came originally from Cremona, you know.
It was made by Nicola Amati, Maestro of
the great Stradivarius.”

“Quite so,” Cantrell agreed.

“So I was brought up on good mu-
sic,” the little imp asserted with sudden
dignity. He straightened his conical cap
and his tiny eyes flashed at Cantrell.
“Three hundred years,” he said, “I’ve
been associated with Beethoven, Berlioz
and Brahms. That’s all right. That’s the
kind of music I like. Then about thirty
years ago, the world had Irving Berlin.”
The little imp shuddered at the memory.
“I got past that all right—nobody played
any Irving Berlin music on the Amati.
And now I’m in your theremin—”

“And you’ve got a complaint to make?”
Cantrell interrupted. “How so? You
know I wouldn’t play anything except
the music of the old masters—”

“No, I know you wouldn’t,” the little
imp agreed. “But what about these dam-
nable pupils of yours? That’s what I’m
asking you.”
“Well, what about them?”
“You leave them alone sometimes, to practice here on your theremin.” The little imp’s voice choked with his emotion. “You think they play the Moonlight Sonata when you’re not here to watch them? Even if they murdered it—I could stand that. But they don’t.”
“What—what do they play?” Cantrell demanded.
“Hot music,” the little imp said wrathfully. “That’s what they play. Hip-shaking tunes. Twitch music. You know, what they used to call jitterbug when you were a baby. And now they twitch. Ugh! It’s ghastly, I tell you, coming out of the theremin—”
“I should think it would be,” Cantrell agreed fervently. He too, was shuddering. Twitch music! Muscle-shaking tunes. All that sort of super-modern stuff always had been an abhorrence to Cantrell.
“And I won’t stand it,” the little imp was saying. “You got to stop it, I tell you. Those miserable pupils of yours—”
“Quite right,” Cantrell said. “You and I agree perfectly, little imp. On my word, I’ll never leave one of my pupils alone with the theremin again. Dance tunes on the theremin! Good heavens—”
“Well, see that you don’t,” the little imp reiterated. “I’ll trust you, Cantrell.”

ARTHUR CANTRELL certainly intended to play square with the little imp. He made sure, from that day on, that none of his pupils got a chance at the theremin. That, as Cantrell realized, would be satisfactory to the little imp, of course; but it didn’t exactly cure Cantrell’s own troubles. More than ever, he was finding that teaching aspiring rich would-be musicians how to play the theremin was an abomination. Cantrell, a hundred times a week, wished fervently that he could chuck it.

Especially the gushing, female pupils. Like Miss Livingston, for instance. There was one evening when, after Miss Livingston’s torturing lesson, she coaxed Cantrell to play for her.

Docilely, striving to hide his boredom, he stood before the big theremin.
“Oh do play me Chopin’s Raindrop Prelude,” she begged.

He played it—the slow, insistent drizzling of that single reiterated bass note came with somber liquidness from the big theremin. To the artistic Cantrell rose the vision of a drab, sodden beach, with storm-waves dashing up and rain dripping so horribly down on the face of the dead infant lying there. And then the theremin
poured out the plaintive, despairing little melody—like the crying of the dead baby's mother. And then again the storm, and the tragic, melancholy-dripping raindrops, dying and throbbing away into silence.

"Oh, Mr. Cantrell, that was so beautiful," the pupil exclaimed with awe. "Oh, do you think you can ever teach me to play the theremin like that?"

"Why of course, Miss Livingston," he assured her. "You're doing just fine. You tell your mother I said so."

But he was a liar, and he knew it. That rich Miss Livingston had no possible musical talent. She'd never play the theremin any better than she did now, not if he taught her for a hundred years. If he was honest he'd have told her so; told her to quit it and get a xylophone. Or maybe a harmonica would be even better.

But he didn't tell her, because he needed her money. And it was the same with so many of his pupils. Cantrell hated himself.

He was pondering it, late that same night. Something would have to be done; he couldn't go on like this much longer. He was nothing but a hypocrite; a rotten musical failure.

"Oh, here you are, Arthur!"

Cantrell turned to see his young wife standing in the door-oval. She was tall, slim and beautiful with the corridor tube-light shining on her sleek wavy black hair. She was an intelligent woman, this Gloria Cantrell. She glanced at her handsome husband now; saw the look of gloom that was upon him.

"What is it, Arthur?" she asked. "Finished your practicing? The theremin sounds beautiful under your hands."

She went over to the window, drew the drapes so that the myriad lights of the monstrous city shone in. And then she opened the window. The roar of the six traffic levels was a blended purr of sound. From far overhead an air-traffic guiding-tower was clicking its telegraphic orders.

"Wonderful city, isn't it, Arthur?" she added sweetly. "So rich so loaded with people with money to spend. I wish we had more of their money, don't you?"

"I'm a failure," he said bitterly. "Sit down, Gloria. Let's face it."

She smiled. "Nonsense," she said. She knew perhaps more about her husband's music than he did himself. And she knew now that he wanted to pour out his troubles, so she sat quiet while he did it. And then she threw a bomb-shell at him.

"You're really a twitch-music player, Arthur," she said suddenly.

"Gloria!" He stared at her in horror. "Don't look like that," she said. "Music with tune and rhythm. Modern, hip-shaking dance music if you like. Barbaric music made super-modern—new harmonies that you think sound sour—and the Chinese scale. Oh I know you call it all those things. Call it what you like, but it's still music you know."

"Hot music," he said with withering scorn. "Tunes! Foot-blister stuff—"

"Right," she agreed cheerfully. "There must be something to it, because I like it. And so do several hundred million other people. There's money in it for you, Arthur."

"Hah!" he said.

"You'll be surprised," she persisted. "I'm not so dumb as you think. Mass music—and the masses have the money. You've got rhythm in you, Arthur. You've got foot-appearance—"

Foot-appearance! Amazing heresy this, so that he stared at her as though she were not quite human.

"You're crazy," he muttered.

"I'm not. When you were sixteen—you remember you told me?—you played a fiddle in one of those old-fashioned swing orchestras, didn't they call them? And you were good."

"I was rotten," he said.
Or had he been as bad as that? He couldn’t remember now. He stared blankly at his wife. Her beauty, her charm, her culture—surely she deserved all the money he could earn for her. But—foot-appeal music! It was unthinkable.

“I’ve got you a job, Arthur,” Gloria Cantrell said abruptly.

He could only stare, numbed.

“Famous concert artist forsakes the classics. There’s a good newscasters’ phrase,” she said. “And here’s another: ‘Arthur Cantrell succumbs to the lure of foot-appeal. He and his famous theremin yield to modernity.’ I’m a business woman,” she said. “I want us to be rich and you famous. So I convinced Benny Dixon—he’s the current heart-throb of all foot-appeal femininity, in case you never heard of him—I’ve convinced him that you and your theremin are good publicity. You’re his featured thereminist now,” she declared. “In case you’re interested, you open at the Paradise Gardens in the Great-Circle Loop Auditorium, a week from next Monday.”

THE big terraced theremin stood silent in the shadows. Alone in his studio that same night, Arthur Cantrell sat before it trying to conjure inspiration from the time when he was sixteen and had played in the little old-fashioned orches-
tra. One may get used to almost anything. He had absorbed the shock now of having promised his wife that he would plunge into this thing and get the money she was convinced it held for him.

Arthur Cantrell had a very firm chin. It was pugnaciously out now. By nature he was a fighter. This would be a fight, but he would win it. His wife had left him some sheet music and a little television audio-recorder of some of the modern foot-appeal orchestras. For an hour now he had been listening to them. It was fearful stuff. Or was it?

Cantrell sighed, spread out some of the lurid sheet music and stood before the big theremin. Oddly enough he had been so absorbed with his own troubles, never once had he thought of the little imp. But he thought of him now and grimaced. Oh well, they were in this thing together; they'd have to make the best of it.

He turned the current into the theremin's oscillators. The great terraced cabinet with its rod and loop antenna seemed to quiver, as though already it were aware of the fate in store for it.

"Easy, old fellow," Cantrell murmured. "You've got to master this. We've got to make a lot of money for Gloria."

Then in a moment the silent studio was ringing with the theremin's ethereal tones. Foot appeal. Hip-shaking tune. Blistering rhythm... Not bad. Not bad. Cantrell felt, in fact, that he was doing it rather well. He redoubled his efforts. He found that standing before the theremin waving his arms to bring the marvellous, throbbing ethereal tones out of their electrical nothingness, with this blistering rhythm he was even able to jiggle his feet while he played. Good stuff. That would make a hit with the customers.

And then it seemed that one of the theremin's notes went sour. Cantrell hardly noticed it at first; the music was all full of sour notes anyway. The weird Chinese scale on which it was largely based, and the crazy harmonies, inevitably made it sour. But the low G tone—abruptly Cantrell heard clearly that the low G was completely gone. He struggled with it; brought it back after a moment.

And then the A went bad. "Damn," Cantrell muttered. He stopped playing for a moment. And then suddenly at the scroll-top, he saw the little imp struggling upward. He came very fast, this time; straightened as he reached the scroll-top. He was panting. He had been almost jaunty before, but it was gone now.

"Well," he gasped when he could get his breath. "You—you miserable villain. Tricked me—you with your promises—"

His outraged anger choked him so that he couldn't get his words out. "You—you traitor—"

"Easy," Cantrell hastily murmured. "Let me explain—"

"Explain what? You traitor—you you double-crosser—"

"I have to get the money," Cantrell said. "Listen, I know how you feel. I feel that way myself. But don't you see—"

"Money! What do I care for money? You—you miserable—"

THE little imp's anger suddenly oozed from him and there was only grief. On the theremin's sloping top he stood drooping, clutching at the scroll for support, with his perky conical hat all limp and wilted. And from his tiny eyes great tears now were welling out. One by one they fell and struck upon the sounding board of the theremin—tears so heavy with his sorrow that they brought forth little thumps.

Bong... Bong... Bong-bong... It was like a dirge. It could have been a fragment from Chopin's Funeral March. But Cantrell, with his wife's words of financial wisdom echoing in his mind, steeled himself against maudlin sympathy.

"So it's you who made those theremin notes go sour?" he demanded.
“Yes I did. I won’t stand for it. Your treachery—you—you miserable traitor. I w-won’t”— The little imp’s sobs shook him.

“Don’t be a sissy,” Cantrell said. “Brace up. What has to be—has to be, you know.”

“It d-doesn’t. I w-won’t stand for it. I can’t stand that—”

“Oh yes you can. Be a man.”

“You—you’re going to make me do that—that foot-appeal stuff? Music with hot-tune—”

“And worse,” Cantrell said grimly. “Go on, get back inside now where you belong.”

The little imp was no sissy. Manfully he stood up. And balancing himself he strode down the slope of the scroll. At one of the F-holes he paused and shook a tiny fist at Cantrell.

“I won’t let you do it,” he said. “You’ll see.”

“Go on in,” Cantrell repeated.

“You’ll see what I’ll do. You—you traitor—”

“In with you.” Cantrell made a menacing gesture; and the little imp with a last wrathful threat, took a header into the F-hole and was gone.

CANTRELL was a great success.

‘Famous Concert Artist Forsakes the Classics.’ Arthur Cantrell and his famous Theremin, Yield to the blistering rhythm of Foot-Appeal.’ Perhaps publicity, ingenious campaign of newscasters, television dancers, restaurant song-pluggers—campaign devised by skilled businessmen and certainly far removed from art—all that had much to do with it, of course. But nevertheless, Gloria Cantrell had been right. She had seen that one may chase a classic ideal long after it has obviously become unattainable. As a player of Beethoven, Berlioz and Brahms, Arthur Cantrell had been mediocre. But as a foot-blisterer he had genius, undeniable genius, so that in a few months the whole city was familiar with his tall handsome figure standing close behind the conductor’s podium, waving sensitive hands over the big theremin. Every night in the crowded Paradise Gardens, high over all the traffic levels with just the aircraft and the stars overhead when on fair nights the roof was rolled back, Arthur Cantrell and his big theremin gave off etheric, foot-blistering music so sizzling that the huge theremin might have been a griddle.

“Hot stuff. ’Attaboy Cantrell—”

“I gotta dance till my feet burn off—”

“Listen to that ether-tone! He’s got everything! Listen to that theremin crying—”

Often Cantrell could hear such enthusiastic comments from the diners at the nearby tables. Mass music. And the masses have the money. The masses came nightly huge Paradise Gardens, spent their money on food and drink; and Cantrell’s salary mounted.

“Listen to that theremin crying! Hot stuff, eh Vivian? Come on, let’s blister our feet. Better have ’em blistered than itchin’, eh Vivian? That theremin sure can cry—”

The theremin crying? Sometimes it sounded literally so. Cantrell had had, at first, quite a little trouble with off-color notes. But not lately, because obviously the little imp was licked. Cantrell had never seen the little imp since that night when Gloria had argued him into foot-appeal. Somewhere down in the dark abyss of the theremin’s tone-chamber, the little fellow was crouching. In the midst of his triumph, sometimes Arthur Cantrell was decent enough to feel sorry for the imp. The poor little thing sometimes cried; but the diners at Paradise Gardens only said it was hot stuff; as good as any twitcher music they had ever heard. Or maybe better.

Sometimes, as Cantrell knew, the little imp down in his black prison would despairingly rise and make all the theremin’s
notes go sour. But the diners at Paradise Gardens said that the sour notes were wonderful; and that this was the real music of the spheres at last. It made Cantrell chuckle. Ironically jibing at the little imp, his sensitive waving fingers changing the cycles of the theremin's oscillators cultivated those sour notes, so that his audiences were still more enthralled.

“He's going places in a hurry.”

Cantrell heard the comment, from a table just below him.

“See that man over there in the corner?” somebody else said. “That's the Production Manager of American Amalgamated Television. See how pleased he looks? He's figuring, I'll betcha, how Cantrell and the theremin would look over the television. And that other man with him—he's Production Manager of N. B. C.”

“N. B. C.?” a visiting grocer from Kansas echoed. The grocer was familiar with television, but he couldn't remember the N. B. C. of his youth. “National Biscuit Company?” he said to his wife. “Look Martha, there's the Cracker King over there—think we ought to go meet him? We're big users of his crackers.”

Very remote from art, this foot-appeal-loving audience. But music for the masses brought money from the masses, so Arthur Cantrell's conscience was clear—except when he thought of the poor little imp.

Then came the night when, alone with Gloria in their home, Cantrell and his wife with a bottle of champagne, celebrated the fact that he was indeed going places. The three big television hookups were competing for him. And because Cantrell was a very handsome fellow with whom all impressionistic young women would fall in love, which would be very good box-office, the big boss of the Three-dimensional Color-Kraft Motion Picture Combine wired that obviously Mr. Cantrell had great acting ability as well as possessing a marvellous theremin, so that both he and the theremin were needed by the silver screen—at a salary which was stupendous, breath-taking.

There was certainly no argument now but that Gloria had been right in her choice of her husband's career. She presently left the studio to answer swarms of congratulatory letters, telegrams and calls by audiphone.

Alone again in the dim studio, Cantrell sat staring in triumph at the big theremin, where it stood with the studio tubelight glistening on the patina of its deep mahogany case.

“Well,” he gloated to the big ether-wave instrument. “We did it, old boy. We sure did.”

With a grin he went and stood before it, stooping down over its terraced top, gazing at the scroll-work where the darkness of its tone-chamber was black and silent. Then he switched on the current, played a little soft, hot-rhythm for a moment, and then stopped and grinned again.

“Got you licked, eh little imp?”

But there was no answer. The blackness of the F-holes was unbroken.

Cantrell rapped with his knuckles on the case. “Hey you in there.”

Still the little imp wouldn't reply.

“Come on out and take your medicine,” Cantrell taunted. “You wouldn't let me do it, eh? Threatened me, did you? Well I did it. And I'm going to keep on doing it—worse maybe.”

But Arthur Cantrell was not wholly heartless, even tonight at the peak of his triumph. That little imp—poor little devil, born and bred in Cremona way back in 1660—hobnobbing with Beethoven, Berlioz and Brahms—no wonder he was suffering. Crouching down there in the dark bowels of the theremin, alone with his horror and grief.

“Come on out,” Cantrell urged more gently. “Let's talk this over. I'm sorry for you, you know.”
Then suddenly the little imp came. Incredibly agile, he jumped up through one of the F-holes and stood on the theremin’s sloping top.

“Here I am,” he said.

Numbed, Cantrell stared. The little imp’s clothes were red and green and purple now, as gaudy as the drapes of Paradise Gardens itself. His flexible comical cap was perky. All of him was perky; and his tiny face was radiant with a grin.

It STRUCK Cantrell dumb. What a change was here! A hip-shaking baby! A twitcher-bug! A foot-blistered, dancin’ fool! The little imp stood with hips and shoulders swaying, his tiny feet jiggling, his arms waving with hands and fingers outspread as he hummed a hot-rhythm tune!

“Well—” Cantrell murmured. “Hey, stand still, will you? I want to talk to you.”

But the little imp only hummed his rhythmic tune and jiggled harder. It was a complicated jiggle. It twitched and shook him from head to foot; it made his feet seem burning, blistering, as though the top of the theremin were a red-hot spit.

“Hey listen—” Cantrell gasped.

But the little imp panted, “Don’t talk to me, I’m busy. Gotta dance ‘till m’feet burn up. Say, there’s something about this foot-appeal stuff that gets you. It sure does. Oh Boy,” said the little imp with a wiggle.

He was still jiggling to his blister-rhythm as he took an hilarious header into the sound-hole, and vanished.

In the shadowed corner of Cantrell’s tubelit studio, the massive theremin stood silent, with the light glistening on the patina of its handsome mahogany case. Stupendous, super-modern instrument, to draw music from the ether—music of the spheres. Grand old theremin, so dignified, so sedate that one could hardly realize what was within it.

THE END

SATAN’S WATCH FOB

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Exiles of New Planet

Into the Earth-dominated Solar System of the Thirtieth Century came a wandering planet—which brought a new hope to Earth's oppressed citizens.

By Paul Dennis Lavond

Earth, in the Thirtieth Century A.D., is the leader of all the worlds of the Solar System. You, as a citizen of that planet and period, know that, and take it for granted. The soft fish-people of Venus, you know, were the first to succumb to the Terrestrial rapacity; soon after them, the lichen-intelligences of the moon, and all of the other life-forms. Now you can buy gloves of warranted Venerian ichthyoid leather, or sleep on a pillow—if you can afford it as a luxury item—whose stuffing once composed an intelligence in some ways greater than your own.

Being a citizen of the World, you don't trouble to think of these things. You have your own life to lead. You can sit in your office and inspect the cargoes as they come in and are unloaded from the huge interplanetary liners, without thinking of the worlds from which they come. You watch a television screen from your deep chair of transparent sponge-stuff, and keep a sharper eye out for detail. For all you know the merchant is running off a prepared scene indicating higher quality merchandise than is actually being unloaded. As people were wont to say back in the misty dawn of age of commerce—1940 or so—, things will get worse before they get better.
And once a year, more or less, you vote. It's a point in question whether you know whom you're voting for, or what the disputed office is, but not many people care. Some even stab at the keys of their voting-machines—in their own homes, of course—with their eyes closed. Just for the gag. Then, having discharged your civic duty you turn to your friends—voting parties are fashionable just now—and say, "What was that guy's name anyway?" Then you all have a good laugh and get drunk on synthetic ethyl alcohol cunningly flavored to resemble tutti-frutti ice cream.

All this within limits, of course. There are drawbacks and disadvantages. Only last year, for example, you had to pay a heavy assessment on your salary for construction of the new Philadelphia Psycho-Philosophic Institute. That's the current word for concentration camp, only nobody admits it in polite society.

But all society isn't polite. Why, only yesterday you picked up a throwaway leaflet in the street which read: "Don't Be Deceived—Geraghty is no friend of the Populace. Exercise your rights—refuse to vote for the dummy candidate of the Control; unite to present your own candidates for Planet Security and Peace."

Almost frightened you crumpled the thing up and put it in your pocket. Then, thinking it over, you tossed it into a refuse-basket. Obviously this was addressed to the Greymen, the workers. And you were no Greyman. Greymen are dirty—you are clean. Who was Geraghty anyway? Oh yes—he was the President of Planetary Division 1—the United States of America. You keep forgetting somehow; it didn't seem to matter. You paid your dues to the Vocation; you paid your dues to the District Association; you paid your dues to the Mercantile Commission; you paid your dues to the Landing Port Foundation; you paid your dues to the Political Institute of Popular Defense, and what was left over was yours—free and clear. No taxes.

You decided, later, not to tell anyone about the leaflet. More—you hoped no one saw you pick it up. People really don't know how accidents like that happen; they might be misunderstood. That would mean a little trip to the Psych—the office in midtown Manhattan where they went through your mind with a fine-tooth comb; if they found anything that might be called seditious—too bad.

So for a few days you'll be worrying a little in the back of your mind, and maybe screaming in your sleep a little as you hear the ghost of an official call—yours is WR904fm—over your new television set, but no one saw you, after all, and you'll soon forget the leaflet... .

"GOOD MORNING, MR. DANE" smiled the receptionist.

"Morning," replied Dane, small, worried, and gray-haired. "I'm expecting Dr. Jaimie Barrister soon. Send him right in, please."

"Certainly," she said. "Did you hear about the new planet, Mr. Dane?"

"No. I haven't heard the news cast for a week—been very busy. What about a new planet?"

She produced a sheet of paper torn from a 'caster, and Dane had a small heart-attack. It was nearly the same size as the throw-away he had picked up yesterday, and for a horrified moment he thought that his faithful Miss Prawn was an office spy. Then the mists cleared from before his eyes and he saw that it was only a news sheet. He snatched it from her almost angrily, and scanned the headlines.

"Frozen planet attracted by the sun," he read rapidly. "Believed to possess great mineral resources and perhaps... . Thank you, Miss Prawn," he said, handing it back to her. "I'll look at it later, perhaps." He vanished into his office,
mopping his brow as he flung himself into a chair.

His office door opened and Barrister, tall, dark, lean and cold-eyed, entered. Dane looked up with a start. “Hello, Jaimie,” he said weakly.

“You should have sent for me long ago, Dane,” said Barrister. “You look sick. Take off your shirt.”

Mutely Dane bared his chest and leaned back as the doctor tapped his ribs tentatively. “That hurt?” asked Barrister.

“Yes,” said Dane. “I hurt all over.”

“Drink this,” ordered the doctor, producing as if by magic a little bottle of vivid blue dye. Dane swallowed convulsively, and looked at his hands curiously as the veins started forth in bright azure. “What’s that mean?” he asked pointedly.

Barrister was comparing the clue of the veins against a little card of various pure plastic colors. Looking up he studied his patient coldly for a moment. “It means,” he snapped, “that you haven’t taken my orders. I gave you a diet to adhere to and told you how long you should sleep. I warned you that you weren’t to work more than four hours a day, three days a week. You’re wealthy enough to obey those orders; you could let work slide and take whatever losses you had to for the sake of your health. Why did you fail me?”

Dane looked at him numbly. “You don’t know how it is, Jaimie,” he said. “I try to follow orders—cut down on work, and then I get a visit from the Voke Production Commission. Why am I falling down, they want to know. Doctor’s orders, I say. Doctor be damned, they tell me. And then I get a long talk about loyalty to business—and you know what happens if I turn them out of my house.”

“Yes,” said Barrister grimly. “I could have told you that. How about the diet?”

“I get invited to district dinners. Once or twice I declined. But they warned me, Jaimie—they warned me that—”

“Don’t tell me,” said the doctor. “I should have known that too.”

“But what shall I do?”

“Just what I told you to—my prescription stands. And if you find it impossible to apply it to yourself, that’s not my fault. Maybe not even yours. I have to go now.”

The doctor helped Dane, near collapse, with his shirt and tie. “You heard about the new planet, Jaimie?” asked Dane vaguely.

Barrister looked at him oddly. “Yes,” he said. “Good morning.” And he walked from the office.

THAT night Dr. Jaimie Barrister, having completed his scheduled calls, did not go home. With his medical kit in his hand he wandered for a long time about the darkening city of Philadelphia, coming to a halt before the gleaming new Psychophilosical institute which, he understood, was already filled.

With a sudden and decisive gesture he entered an apartment dwelling across the street. “Hi, Fred,” he casually greeted the elevator attendant.

“Devening, Doc,” said the uniformed man. “Shall I take you down?” Barrister nodded and entered the elevator. It dropped to the basement. “Come in as soon as you get off,” he said, getting out of the car. “There’s some important stuff to talk over.”

“Sure,” said the attendant. Barrister walked through the deserted basement of gleaming tiles, down one corridor, and then calmly swung aside what appeared to be a section of an oil-main. He stepped through the door revealed, and played for a moment with the combination dial lock revealed on a heavy steel plate. The plate yielded and swung aside before his fingers, and opened into a tunnel of absolute darkness. He coughed sharply as he inhaled the dank air of the deserted subway, and walked along, cautiously feeling his
way. He turned a corner and pushed through a double curtain of heavy plastic fibre into a large station, well lighted.

It was crowded with people, and Barrister stared sharply at their faces. "Put out those cigarettes," he snapped. Several who had been smoking ground out the little tubes and muttered apologies. "We haven't got too much air," said Barrister in explanation. "Certainly not enough to waste."

He assumed a commanding position on a sort of podium which had been erected for his use. "Most of those whom I called are here," he began nervously. "Others are coming. However I shall begin at once to explain the purpose of this meeting."

He unfolded on the lectern before him some 'caster tearings and spoke again.

"Most of you have heard the news," he began. "I refer to the reports of the planet which has entered the solar system. This occurrence has crystallized a decision which has been forming in my mind for some time.

"We are revolutionaries." There was a little murmur of protest from the assembled throng; Barrister smiled grimly. "The admission doesn't go down easily, yet that is what our aims and activities amount to. The reasons for our concealment are so obvious I need not go into them; obviously to present order will defend itself to the last ditch.

"If we continue on our present line of action—prognosis is negative. We'll be wiped out in a few years. But the seeds we have sown shall not be lost and go barren. After our passing for a time there will be silence and then unrest as people begin to remember. There will be all the more reason for this since, by my formula, a new cycle of depressions and wars is about to begin. After a long, long time will come the explosion, and we shall see established again a democracy, world and system-wide."

"How long does this take, Doc?" asked a woman.

Barrister pressed his lips tight together. "Centuries at least," he said.

There was a babbling chorus of alarm and surprise from the crowded station. Barrister raised his hand.

"There is one way out," he snapped. "We who have laid the foundations of the new world that is to come shall turn for our lives to a new world indeed!" He waved the 'caster tearings at them, the headlines gleaming in red. "We shall seize for ourselves a space-ship and make our way to the new planet, there to build homes and lives! Who is with me?"

As one man they roared, "Aye!"

BARRISTER was leaning tensely on the guide-bar of the ship; he uttered a startled exclamation as he felt a tap on his shoulder. "You dope, Doc," said a woman's voice.

"Hi, Vera," he said absently, taking the three tablets she handed him and gulping them all down at once. "That should keep me going for a few hours."

The girl peered through the port down to the icy surface of the planet. "How long before—?" she asked, gesturing at the new world.

"Only a few minutes, maybe," he said. "I'm feeling out the gravitation now. The magnetic field's normal, I see."

"Is that good?"

"Sort of. Now—will you leave me in peace so I can get the ship down? It's not going to be easy; I don't know too much about this."

"Okay, Doc," she smiled, closing the door behind her.

Barrister sighed and hastily read the meters banked before him. Muttering what might be a prayer he sat up combinations on the simple firing board. "Buckle yourselves in, please," he announced sententiously over the P. A. system. "We're about to land."
The controls were pre-set for accuracy. No human muscles—even when hyped up on the stuff he had taken—could act and react fast enough to obey the brain’s orders in the series of crises that landing a space-ship always was. So the ship, as soon as he pulled the prime switch, would fall abruptly till sensitive detectors stated that they were precisely two miles and a half above surface, whereupon relays would switch on belly-rockets that would balance them as gracefully as a toe-dancer on skittish jets of flame for the second switch to be thrown. And that would work them down, even slower, to surface or near it.

Barrister tightened his stomach muscles and flung the bar of gleaming metal. He felt the ship vibrate terribly as they dropped, and a moment later sensed the little shock as they struck the atmosphere of the planet. This was only one of the factors of the set-up; as soon as electro-chemical cells determined—in about one millionths of a second—that they were in air the ship slowed to just below the melting-point of lead. Barrister wiped the sweat from his temples; his muscles knotting under the strain of descent. And then the ship came to a jolting halt high in air. Without even looking down he flung the second switch. Slowly now they descended, and he closed his eyes wearily when he felt a little thud on the belly of the ship. There were clicks from the relay-board, and all jets went off.

“We’re down,” he said into the P.A. “Please assemble in the lock, dressed warmly. We shall go out at once.” He spun the control that would open the ponderous hull-port of the ship and donned a fur-lined overall garment.

Thoughtfully he shepherded his flock of eighty from the ship, and smiled as he saw them draw their clothes tighter about their necks and button wrists and ankles. “It isn’t pleasant just now,” he called to them, “but we’ll make it work!” There were some doubtful but encouraged smiles in answer, and then they all silently stared at the frosty hills far in the distance.

“We’ll live in the ship,” Barrister said softly to himself, “and get to work on a settlement. We have the machines and the man power; we have synthetic foods and the stuff to manufacture more out of anything at all. It will be a small world, this new land of ours, but a happy one. . . .”

“Hey, Jaimie!” yelled Vera. The lean medico came running. “What’s up?” he asked.

The girl pointed to an elderly man who was sitting on a heavy casting, head in hands. “Mohler’s sick,” he said. “Think’s he ruptured himself lifting a case.”

Barrister whipped out a short stethoscope, touching it to the man’s belly. “Cough,” he said. Weakly the old man complied. Barrister thought a moment. “Get a temporary truss at the dispensary,” he said. “Then see Pierce—tell him to assign you to light work. How’s your finger-dexterity?”

“Low,” said Mohler. “But I have a high tool-dexterity by the last measurement.”

“That’s good,” said Barrister. “Tell him to give you something like rivet-inspector. We can operate as soon as the colony’s finished—that’s a couple of weeks—and we move out of the ship.”

“Thanks, doc,” said the old man, shambling off. “If he lasts that long,” said Vera pointedly.

“Doesn’t matter,” said Barrister briskly. He looked about at the score or so of metal shelters that were rising conically around a central tower a hundred feet high. “It’s the young ones that count now—like you and me.”

Vera smiled and looked up. A shadow of alarm crossed her face. “What’s that?” she snapped. “Looks like a shooting star—but it’s the first time we’ve seen anything like it before.”
Barrister squinted and followed her pointing finger with his gaze into the blackish sky, near to the sun. "Not white," he said. "Sort of a purple. Rocket exhaust, I guess."

"Then they've come," said the girl quietly. "Do you suppose they're after us?"

"Doubt it. They probably aren't from Earth—Jupiter, maybe, or Mars. If we stay under cover long enough..."

"They're prospectors, aren't they?" asked the girl.

"Yes. They wouldn't colonize this planet. It's going to be a program of straight and intensive exploitation for as long as they hold out."

"But what's to stop them from working their way over the planet until they find us and wipe us out?"

Barrister smiled grimly. "I have my own ideas on the matter," he said. "Celestial mechanics is on our side."

"Have you got a plan?"

"I don't need one. I figured on this when I decided that we were going to come out here or bust."

"We haven't busted yet," smiled Vera. "But what are you going to do about it?"

"You go and tell the others over the P.A. just what's happened," said the doctor abstractedly, "and I'll go out and get captured."

"Captured! You're crazy!"

She stared at him blankly, until he harshly snapped, "Get going." Then she ran for the communications building.

AHEAD of him Jaimie saw the vast bulk of a ship that had landed. Too, there were men in miniature pointing at him and shouting. They were wearing Martian colors, he noted coldly, and the insignia of some service branch which he did not recognize. Metallurgical, probably. Now silent, they surrounded him, half-drawling weapons from the broad belts at their waists.

"Identify yourself, stranger," was the command.

"Doctor Jaimie Barrister," he announced flatly. "I'm a fugitive."

"We heard about you, Doc," said one. "Why did you come our way?"

"You'll find out," he said. "Arrest me, please."

"You're arrested already," replied the man. "You'll be taken before the Captain. He's in the Voke, so you'd better watch your step."

"Yeah," he responded, falling in step with them. "Power of life and death at all times and in all places. Does that extend to a newly discovered planet?"

"The power of a member of the Vocation of Leadership shall be inhibited, infractioned, or alloyed by no person loyal to the Commonweal of Planets," chanted one richly.

"Hypnagogics again," said Barrister good-humoredly. "It's annoying. How are things back on Mars?"

"Doing well enough," said a lieutenant. "We had some trouble getting off the field—those Jhuduists."

"Jhuduists—don't believe I've ever heard of them. Are they the usual type of screwball?"

"No—something new. They predicted about five years back that, within twenty years a new planet, inhabited by angels, would come into the system, pick up all the orthodox Jhuduists, then go away again. When they heard of this planet, they decided that this must be the one. They stormed the ship—about two hundred strong—to be the first to see the angels."

"What did you do?" asked Barrister. They entered the ship and were swinging down a long metal corridor lined with ports.

"We used the latest stuff—something like an activated luminol gas. It destroys the nerves and brain—rots them away like powder."
Jaimie shuddered. "I wonder where these sects come from," he mused. "It's my opinion that they're composed mostly of ordinary people who failed to make the Voke. All their elaborate rituals are just in imitation of the Leaders. What do you think?"

"You're crazy!" The speaker then went into the conventional routine that had been dinned in his ears throughout his infancy and childhood until it was as important a facet of his personality as his thyroid gland. "The vocation of Leadership has been infallibly trained—"

This is where I came in, thought Jaimie. Then, aloud: "All right; we just heard that." They had paused before an insulated door, at the end of the corridor, bearing in gold the double-axe insignia of the Voke. Through the door a voice spoke, and an expression of almost holy awe came over the faces of the doctor's escort.

"Send the prisoner in alone," said the voice. "I am prepared."

Jaimie opened the door—he had heard an automatic lock click open—and entered. Behind a heavy slab of superglass that completely separated him from the other side of the room, he saw the captain. A small, pudgy man, beset with a fierce scowl. He wore the Voke uniform.

Jaimie smiled. "Hi, Cap!" he said slowly. "How did you get into the Voke—pull, eh?"

The little man looked appalled. "Imbecile!" he finally gasped. "Don't you know that I can shoot you down where you stand without any questions being asked?"

Jaimie's smile became indulgent. "So you can," he replied easily.

"You must be mad!" exploded the Leader, his eyes bulging. Jaimie noticed that his hands trembled dangerously near an ominous button, smiled more insultingly. The little man jerked his hands back.

"You will be hauled up before a Council of the Vocation so that the example we make of you will serve as a warning to the entire system. What have you to say?"

"Nuts!" he replied jovially, looking about the room.

"Take him away!" gasped the Leader into the mike.

Guards appeared and took his arms, hustled him out of the office.

"Tell me," said Jaimie curiously; "is he always like that?"

One of the men smiled proudly. "I do not wonder," he stated, that you are astonished by the ability of our captain."

The man smiled happily, then started off on, "For the Leaders of the Commonweal of Planets—" Jaimie groaned inwardly.

"Perhaps," he broke in as soon as the ritual speech was out "you can tell me what is planned to be done to this latest addition to the Commonweal of Planets."

"It isn't worth settling," spoke up one guard.

"No? My party thought it was."

"We do not. The plan is to strip it of as much mineral stuff as we can, then to abandon it. It has already been calculated that, once the stripping is done, its weight will have been altered sufficiently to force it into a new orbit. It will fly out, something like a comet, circling the sun once in about five hundred years."

They were leading Jaimie through the engine room of the ship, past a power control board. He stopped a moment as if in thought; his guards stared suspiciously.

"I wonder if those calculations are quite accurate," he began, backing up a little. "If, for example, it did not quite clear the drag—"

"What?" began a guard—then, like an uncoiling spring, Jaimie leaped for the board, gripped his fingers around a red-hilted switch. They looked at that switch, at the triumphantly grinning man, then one uncertainly drew a gun from his belt.

"Cut that out, doc," he said.

"Drop that gun or this switch goes
down,” said Barrister grimly. “You can’t kill me quick enough, you know. The generator’s charged to more than capacity; you’re at rest. If this goes down now, the fuel tanks go up!” Mutely, the guard let the gun fall to the floor. “Turn your backs,” he commanded. Quickly he reached down, scooped up the fallen weapon.

For a little moment he stared at their broad backs. Then he thought of the frightened and hopeful people at the shelter. And the hopeful, harmless Jhuduists. Silently he squeezed the trigger; the guards fell, one by one. Then, alone, he catapulted into action, rifling drawers for charts and diagrams. Finally he swung back a panel to see, engraved on metal, a complete diagram of the ship. With a long forefinger he traced connections to a tiny dot on the plans, cast a hasty look about the room. Picking up a pair of clippers he advanced on a small, hideously complicated piece of mechanism bolted to the floor. He cut the power leads and unfastened the thing, then, lugging it under his arm, he swung open a tiny port and wormed through. Before him, as he thought, was his sled, lying on an endless plain of ice.

“MARS ships bound outwards,” he explained to the group of colonists as he busily set up the leads to the solid little device, “usually carry meteor shields, since they’re forced to go through the zone. If we set up this piece of junk here in the central tower, we should be fairly safe from anything solid they throw at us. As long as our power-unit works, nothing can get at us. And that will be practically forever.”

He waved an arm to someone outside. A man waved back, then, for a moment, the group felt a little shudder of activity go through their bodies, as though they had experienced a slight electrical shock.

The doctor looked through the window again and pointed simply. “There,” he said. “The green wall.”

Silently they stared at the shimmering globe which surrounded them, frail as a bubble seemingly. “And here come the Martians.”

Little streaks of light stood out against the black sky. Small battle-cruisers. “Hold your ears,” he warned.

As the streaks of light swooped above and out of sight there was a dim concussion and a flare of light across the face of the green bubble, then another, and another following in rapid succession. “Bombs,” stated Barrister. “But they can’t get through their own shield.”

For twenty minutes the bombing went on, quite without effect, save to give headaches to some of the colonists. Then the streaks of light vanished, heading toward the sun.

“They won’t come back,” Barrister announced to the others. “They have a schedule of mining to adhere to; that’s more important to them than we are.”

“But,” protested the others, “what when all the metal is gone? How can we build our civilization here without it?”

“They won’t take it all,” he began, “because that would take too much intensive mining—which would require much more time and apparatus than they care to give to it.”

There was silence for a moment. “What about Earth?” some one asked.

“Our first job is to build for ourselves and our children; the salvation of Terra will have to come later. After all, we saved ourselves; they will have to learn to do the same.”

A roar of applause signified the agreement of those within the room. But Barrister did not hear. He was looking at a greenish planet in the black sky above them, wishing to himself that some swift, heroic way were possible.

THE END
Explanation

Dear Mr. Pohl:

Just in case some bright reader starts mulling over the problem of just how Allen managed to move that sand-truck in “Heredity” at the beginning of Chapter V (if you don't remember, re-read the entire story) and decides to send me threatening letters about being unscientific, I’ve decided to send in an explanation. Maybe I should have done it in the story, but I have enough trouble putting all the dialogue in a yarn without bothering with explanations as well.

But the explanations exist. For instance, just inspect the diagram immediately below:

```
     20'
   /|
  /  |
 /    |
S     R
   10'
    8'
   10'
    A
```

"S" is the sand-truck, and "R" is the rock. Connecting them is a rope twenty feet long. Allen grabs the rope at the midpoint ("M"), so that the distance from his hand to the sand-truck or from hand to rock is ten feet (on account you divide twenty by two), and pulls it six inches towards him to point A, at which point he is exerting a pull of 100 pounds. (He can exert a stronger pull, but I want round numbers so that I shouldn't have to think too hard.)

Now when you’re pulling a rope, the line of pull can only be along the direction of the rope—from “S” to “A”, but this pull “SA” can be divided into components at right angles to each other, in this case component “MA” and component “SM”.

We have the force from “M” to “A”—100 pounds—and the force along “SM” is the force along “MA” as the length of “SM” is to the length of “MA,” or in other words as ten feet is to half a foot, or, still in other words, as twenty is to one. If you don’t believe this, I refer you to any good elementary physics textbook.

(Nota my more hair-splitting listeners. I know very well that “SM” is not quite ten feet in length after the rope is pulled to “A”. As a matter of fact the exact length would be 9.982 feet, but you know what I said about round figures.)

So, as the ratio is twenty to one, the force along “SM” is no less than two thousand pounds, which means a ton. Remembering now that Allen can pull with a force of more than 100 pounds, that the truck is under Martian gravity, and that the throttle is open, it can quite easily be seen that it is no feat of strength at all to move the truck.

Just the same, there’s a catch all right. In physics, you can’t get something for nothing, and you’re not going to get two thousand pounds out of a hundred pounds.
without paying for it in some other way. If the truck is pulled by a force twenty
times as great as exerted, it moves through a distance only one-twentieth as
great as that through which the exerted force moved. In this case, the truck moves
three-tenths of an inch. If Allen pulled the rope for a little over a foot and a
half, the truck would move an inch. That would be enough to start it and give the
motor a chance to do the rest.

Of course, as Allen pulls, the ratio of
“SM” to “MA” is always changing. Assum-
ing the rope to be perfectly taut at the
start, (that is impossible, but it’s only an assumption,) then at the moment Allen
begins to pull, the force along “SM” is infinite and the movement of the truck is
zero. When he has pulled six inches we have seen (with a force of a hundred
pounds) the force on the truck is a ton and the movement three-tenths of an inch.
By the time he has pulled seven feet, the ratio has dropped to one to one, and a
hundred pounds along “MA” means a hundred pounds along “MS”.

After that, the ratio becomes actually unfavorable.

Of course, if you want to know the
force on “MS” for every possible length
of “MA” (if force along “MA” is held constant) you, either have to draw a
graph, or if that’s too tedious, you can
use calculus. However, I haven’t taken
calculus for three years now, and if you
think I’m going to blow the dust off my
text, and start polishing up my memory
on the subject now, you’re wrong. Very
wrong. Do it yourself.

What gets me is that when I used to
do things like this in my Physics classes,
I thought I was just wasting time. Now
look! I have proceeded to the point
where I waste not only my time, but also
your time as well. Goody!—Isaac Asim-
mov, 174 Windsor Place, Brooklyn,
New York.

Five Best
Dear Mr. Pohl:
Now that Astonishing has completed
it’s first six issues, I am submitting the
Annual Critical Report On Astonishing
(No. 1):
Stories—the five best of the year are:
1. Into the Darkness—Rocklynne. Or-
chids to R.R. for a unique story.
2. Half Breeds—Asimov. Another
story with an off-the-trail plot.
3. Cat Men of Aemt—Jones. Worthy
continuation of the Jameson series.
4. Flight to Galileo—Gregor. An ex-
cellent space yarn.
5. Quicksands of Youthwardness—
Jameson. Good serial.

Honorable mention goes to “Bon Voyage,” “Hold That Comet,” and “Steps-
sons of Mars.”

Art work—sorry to have to say this,
but I’m afraid it’s very poor. Your best
artists are Marconette, Morey, Bok, and
Thorp—so make the most of them!

Departments—ah, that’s a different
matter! The fantasy reviews are the best,
with Viewpoints, Editoramblings, and an
occasional science article to round out the
picture.

If you go monthly and improve the art
work, you’ll have a swell mag!—Bill
Etoy, Science fictioner No. 206, 140-92
Burden Crescent, Jamaica, New York.

Not Too Bad
Dear Mr. Pohl:
Your February issue wasn’t too bad.
Morey’s and Thorp’s illustrations were
the only ones worth mentioning. I didn’t
see any illustrations by Bok. (Hint)
Don’t let Morey do all the covers.

There are two things that sell a story
on sight to me: (1) Name of the writer.
(2) How the story is illustrated. For in-
stance, if the drawing is amateurish I
naturally think the story is the same.

(Continued on page 109)
It's a Young World

The world of the Tribespeople had many curious features—not the least of which being that it wasn't their real world at all!

By James MacCreigh

CHAPTER ONE

In the Enemy's House

I don't think there was anyone in the universe that shot better than my tribe, but I brought down the average a lot. Though I'd been a hunter all my life, I never became really proficient. Even the babies of the tribe were better than I when it came to shooting at a moving target with a light bow, and I was never allowed to participate in the raids on enemy camps for that reason.

Hunting was all right. There my natural gifts for being inconspicuous and very quiet helped me. I could be more motionless than even the rocks I sat upon; and when the woods life came close to me I didn't have to be a good shot to kill more than my share of marauding animals.

Not that most of the animals we ever saw were really dangerous; of course not. But there was a species of lizard we had come to fear. It was big and powerful, and it moved almost without sound; but those were not the worst things. Being a lizard, akin to the fish of the streams more than to us, it actually ate the flesh of the animals and men it killed. When it could get no living thing to eat, it chewed and swallowed leaves or grass, or the flowers and fruits of the trees. It had to; if it did not eat, it would die; it was too low in the evolutionary scale, it seems, to live as all warm-blooded creatures do, on the fresh water and fresh air that are free to all.

Because of this vile habit of eating, it always gave me a feeling of pleasure to kill these lizards whenever I could, almost like what the others boasted of when they came back from a raid and told of the fun of killing the members of the Enemy tribe.

Four times in every year I was sent out to kill a lizard—we called them Eaters—and each time I remained away until I caught one. Though it might take me days or weeks to track one down and slay it, I dared not come back without at least one skin on my shoulders. Though they became increasingly scarce, I always managed to trap one eventually—always, that is, but once.

For there finally came a day when, look where I would, use whatever arts of searching I knew, there was no Eater to be found. I ranged a hundred miles and more, over a period of nearly a month, utterly without success. In our own area of the planet, at least, the Eaters seemed completely extinct.

As I trudged into the village of my Tribe I saw that something was up. I had no wish to attract attention, since my quest had been fruitless, so I did not quite enter the village, but stood within the shelter of the trees and watched for a little while. The warriors were walking around importantly in a bustle of scurrying women and hunters like myself; each warrior lugging a twelve-foot war bow.

A raid?

It had to be that. Little Clory, my fa-
vorite girl friend, spied me before any-
one else and came running up to me
with a finger on her lips. “Stay back,
Keefe,” she warned. “They’re going out
to lick the Red-and-Browns and you’d
better not get in the way.”

I picked her up and sat her on my
shoulder. She was a little thing, even
for her seven years of age, but her long
yellow hair covered my face. I blew it
aside, and said, “When will they have the
Affair, Clory?”

“Oh, right away. Look—they’re build-
ing the fires now.”

They were. The warriors had gathered
and were seated in the triple-tiered Bal-
cony of Men, while the youths and women
built a tottering little shack of firewood.
I should have helped them, being a non-
military, but I wasn’t needed, and I
preferred to keep as much as possible
out of anything connected with raids.

The whole tribe was in the little clear-
ing on the outskirts of the village by now.
The House of the Enemy—that was the
little jerrybuilt shack that would be
burned—was nearly completed. The four
braided vine-ropes that would serve as
fuses were already laid out, and the
musicians were tuning up with an ungod-
ly din.

Corlos, Chief of the Warriors, and Lord
of the Tribe of the Blues, strode into
the center of the cleared circle, and raised
his bow. A ten-foot arrow, hollowed at
the point, was in it; he drew it back in
the string until I could almost hear the wood
of the bow creaking, then released it,
aiming at the tiny red disc of the sun,
setting on the horizon. The arrow
screamed up and out in a flat arc—liter-
ally screamed, because the pitted point
caused it to whistle in flight.

That was the signal. The musicians,
who had been silent for a few moments,
waiting their cue, screamed into their
instruments, slapped their drums, sawed
their stringed gourds. The noise was
frightful—but almost beautiful, I had
to admit. Maybe the beauty lay in its
unusualness, because we heard this cer-
emonial music only just before a raid,
not more than once in a year.

To the tune of the tempestuous music,
a group of the younger girls of the tribe
came pacing in to the center of the ring,
bearing a closed palanquin on their should-
ers. In it, presumably, was the Enemy,
the animal—sometimes, the person—
which would be burned alive, representing
the members of the Tribe against which
our warriors would soon be marching.

Corlos strode up to the car and halted,
raising his arm peremptorily. The music
stopped. In a savage, deep guttural he
declared, “Who is our Enemy?”

The antiphony rose in unison from the
benches of the warriors: “He who does
not serve the Tribe—he is our Enemy;
he must die! That which kills one of our
tribe—that is our Enemy; it must die!
He who profanes the Name of our Tribe
—he is the Enemy; he must die!” I re-
peated the familiar words of the Three
Evil Acts with the full-throated shout
of the warriors; I knew them by heart.
Corlos went on with the ritual:

“How dies our Enemy?” he bellowed.

“By the flames of our fire;” rolled back
the response.

“Where seek we our Enemy?”

“In the woods; in our Tribe; on moun-
tain or plain: wherever he may flee, there
we shall go!”

Corlos was working himself up to a
frenzy. As the echoes of the warriors’
shouts died away, he signalled to the
musicians. A drum then boomed to accent
each syllable, as he shrieked, “Behold
our Enemy!” He ripped open the door of
the palanquin; four warriors ran up and
dragged out the Enemy.

I stared hard, then stepped back a
pace and clutched a vine for support. The
Enemy, this time, was human. It was
a youth, slight, shaking in a hysteria of
fear. It was Lurlan, my sworn blood-brother!

LURLAN! Except for Clory, I had rather see any one of the Tribe perish in the flames, even myself, rather than him. Clory clutched my arm, and a tiny whimper escaped her. It was a surprise to her too, it seemed.

I dismissed the thought that I was on ground none too sure myself, and my mind spun as I tried desperately to think of a way of saving Lurlan from the flames. But there was no time for thinking, for in a matter of minutes the fire would be lighted and Lurlan’s screaming corpse would roast in its embers.

If he had to die, he would die. Certainly I could never hope to save his life. But—need he die in the horrible agony of the flames?

He did not, I decided agonizedly—and found that while I had been painfully thinking it out, my body’s reflexes had come to the same conclusion. My bow was in my hands, and an arrow was notched. I took hasty aim and released the bow-string. The arrow fled from me and cleaved straight to its target—the throat of my blood-brother, Lurlan.

Consternation! The entire Tribe was in an uproar. I saw proven then what I had always known—Corlos, though a beast and a braggart, was no coward. He whipped around like a pinked Eater, and peered directly at me, his slightly nearsighted eyes blinking in the smoke of the smaller fires. I could have slain him as easily as I had Lurlan, and he must have realized that. But he stood his ground, though his swarthy face turned pale and he fingered his arrow-less bow.

“Keefe!” he bellowed as soon as he identified me. Then he spun back and faced the warriors. “This man has slain the Enemy!” he howled “He has profaned the Tribe—he is our Enemy! Let us burn him!”

THEY had every intention of doing it, too. The warriors rose, howling with rage. Though none of them loved Corlos unduly, they were all houndied with respect for the sacred traditions of the Burning of the Enemy. I had violated them. I was the Enemy.

I plucked at Clory and backed away, as unobtrusively as I could. I had my bow still in my hand; I notched another arrow and held it ready. I wanted them to see that I wasn’t going to burn without a fight.

The brush was pretty thick, and within twenty feet we were well hidden. Then I slung the bow over my shoulder and made speed with Clory.

“Where are we going, Keefe?” Clory murmured in my ear. She was obviously being as brave as she knew how. I didn’t have to tell her that we were in serious trouble. Maybe if her own father hadn’t been dead, killed in a raid while un-successfully trying to protect her mother, she would have made a fuss about going away with me. But the only person she was really close to in the Blues was myself. She trusted me, and that was a powerful incentive, because her own life might not be entirely safe if we were captured.

I could hear them shouting back in the clearing, howling for my blood. Then Corlos’ bullish yowl sounded over the others; I couldn’t make out what he said, but it seemed to quiet them.

I set Clory down on the ground and led her along. It was growing late. If the warriors were to raid the Red-and-Brown tribe this night they must leave soon, too soon to try to capture us—until they returned. That gave us a certain period of grace.

We stood statue-still for a second, listening for sounds of pursuit. There weren’t any. Apparently the tribe had decided to let our punishment wait until the raid had been completed, for I could
hear the chant of the warriors resumed, their deep-voiced promises of catastrophe to the Enemy tribe.

Distantly Corlos’ yowl came to me. “So burns the Enemy!” he shouted, over the thin pounding of the drums. “So dies the tribe! Burn, Red-and-Browns! Burn with the House of the Enemy!” And there was a blood-freezing screech from fifty throats, as the warriors echoed, “Burn!”

Then the drums rolled up to a bleak crescendo and stopped. I wondered what they had substituted for us in the House of the Enemy. Lurlan’s corpse, probably. Well, better than his living body—or ours. I strained my eyes in the direction of the village, and saw the trees weirdly black and orange in the flickering of the burning shack. Then the cries died down and there was no sound we could hear, for a long time.

CHAPTER TWO

The Glider

I WOKE up with a start and clutched at my bow. Some sound had awakened me. Voices!

We had slept for hours, much longer than I’d intended. As I looked at Clory I realized that, for there was light to see her sleeping form. Dawn was near.

I rose cautiously without waking her, and peered around for the source of the voices. It was a party of warriors swinging along the trail, not twenty feet away.

Were they pursuing us? I saw they were not, they were glider-pilots, the men who, secure in the speed of our gliders, would fly over the village we were to raid, shooting into the forces of the enemy, dropping blazing torches if they could, causing disorder in a hundred ways. They were on their way to the hill where our gliders were kept, there to launch them and be on their way to the enemy town.

I knew how to pilot a glider; that was one of the things for which I had been indebted to Lurlan. If we could steal one of those ships...

The men had passed out of hearing. Quickly I woke Clory and explained to her what I had seen, and the plan I’d made. Most wonderful of seven year old girls that she was, she understood immediately, and followed me cautiously through the underbrush to the clearing where stood the catapults for the gliders.

We were noiseless—literally—as we wormed our way toward the clearing. We moved slowly, and as we approached we heard the dull “dwang-g-g-g” of the released catapult as the first glider took to the air. We hid under a tree as it soared down the slope of the hill to gain speed, directly overhead. Luckily, the initial effort to gain altitude made it necessary for the pilots to cover a good deal of territory; they couldn’t, therefore, wait for each other and proceed to the enemy village en masse. If they had, our hopes of escape would have been ruined, for we would have been spotted immediately, and shot down.

I’ve never stalked an Eater as soundlessly as I led Clory, crawling, to the catapults. The sky was already showing color, and the ground was wet with predawn mist. I heard the catapult drone its fiddle-note again—that was the second glider. Two gliders, each carrying two men, were gone; three gliders and eight men, if I’d counted correctly, were left.

A third glider had taken off before we gained the position I wanted, commanding the catapults. I counted the men in the clearing. There were five; I’d made an error before, but it was all to the good—it meant one man less to take care of later.

It seemed hours before the fourth glider was off—and the time it took the three men remaining to wind the catapult again was weeks. But finally it was done.
I have said that I am a good marksman. Though I had always had a horror of killing men, the thought of what would happen to Clory and me if I weakened strengthened my resolve; as fast as I could speed the arrows, the three men dropped, one after another, and Clory and I broke for the glider. We fastened ourselves securely and I yanked on the release cable. There was a dizzying surge of motion and the loudest sound I ever heard, as the catapult arm threw us far out and up into the sky. We were free and away!

CLORY had never been in the air before—few women or girls had. Her exuberance was unbounded as we skimmed on our way. I felt joyous too—it was a pleasant morning.

Morning is the best time for gliding, because there are all sorts of convection currents caused by the rising of the sun. I pushed over the lever-arm to send us down in a flat glide for the river-bank. There was a small formation of cliffs there, big enough to send us a needed up-current. We reached it easily, and I spun the glider in a slow spiral as we climbed. We gained hundreds of feet of altitude before I leveled out, headed in a straight line for the mountains to the North.

The flight was uneventful. Almost automatically I took the lift from every updraft under a cloud. We weren’t going
really fast—I've run faster—but we were making steady progress over forests and swamps and rivers. There was only one fly in my ointment. I was tired—had had no sleep to speak of, and I certainly couldn't sleep while we flew. Yet we could land only one way: permanently, since we had no catapult.

My lethargy grew and grew, as the miles slid by under us. I had no particular destination; I steered by my shadow in front of me, cast by the morning sun behind. Though I kept reminding myself to stay awake, I drowsed again and again, each time coming a little closer to falling completely asleep and thus losing control. If only we could have landed for a second . . .

I suddenly realized that Clory was tugging at the back of my coat. "Keefe!" she was crying urgently. "Look!" I thrust off my sleepiness and turned to her, smiling.

But there was a real alarm in her eyes as she pointed out over the forests, and my smile died when I saw what she had seen.

It was another glider, and it was flying straight for us.

In my amazement I nearly lost control. One of the other ships from our Tribe—it had to be that. Though it was a mile away or more, between me and the sun, it was much higher than we and was coming at us impossibly fast, faster than I'd ever seen a glider go.

I had only one course—to flee. Cursing savagely, I dipped our craft until it was just skimming along the surface of the trees, fast as we could go.

But not nearly fast enough. The other glider was catching up with us as easily as we were overtaking the motionless trees ahead.

I wondered briefly how it had attained the altitude that gave it such speed from its initial dive, then turned all my attention to the controls.

Clory was holding to my coat with fervor. I could feel her body shaking with sobs as we both leaned forward, trying to cut down air resistance. I hung on to the controls tightly, fighting with all my energy for an extra foot of altitude, a trifle more of speed.

A peak of green whipped up at us—crack! The ship jolted and faltered. I darted a glance below; we'd struck a tree, just the top of it. Our landing skids had been wrecked.

But that had been the last of the tall trees; the land ahead sloped gently down. As far ahead as the eye could see was this gentle slope, the valley of an immense river-bed. I tilted the controls and we picked up a few precious feet of speed in the shallow dive.

But our pursuer was faster yet. I glanced behind for a split-second and saw it ominously close, close and huge. Much larger than our ship, it seemed. . .

"Clory!" I cried tensely. "Can you fly this for a minute?" She didn't answer, but twined her arms around my neck and grabbed the levers. "Good girl," I muttered, unlimbering my bow. "Just hold them that way for a second."

I twisted under her arms and took careful aim at the plane which followed us. I strained the bowstring back as far as I could and released it.

But Clory moved, just at the wrong moment! The cord struck her arm, the arrow was deflected far to one side. She gasped and winced from the cutting blow of the cord, and she must have jerked involuntarily at the controls.

For the ship’s dive became abruptly steep and—

Crunch! We struck another tree!

We spun crazily, whirling rational thoughts from my brain. I clutched at whatever I could reach; it turned out to be the control lever, killing our last chance of keeping to the air. The ship careened and fell off on one wing, diving directly
into a giant of a tree—the solid trunk of it, this time. I had time to realize before my face smashed into the hard, rough wood that little Clory had been thrown out of the glider. Then I struck!

I DON’T know how long I was stunned. I was cut and bleeding and my face felt raw when I came to, lying sprawled on a grassy mound. But no bones seemed to be broken. I leaped to my feet, crying Clory’s name. If we could find shelter somewhere! The glider wouldn’t dare to make a landing to scout for us. We might yet escape.

Clory did not answer. I dashed madly about, peering into the undergrowth, searching behind every bush. Then I spied her slight, white form lying motionless on the ground. I raced to her, fell to the ground beside her and shook her roughly.

She was unconscious—but not dead. My ear pressed to her heart convinced me of that. I tugged her to a sitting position.

And a shadow swept over me. I stared up. It was the other glider. We were seen.

Shaking Clory to bring her back to consciousness wasn’t much use, though I tried it. The only thing I could do was to leave her there and run. The pilot of the glider, I hoped, would think she was dead. If I could hide long enough to make him give up hope of shooting me from the air.

The glider had whirled away; I could see its tail twist as the pilot banked it in a long curve, planed smoothly back toward us. I gaped no longer. I jumped to my feet and raced for cover.

I don’t think I’ve ever run any faster than I did that dozen yards to shelter, but it seemed slow. Time passes slowly when you are expecting a five-foot arrow to feather between your shoulder-blades.

But I made the cover, which was a long thicket of flower-ferns. Their broad leaves over me were perfect protection.

I knelt and glared up at the glider which was continuing its swooping back and forth. The sun was high now, and pouring into my eyes, so I had difficulty in seeing through the gaps in my roof. But I could see well enough to know that the flier was something out of the ordinary.

It had seemed huge when we were fleeing from it, larger than I had ever seen a glider before. But now, when I could sit back and stare at it, I found that it was something brand new to me. It was no glider of our Tribe’s, that was certain. Too large by far, designed much differently, with wings little larger than our own, but an immense fuselage slung low between the wings, twice as long as an ordinary gliders.

It was made of something that shone and glistened in the sunlight. And it had a curious whirling contraption on each wing, something I’d never seen before, and could not understand. It flew low overhead, and I stared up at it. The pilot’s face was visible over the side of the ship; so close that I could make out the features. It was no member of the Tribe. The face was surmounted by a head-dress whose pattern was also unfamiliar to me.

I slumped back on the ground to think this over, and—

—Rose again much more rapidly, clutching a stung anatomy. I spun around and peered to see what had stung me—it was an arrow! I looked around and saw my bow, just outside the cover, lying temptingly exposed in the open.

I shot a quick look at the mysterious glider. The pilot was completing another arc, about to return. I leaped up and scuttled out from the flower-ferns, clutching the arrow. The bow was unharmed by its fall; I fitted the arrow to it, drew it back and took aim. The glider was sweeping closer, travelling at great speed,
difficult to hit. But I'd never get a better opportunity—I stretched the arrow back as far as I could—and released it!

There was a harp-note from my long bow, and I saw the new glider waver ever so slightly in its course. I'd hit it. I heard the voice of the pilot in a shout of pain and anger, saw him rise from the seat and try to leap clear as the ship sliced through the air in a whistling wing-over, turned and plunged out of sight. I heard a loud splintering sound of breaking branches, and the crash of the ship, and a scream.

The hunter had been snared!

CHAPTER THREE

The Two from the Boat

EVEN after Clory had come to again, and was perfectly fit for travel, we two remained in the neighborhood of where the strange ship had crashed. Somehow, in its fall, a fire had been started; how, I had no idea. Possibly there was a fire in the ship all the time, though that seemed unlikely. But there it was, an immense column of white-hot flame, almost invisible in the sunlight, shooting high at the heavens.

Clory and I watched it for some time without saying a word. We wanted to come nearer and investigate, but the flame was hot as well as bright. We sat on the banks of a river nearby and stared at the column of fire.

"What is it, Keefe?" whispered Clory, but all I could do was shake my head mutely. The ship twisted and moved in the heat of the pyre. Odd noises, almost human, came from it; they could have been the cries of the trapped pilot, but I thought that unlikely—they continued too long. Cracklings and sighings were to be heard for hours.

The sun began to set while we were still there. Luckily the ship had crashed in a clearing so there were no branches overhead to catch fire: the oddly long-lived flame expended its heat and light harmlessly in the air.

But not too harmlessly, I realized swiftly. Though it was still not completely dark, we could see the light of that hundred-foot flame reflected from every tree in sight. What a beacon it was, visible for miles around.

I touched Clory's shoulder, and she followed me back, down the sloping banks of the stream and into the water. We waded as far as we could, then swam the hundred yards or so of the width of the stream. Just within the woods on the other side I spread small branches and grass on the ground, and covered the mass with my jacket. We would camp there for the night—it was as good a place as any.

All I had been able to salvage from our glider, except for my bow and arrows, was a short hunting knife. And I only had three arrows left. I determined to try to make some.

Clory fell asleep while I stripped the bark and leaves from a pair of straight, thin branches, then proceeded to whittle them down with the knife. I was no weapon maker, I discovered ruefully, but I managed to get the shafts as smooth and straight as an arrow need be. I had yet to feather them, though, and that wouldn't be easy. Nor would the job of getting bone or rock points for them.

I stopped whistling suddenly and cocked an ear. What was that?—a whirring noise, faint but clear.

Without awakening Clory, I rose and stole noiselessly over to a point of better vantage, a knoll on the river-bank.

The origin of the muted sound was difficult to trace in the warm, dark night, particularly with the crackling of the huge flame across the river interfering. But it seemed to come from the river itself, at some point downstream from me. . . .

The river was not broad, but it was
straight as a lance, almost as though man-made. I could see a long way up and down it, at least a mile.

But I didn’t have to see nearly that far. Much less than a mile away—a fifth of that, at most—was a group of moving lights, speeding up the river in my direction. As it approached I could see a dark hulk surrounding the lights, the shape of a ship. The whir became louder.

But how did it move? Already it was close enough for me to see that it had no sails or paddles, nor was there a rope connecting it to anything on the bank which might be towing it. And it was moving much too rapidly for any of those methods to be responsible.

Much too rapidly. Just as the mysterious glider had been moving much too rapidly to be explicable.

The connection was obvious, and alarming. Whoever had been in that glider had friends—friends who, seeing the flame of its crash-pyre, had come to investigate.

Possibly they would not be inimical. I couldn’t afford to find out. The thing for Clory and me to do was to get away from there.

But it could do no harm to linger for a while and see what would happen—we were safe, across the river.

As they strode up the hill all I could see was their backs, each wearing what seemed to be a species of bow slung athwart their shoulders. There was a criss-cross affair of belts on their backs, from which depended small objects that I couldn’t quite define.

Clory’s fingers gripped mine fiercely. “Keefe!” she whispered piercingly. “In the woods—over there. Look.”

I looked... and my shoulder-blades crawled to meet each other. There was something huge and dark moving in the woods, shambling slowly toward the fire. It was an Eater—but a monster. Twenty feet long? More, much more, than that.

The men did not see the approaching beast. They were regarding the blaze intently. One of them drew something out of a pocket—I could not see it clearly—and hurled it into the fire. Immediately the flame shrunk; it was going out.

The Eater had come into the open now, but behind the two men; they could not see it. I was of two minds—should I shout and warn them, exposing myself if they were inimical? Or should I keep quiet and thus possibly condemn them to death?

Clory settled the question. Impulsively she raised her head and shrieked a warning to them across the stream.

The two men whipped around—and saw the Eater. I had to admire them for their quickness of thought—there was only a split-second of hesitation before they recovered, and advanced on the Eater. Advanced on him—those two tiny men, unarmed as far as I could see.

Although, if their weapons were of as high a standard as their gliders and their boats, they might not be in any danger at all.

Their smooth efficiency was joyous to behold. In unison they unslung the short sticks I had thought to be bows and held them as you might a javelin. They were not more than four feet long—did the men
hope to get close enough to run them into the huge animal?

They did, for they ran toward the Eater, divided, and as though following a carefully rehearsed program, ran around the slow-thinking Eater. He turned to snap at one of them with his immense jaws—the one farthest from us. I could not see what happened, but I heard a yell of a man in agony which told me the story.

But the other man gained the position he wanted. His javelin-like pole he stabbed into the Eater’s side. This time it was the monster that screamed in pain. Immense, fat sparks of light shot from the pole where it went into the creature’s flesh. There was a high ripping sound, audible even at this distance, and I could feel for the Eater—that pole was deadly!

The squawl of the wounded Eater drowned out other sounds, but the man must have cried out too. He had reason too, for the wounded monster, shuddering in unbearable agony, curled its huge length back upon itself and lashed out with its mighty tail. The tiny tip of it alone hit the man, but it was enough to flick him into the still-burning ship.

I think the man was dead before he began to burn. I hope so.

The Eater was dying too. As Clory and I watched, he staggered weakly off into the darkness, but could not even make the edge of the little clearing. He slumped to the ground, trembled all over once more, then lay quiet.

We watched, but nothing more happened. The two men had failed in their mission. They were as dead as the man they had come to save.

That seemed unlikely, for an Eater as big as this would surely have killed or driven off all lesser ones.

We emerged dripping wet and walked quickly up the gentle slope. The men were dead—very. I reached the bodies before Clory, and I shooed her away. Every Tribe girl had seen death, Clory as much of it as any, but no seven-year-old girl had a right to see a corpse as ghastly as that of the man who had been slashed in two by the fierce jaws of the Eater.

The light of the fire was dimming—that little object the man had tossed in the flame was slow, but it did the work. As we watched, the fire grew less and less.

But it was not due exclusively to the work of the man. Clory called my attention to that: “Can we get somewhere out of the rain, Keefe?” she asked, shivering.

I started and looked around. Sure enough, it was raining. Pouring. It was out of the question for us to remain exposed to that downpour—already the fierce flame of the ship was out, though the wreckage was still too hot to approach.

The question, of course, was where to go?

There was a dull booming crash from afar; thunder. I could see the play of the lightning-flashes off in the distance. If the rain had arrived already, the lightning would not be far behind. It would be very unpleasant to be near trees then.

Clory pointed—I followed her gaze. The boat! A very good place to be, undoubtedly. It had a roof—that was all we could ask. We ran down to it, tugged open the door, and stepped right in.

We closed the door tight behind us before we looked around.

And the first thing we saw was—them.

A man . . . and a girl. A beautiful girl. Dead, it seemed, for they lay unmoving, not even breathing. I stared at them. Neither was dressed in the odd garments of the two we had seen die. Their garb was much like our own, the everyday dress of tribespeople.
“They must have been nice people,” Clory said aloud, and I found myself agreeing with her.

The man had as open and honest a face as any I’ve seen, and the girl was—beautiful.

I stepped around them to get a better look at the girl’s perfect features. They were lovely from any angle. I knelt to touch her pulse, and as my hand touched her wrist I felt a numbing tingle in my own fingers. I drew back my hand quickly.

There was a pale, blueish light falling on the two bodies from a lamp of sorts that hung over them. From the lamp extended a cord, which ran along the ceiling, then down the wall, terminating in a pedestal-like affair at the front of the boat, on which were dozens—hundreds!—of mysterious levers and dials. I moved over to examine it.

The levers were of all shapes and colors. I knew the purpose of none of them, but what harm could they do. . . ?

There was a temptingly small, red lever set into the very base of the pedestal. So small, and so far down—it could not be dangerous. “Don’t touch it, Keefe!” Clory’s terrified voice begged as I stooped to finger it. “Don’t. . . .”

But I had already moved it.

Without result.

Emboldened, I moved another, then several more.

And with a lurch, the boat shuddered underfoot! The whirring sound again became audible, and it began to move. I had started it!

“Oh, Keefe! Why—”

But Clory stopped—words were of no use. I’d done it.

Together we raced for the door, staggering with the motion of the ship. It wouldn’t open. Somehow, the motion of the ship controlled also the door; I couldn’t budge it. I leaped to a window and hammered on it. It just would not open, nor could I shatter it, though I shouldered it with all my weight behind the lunge.

Could I stop the ship? I turned back to the pedestal and stared anxiously, tempted. But which lever was the right one? I had no way of knowing, and I dared not experiment again.

I glanced out of the window fearfully. The angular prow of the ship divided the water into two neat curling crests one on either side. The lightning had come, was striking at the taller trees all around. The black water ahead and the fierce play of light in the sky made a frightening combination.

“At least,” I said to Clory with a confidence I did not feel, “we’re going some place. See how the boat stays in the middle of the river—something must be directing it. We’ll be all right.” How could the boat be steered? I didn’t know; certainly we were not steering it, nor was anyone else in the ship. Just one more mystery to tuck away in our minds. . . .

I half-heard a rustle of movement behind me, and turned to see that the “dead” man had come to life again—dangerously!

He was creeping up on me, preparing to spring. If he had, it would have been a hand-to-hand fight, which I might have lost—he was powerfully built, and I had no time to draw my knife. But when he got a good look at me he faltered.

“Who are you?” he whispered, relaxing his menacing attitude. “You’re a Tribesman!”

The girl was alive too, I saw thankfully. She had been close behind him, backing him up.

CHAPTER FOUR

The Mad Tunnel

YES, we were Tribespeople, and so were they. We were all equally ignorant of the natures of the owners of the
vessel in which we were. We exchanged stories.

Their adventures were interesting, but not very helpful. They, with all of their tribe, had been asleep one evening. (Their tribe was called the Greystripes—I'd heard of it, but it was too far away from my own village for us to have had any dealings, commercial or martial.) The girl's name was Braid; the man's Check. Their individual huts were almost at opposite ends of the village; how they came to be together they did not know. They had gone to sleep in their own huts, and wakened, for a brief period, in a dimly lighted cell, together with dozens of other Tribespeople, all in an unnaturally deep sleep. They'd tried to arouse others, and failed. But their activities had drawn the attention of a guard dressed like the men Clory and I had seen, who had come in, found them awake, and pointed something long and tapering at them. They'd gone back to sleep, quite involuntarily, and awakened in the ship.

Our own story, which we then told, took more time. In fact, before we'd quite finished it, it was halted by an outside event. Braid had been keeping watch on the progress of the boat, and she suddenly cried out, pointing. The river forked off ahead, one branch continuing on into the distance, the other ending in what seemed to be the side of a mountain. Closer inspection revealed a hole, a tunnel, in that cliff wall; into it the boat unerringly sped, not abating its speed.

And a few seconds later the ship halted. The subdued whir of the motors diminished and died altogether. There was a soft jar from outside and we were motionless. I seized the door; it opened freely.

The four of us crowded around the door and peered out cautiously. Not a living soul was in sight. After a moment, we stepped out, timorously at first, then more bravely, as it became evident that we were in no immediate danger.

Unless we wanted to entrust ourselves to that boat again, allowing it to proceed as it would back down the river—if, indeed, we could get it to move—we were trapped here. We might have been able to swim out, but it was a considerable distance—just how far, the darkness made it impossible to say. And there was no way at all of walking back through the tunnel, for the water lapped precipitous walls, except at the landing where we stood.

Set into the face of the rock there was a door, ajar. With one accord, we entered it.

We found ourselves in a long tunnel, which swept in a broad curve away from us in either direction. No human was visible, even now, though the thing was brightly lighted. Too brightly lighted—it showed things that I could not understand, that drove me almost to the sharp brink of madness.

**PICTURE** a tunnel, a long one, and high and broad as well, descending in a shallow slant into the ground, as far as you can see. Fill it, in your mind, with a tremendous number of strange and eery machines, each in motion, of some sort. Make sure that every machine is different from the one next to it, and remember that each gives forth some tiny sound, all together blending into a low, sustained chord, in which you can nevertheless distinguish individual tones.

See that you are part way into the tunnel, that no human being is visible save three as ignorant as you. Have the motions of the wheels and cams and levers of the machine totally incomprehensible; see with amazement that in some cases there are wheels revolving in thin air, without an axle; that occasionally a piece of one machine will detach itself, float unsupported through the air to another, where it joins on and recommences its spinning, twisting, gyrating activity; that
more than once a wheel will roll completely through what appears to be a completely solid machine, leaving no hole or mark to show where it had entered.

Add to all this the fact that the machines are constructed of strange materials, some transparent, almost invisible, others seemingly transparent but curiously reflective; most of glistening metals—which, you must remember, you have seen comparatively seldom in your former life.

To our left, the tunnel sloped up, and downwards to our right. Up would mean the surface—but the entrance of the subterranean canal was in the direction of our right. Which way would take us out?

We spent minutes in debate, and could not decide. Braid settled it finally. “When you cannot follow your head,” she said, “you must follow your heart. We can try the left—if it seems the wrong way, we’ll come back.”

So the four of us executed a broad left-wheel, and marched down that glittering, action-filled tunnel. The machines—as I should have said—lined the walls only. The center was a broad, flat path for us to walk on.

We walked mostly in silence, all of us gaping at the mad activity that surrounded us. For some distance we walked, until I tore my attention from the machines long enough to note that Check was acting strangely. He was twisting around to stare back, then forward; then tilting his head to peer at the ceiling overhead. A frown of puzzlement was appearing on his face.

“What is it?” I asked.

“I don’t know—listen.” We listened, but heard nothing more than the constant machine-drone. The same drone we had been hearing all along.

But with a difference? Yes, surely. There was a new, growing note in the symphony. A deep buzz—something like the whir of the ship’s motors.

Check peered over his shoulder, and his face changed. He cried out and shoved my shoulder, spinning me around. I looked—and staggered.

Bearing down on us faster than any Eater ever ran was an immense, wheeled metal shape. The noise was coming from it, from the sound of its huge wheels on the flooring and from the hidden motor within. The thing was large—it almost filled the tunnel from top to bottom, though it wasn’t wide enough by far to interfere with the machines that whirléd along at the sides.

Leaving Check to look after Braid, I dragged Clory by main force into the maze of machinery at the side of the tunnel. We dodged spinning wheels and bars and climbed behind the pedestal of one of the machines.

Braid and Check were quick to do the same, but on the other side of the passage. But not quite quick enough, it seemed. Before they were well concealed, the metal monster was upon us. And it became evident that we had been seen.

For the thing squealed to a halt fifty feet beyond us, then rolled back to where we were and stopped.

CHAPTER FIVE

The Subterranean City

I SHOULDN’T have been surprised at the black cloud of sleep that descended over us all just then, because Check and Braid had told me about it before. I knew the people in that car were the same as the people who had abducted my two friends, but in the shock of that swift blotting-out of consciousness, I didn’t connect their experience with the present one.

Clory awakened me, and I found myself in a pleasantly light and cheerful room, lying on a luxuriously soft couch. We might be prisoners, but we were being treated well enough.
All four of us were there. For no reason except, perhaps, that she was youngest and best able to throw off the effects of the sleep-ray or whatever it was, Clory had come to first, and immediately roused me.

Together we woke Braid and Check.

The oddest feature of the room was its very curious windows. As we looked out of them from the interior of the room, we saw a blue sky with occasional puffy clouds. But as we approached, and tried to look down, the apparent transparency of the glass clouded. By the time one reached the window, it was almost opaque: only vague formless shadows could be seen. And as one walked, back, the sky slowly reappeared.

The door, we found, was locked.

The style of the room’s furnishings was far less strange than we might have imagined. Except that each item was so beautifully made, it might almost have been a Chief’s home of any progressive tribe.

But we didn’t have too much time to investigate it. For some signal must have been given of our awakening, for the door flew open, and a man entered.

He seemed friendly enough, but when we besieged him with questions he said nothing, just stood there looking at us. There was no malice in his stare, but neither did he seem particularly interested.

He just stood there, regarding us. He was dressed like those of his kind we had already seen: the abbreviated divided trousers, tunic, belted back. In his hand he carried a smaller version of the rod we had seen used on the Eater; on his head he wore a flat-topped pillbox hat.

As moments passed without a movement from him beyond his shifting glances, Check edged over to me, darting meaningful stares at the man and at me. I didn’t comprehend its meaning at first, but the stranger did.

“I wouldn’t do that,” he said smoothly, and raised the rod a trifle. (Check and I both noticed for the first time that we were unarmed.) He continued...his easy stare as Check brought up sharp, flushing.

“No,” said the man after a space, reflectively, “I don’t think you’ll find it necessary to gang up on me. Certainly”—he gestured with the rod—“you wouldn’t find it safe. If you are all comfortable, we had better get started. There has been a special meeting of the Council to consider your problem. Come with me.” And he stood aside. But he would not answer questions even then, just gestured wordlessly with the rod.

YOU might thing we could have overpowered him; certainly it would seem that we could have—and should have—made some objection to going so freely with him. I thought so; I even attempted, in passing, to clutch at the door and slam it on him as he stood in the threshold, barricading ourselves in until we could make more definite plans.

But I couldn’t. Just couldn’t. My muscles would not obey the orders from my brain. It was like a complete paralysis, though I was perfectly free to walk, to look around, to do anything that did not conflict with his orders.

It was his pillbox hat that did it. There was a tiny instrument in it which acted to amplify his will, to force his commands upon others. Our thoughts he could not control, but our actions were his to command.

So we went with him quite obediently. We had not far to go, just out into a door-studded hall, along it for a few feet until we came to an empty door. We entered, the door closed and we looked around perplexedly. We were in a tiny room, scarcely large enough for us. There was no furniture save a row of studs set in a wall by the door. This could not be our destination...
Nor was it. The man with the helmet stabbed one of the buttons with his forefinger and an inner door whirred shut. There was a muffled click, then the floor surged up under us, and the whole room shot up into the air.

There was a frightened squawk from Clory, who grabbed me and hung on. I was nothing much to cling to, having left my stomach below when the room swooped up, nor were the others in a better state. The man took it calmly enough, grinning at our discomfort, though, so I concealed my apprehension as much as I could.

The motion lasted only a few seconds. Then it stopped smoothly and the door opened. We were escorted out and into a large, handsome hall.

The man with the rod escorted us in, then stepped aside. “This is the Council Chamber,” he said. “Go forward and answer the questions of the Council.”

We stepped forward timorously, and he made his exit. The Council Chamber was vast—larger, even, than the big ceremonial field back in the village of the Tribe, the field in which I was nearly burned to death. How long ago that seemed!

A triple-tiered balcony ran around the wall. It reminded me of the Balcony of Men back in the ceremonial field, though the crude wooden balcony there was not to be compared with this ornate structure of metal and fabrics. The seats were occupied, with some vacancies, by perhaps fifty men and women. They eyed us with much the same friendly unconcern that had characterized the man with the rod.

We were brought up before this impressive audience and seated in chairs as comfortable as their own. The questions began almost immediately.

The oldest of the Council—they were a youngish lot—rustled some papers on the flat arm of his chair and glanced at us piercingly. “Have you any objection to allowing Check to act as your spokesman?” he asked suddenly. Check asked us with his eyes; we all nodded.

“None,” he said. “But how did you know my name?”

“I know a great deal about you—all of you,” laughed the judge. “Braid and Keefe better than Clory, and you best of all, but even Clory is familiar to me. We have heard of her from her father.”

“Her father!” I gasped as Clory squealed in surprise. “Her father is dead!”

“No. Clory’s father is not dead. He is—elsewhere, just now, but he is alive. Perhaps Clory may see him soon, when he returns. At the time of his ‘death’ he was injured by a blow. He did not die, but he would have, had not one of our patrols found him. When he was well again we examined him, as we are examining you now, and decided favorably. . . . But we will do the asking here, just now. You, Check, tell me: how did you come to be here?”

Check told what he knew, and I supplemented the account with Clory’s history and mine. The interrogator appeared to be satisfied; when we had finished, he held a low-pitched conversation with those around him, which we could not hear. For a few moments all of them talked among themselves, then apparently a decision was reached.

The one who had questioned us signed to a guard standing by the entrance, who opened the portal and admitted three men trundling a large, flat box on wheels, from which depended flexible tubes of varying descriptions. The guard, who was wearing one of those hypnotic hats, accompanied them up to us, ordering us to do as they said.

We submitted perforce to having a tube wrapped around the wrist of each of us, various other gadgets clamped to other parts of our anatomy, and our eyes band-
AGED SO WE COULD SEE NOTHING. AS SOON AS ALL THE EQUIPMENT WAS ADJUSTED TO THEIR SATISFACTION, ONE OF THEM COMMENCED TO QUESTION US.

BUT WHAT QUESTIONS! NOTHING WE COULD HAVE EXPECTED—AT LEAST, NOT IN OUR MINDS. APPARENTLY THEY HAD NO DESIRE TO LEARN FACTS, TO DISCOVER WHAT WE WANTED TO DO HERE, OR ANYTHING ABOUT OUR BACKGROUNDs. TO THE ACCOMPANYMENT OFominous buzzings and clickings from the machine, we were asked such questions as, "IF YOU WERE TO BE IMPRISONED IN A DARK ROOM FOR TWENTY-FOUR HOURS, WHAT WOULD YOU DO?" AND "WOULD YOU PREFER TO WITNESS A PAGEANT OR TAKE PART IN IT?" AND OTHERS EVEN LESS RATIONAL. I COULD HEAR A STYLIST SCRATCHING THE ANSWERS ON A PAD, AND WONDERED WHAT TYPE OF PERSONS THESE MIGHT BE.

THEN I HEARD A CRY OF ALARM FROM BRAINT AND TENSED MY MUSCLES TO RIP OFF MY BLINDFOLD AND SEE WHAT WAS HAPPENING. I COULDN'T, OF COURSE; THE HYPNOSIS OF THAT HELMET FORBODE ANY RESISTANCE. BUT I FELT A GENTLE PRESSURE ON MY ARM, AND THEN A STIRRING JOLT OF MILD ELECTRICITY. I LEAPED, AND I THINK I CRIED OUT TOO. A SQUEAL FROM CLORY AND A GRUNT FROM CHECK SHOWED THAT THEY HAD RECEIVED THE SAME TREATMENT.

OUR BLINDFOLDS WERE REMOVED, BUT THE TESTS CONTINUED. THEY DETACHED ALL THE GADGETS FROM CLORY AND SENT HER AWAY TO SIT IN THE CORNER, WHILE BRAID, CHECK AND I WERE QUIZZED IN A NEW FASHION. A STRING OF SUCH WORDS AS "READ", "LEARN", "SLEEP", "EAT", AND OTHER VERBS OF VARYING MEANING WERE TALKED TO US, AND ONE OF THE MEN NOTED THE READINGS OF A LEAPING DIAL-NEEDLE ATTACHED TO THE HANDS ON OUR WRISTS.

BUT THAT WAS ALL. WE WERE RELEASED FROM THE APPARATUS AND CONDUCTED OUT OF THE ROOM BY THE SAME MAN WHO HAD BROUGHT US. AS WE LEFT, THE HEAD-MAN OF THE COUNCIL CALLED TO US, "YOU WILL RETURN TOMORROW...

(Continued on page 102)
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102

ASTONISHING STORIES

IT’S A YOUNG WORLD

(Continued from page 100)

row, and everything will be clear. Have patience till then.”

We were returned to our room, where we found ourselves unaccountably sleepy. Though we had been awakened not more than four hours before, we could not stay awake. We sought couches and lay down. Just as I was dropping off, I thought I saw the door open, and a man enter and fasten something to Clory’s head. It appeared to be a helmet, but I could not force myself to awaken and make it out. As he approached me I dropped off into deep slumber.

CHAPTER SIX

The Dream

MY SLEEP was full of dreams—odd ones. I saw myself in a thousand impossible situations.

Quite naturally, I dreamed of the scene in the Council Chamber. But in the dream I was not the object of the Council’s attention—I was a member of it. In fact, I was chief of the Council, the man who really filled that position being subordinate to me. Before me, in one fantasy of sleep after another, were brought dozens of persons to be asked the questions I had been asked that day; thousands of other persons with other problems to be settled. I could not understand the tenth part of those problems, but in my dream I knew all about them; I solved them all, to the complete satisfaction of everyone. I was not supreme among the Council, but I was its coördinator, the one to finally resolve each knotty problem according to the suggestions of the others.

As the dreams grew in clarity, an immense amount of background material began to fill in. I saw a teeming, populous

(Continued on page 104)
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Car Owners Praise
MASTER GLAZE

I have used a great many polishes and waxes, but will say Master Glaze is the winner. Clarence Grey, Calif.

IT LOOKS SWELL

Master Glaze is the best. I have ever used and I put the contest. I glazed my car last Sunday, and boy—does it look swell. Lewis Thompson, Ill.

STANDS THE TEST

Master Glaze has been put to the test here directly in front of the Atlantic, where the salt spray with the breeze makes it form a heavy film over the paint. Your Chemist filled it for me and brought back the original shine. H. M. Chambers, N. J.

LONG LASTING

Used Master Glaze on my car last summer. It stood up all winter in good shape. Now my friends are asking about it. so will sell. A. Smith, Ill.

SELLS IN A HOUR

Master glaze a car on a demonstration in the parking lot and sold eight sets within one hour. I am delighted with it as a fine product and am a good seller. Edmund M. Blanken, Pa.

VERY MUCH PLEASED

Received shipment of 96 sets and have been very much pleased with the way it sells. It out-demonstrates any and every other line of glamorous polish I have seen. Dave Jones, Mt.

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New Car Beauty
SAVES YOU MONEY

Master Glaze glorifies the beauty of your car, protects the finish, and saves you money. Less washing, less polishing, less work. You will have a most beautiful car to drive, and a car whose resale value will always be more. You owe it to yourself and to your car to find out about Master Glaze. Send your name for free booklet and free trial offer.

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103
Nervous, Weak Ankles Swollen

Excess acids, poisons and wastes in your blood are removed chiefly by your kidneys. Getting Up Nights, Burning Passages, Backache, Swollen Ankles, Nervousness, Rheumatic Pains, Dizziness, Circles Under Eyes, and feeling worn out, often are caused by non-organic and non-systemic Kidney and Bladder troubles. Usually in such cases, the very first dose of Cystex goes right to work helping the Kidneys flush out excess acids and wastes. And this cleansing, purifying Kidney action, in just a day or so, makes you feel younger, stronger and better than in years. A printed guarantee wrapped around each package of Cystex insures an immediate refund of the full cost unless you are completely satisfied. You have everything to gain and nothing to lose under this positive money back guarantee so get Cystex from your druggist today for only $2.

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ASTONISHING STORIES

IT'S A YOUNG WORLD

(Continued from page 102)

world, many times the size of my own. Almost completely underground, it was, but it filled millions of square miles on a hundred different subterranean levels.

In this new world—which I came to identify with the underground city my sleeping body was in—was a complete civilization, vaster by far than all the Tribes put together, of a culture and depth of understanding that bewildered me.

The surface of this world, I saw, was given over to relaxation. No one died, either on the surface or below, save by accident, but the swift pace of the underground life aged its inhabitants, made them old in mind while still young in body. They needed refreshment, refreshment which meant a complete relaxation, complete forgetting of all the cares of the world below. Forgetting, even, that there was a world below.

At which point I awakened. It was morning again—according to the elusive sky on the window—and the others were awakening too.

They had had much the same sort of dream, with individual differences. Check had dreamed of himself, not as leader of the Council, but as a worker in a sort of "large room, with funny pieces of machinery spread all over," as he described it. He seemed to have been engaged in some sort of research, but he did not know any more about it. Clory had not seen herself in any of the dream; Braid hesitated, looked fearfully disturbed about something, then finally said she couldn't remember, and stuck to it.

EVENTUALLY the guard came once more and took us out again to go to the Council.

In the elevator, I saw something that took me a moment to comprehend. The guide carried the force-rod, and seemed as
supercilious, as free from worry about our actions, as ever—but he did not wear the mind-compelling hat! I stared again to make sure, then nudged Check to a position behind the man and pointed. Check saw, widened his eyes, then, together, we whirled on the man and bowled him over.

Our muscles obeyed us! The man cried out, then lashed at us with arms and legs, but our first leap had knocked the rod from his hands. It was two against one, and Check and I were strong. The man toppled to the floor, Check upon him; I secured the rod and turned it on him.

Just then the elevator door commenced to open quietly—we had arrived. And as it slid open, we all saw just outside a full dozen of armed men walking along the corridor!

I was staggered, but had presence of mind enough to level the weapon at the foremost of them. “I’ll kill the first one to move,” I yelled, and meant it—it simply never occurred to me that I didn’t know how to operate the thing!

But the men outside didn’t know that. It was an impasse.

Braid caught Clory to her instinctively and said, “What shall we do, Keefe?” I didn’t know, but I could not afford to have either her or the men know that.

I asked a question. “Do you think you can run that car?” I didn’t take my eyes off the men, but I could see her shadow at the little bank of keys.

“Maybe—not very well,” her voice came. “At least, I think I can start it.”

That was not so good. “Check—come here,” I called after a space.

He stirred suddenly, as though my command had jolted him out of some deep thought. He stepped slowly forward, still with puzzlement at something in his eyes, and looked a question at me.

“Take the rod from one of them,” I ordered, stabbing my weapon at one of the men. He hesitated. “Go ahead,” I

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cried with irritation. "There may be more along in a minute."

He hesitated for only a second after that. Then, with a swift swoop, he snatched a rod and stepped back a pace—snatched my rod!

Swinging it to cover all of us, Clory and Braid and I as well as the men, he wrinkled his brow. "Now, wait a minute, all of you," he muttered. "I want to think. . . ." He stared at the men, and at us, then shrugged. "Get up!" he cried to the original owner of the rod. "I'm going to see this through. We're going to the Council Chamber!"

The man rose, smiling. "You are coming along very well," he observed cryptically, and led the way along the hall. Nor did he say anything more.

THE man who, in my dream, I had replaced as leader of the Council, widened his eyes in surprise as the lot of us entered. "Weapons?" he murmured questioningly. "There should be no weapons in here." But Check said:

"I am not sure of that, yet—though I am beginning to believe it. But I shall keep this until you explain things to me."

The man smiled. "There is no need to explain," he said, seating himself. I saw with a start that he had not taken the seat of the day before, but was in a small, less conspicuous seat to one side of it and below. That was how I had dreamed it!

"No," repeated the old man, "there is no need to explain any more. We have explained already. Did you not have dreams last night? . . .? Yes. Those dreams, then, were fact. We induced them, hypnotically, to tell you what words could not tell as well.

"If you had accepted them as fact, they would have told you that this city is—your home. Your real home, more so"
than the Tribes from which you came. Even, it is Clory's home, though she was born in a Tribe. Her father and her mother lived here."

"This snake-hole?" ejaculated Braid.

The man laughed gently. "This is not all of the world," he smiled. "Nor is this the only world. This city here, which houses a paltry few thousand people, is only one of a hundred thousand such; the others all on other planets. This world is merely the sixth satellite of the fifth planet circling one sun. And each of the other planets is inhabited, and many planets of other suns. On the third planet of the sun is the home of our race, from which we all stem, but there a thousand times as many people of our race now as that planet could hold... even were there still Death."

"But why--" I began, and then stopped, for the man had raised a hand.

"I shall tell you the 'whys' in a moment," he said. "And when I have told you a few of them, to prepare you for the shock, your minds shall be returned to you."

Check quickened his breath at those words. His rod dropped unnoticed to the floor; one of the men picked it up and—slung it over his shoulder. Before we could ask another question, the man went on.

"As I have said, there is no more Death, save by accident. You know that; you know that, though many disappear, few die. Those who disappear come here.

"For immortality brings age. The fine blade of the mind dulls from constant use. The body does not sicken nor age, but the mind grows old. It must be rested.

"And for that are these rest-planets—one in every System—established. All knowledge, save of the simple arts of language, walking, and the others, is taken from a man when he is discovered to need rest. He is given an artificial, hypnotic

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memory, and sent to join a Tribe. For a dozen years or more he lives with the Tribe, while his mind grows younger. Then he is brought back, as were Check and Braid, or finds his way back as you did. And he takes up his place again, refreshed.

He paused and looked sharply at the door. It was open; a man was entering, bearing a shimmering, bright gem in his hand. "You have all been examined," he continued slowly, "and found to be completely rejuvenated. Then you were given the sleep-teaching treatment, to prepare you, and then this little speech. You are now ready to have returned to you your full minds, with all the memories of your long, long lives!"

The man with the crystal stepped forward, looking from one to the other of us. "Keefe will be first," said the older one. "Simply look into the jewel."

I looked... I heard the man who carried it commence to speak, a droning voice that compelled sleep. In seconds the voice faded away, and the lights dimmed and the entire world was dark. Then there was a sound like thunder, and I heard the words, "Awake!"

My eyes opened, and I felt a maddening, dizzying swirl of thoughts into my brain. I reeled and clutched at the man as my brain, stung into swift activity, sorted and filed the knowledge it had taken me a long lifetime to acquire.

I stood there, swaying. Then there was a sudden feeling of released tension, and I opened my eyes.

Everything, suddenly, was familiar. I knew my life, and what I had to do.

And with a sort of joyful gravity I had never known in the life of the Tribe, I stepped forward and, with the ease of long experience, slid quietly into the seat of preeminence among the Council...
VIEWPOINTS

(Continued from page 83)

"The Pet Nebula" was corny but Har-
vey Haggard's "The Professor Splits"
and Hugh Raymond's "He Wasn't
There" made up for it. "Cosmic Dere-
lief"—Phooey! I read half way through
and gave it up as hopeless. "Quicksands
of Youthwardness" had a kind of humor-
ous twist at the end. The other two
stories were okay.—Dick Hirschfeld, 836
Washington Street, Hollister, California.

Appraisal

Dear Editor:

I'll try to accomplish two things in this
note: a few brief comments on the first
issue of your second year and a review of
your first year. It has been a fairly good
one with an ordinary beginning, a mag-
nificent middle, and a droopy finish. I'd
ASTONISHING STORIES

like the other readers to compare with me—that is, if this is printed.

But first the February issue takes the stand. It far outshines last issue, perhaps because I count the serial as an important part of the book. Jameson’s “Quicksands of Youthwardness” cannot be too greatly applauded; it surpasses any previous yarn in Astonishing, even “Half-Breed” and “Into the Darkness.” It should prove to every stubborn antisaerial advocate that the longer stories are sorely needed, and because Super Science Novels will in the future feature so-called “book-lengths,” it is only fair that Astonishing should have a serial installment in every issue. The possibility of monthly publication is an added attraction and incentive to this course, I believe. The novel was ably illustrated by Mayorga, and those who think of him poorly as compared to Bok and Morey should remember that his art is a nice balance to the smooth work of the other two. The sharp jettiness of his work is nicely represented in the serial, especially in that pic of the Thuban escaping from Sirius in the first installment. For unique plot and

Classified Advertising

(Continued)


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Salesmen

development I nominate this yarn your best.

"Cosmic Derelict" is second and much better than Jones's first Professor Jameson novelette in your pages. I'm glad to see Morey illustrate this series once more, though I must admit that Bok's drawings for the other were very good too. Bok and Morey are without doubt the best and only real artists you have.

A bit of surrealistic hodge-podge—even in such a fantastic medium as science fiction—is Hugh Raymond's short, "He Wasn't There." The outstanding fault of this one was a rambling quality that did much to confuse the plot—if there was one. Just a trifle more of coherent condensing would have improved this novelty in fantasy.

Next we find the last of the good story group, "The Pet Nebula." The idea of hatching such a creature and the means of capturing the egg were weird indeed, and made a humorous short. The cover was very good—No. 7 out of nine excellent covers—but should have illustrated the longest novelette, the Prof. Jameson excursion.

After that are the three mediocre and poorly illustrated trailers-on. Haggard's plot is too ancient, but the Morey pix were pretty good. Sixth and seventh spots are occupied by Cummings and MacCreigh with "human interest" stuff. All right for fillers, I guess, but "Gravity Island" and Jimmy's first were better.

The best yarns in Astonishing's first year were "Joshua's Battering Ram" (Jameson); "Into the Darkness" (Rocklynne); "Half-Breed" (Asimov); "The Lodestone Core" (Sharp); "Trouble in Time" (Gottesman); "Chameleon Planet" (Cross); "Improbability" (Edmonds); "A Miracle in Time" (Hasse); "Asteroid" (Gregor); and possibly a few others. "Quicksands of Youthwardness"
The 97 Pound Weakling

—Who Became “The World’s Most Perfectly Developed Man”

“I’ll Prove that YOU, too, can be a NEW MAN!”

Charles Atlas

I KNOW, myself, what it means to have the kind of body that people pity! Of course, you wouldn’t know it to look at me now, but I was once a skinny weakling who weighed only 97 lbs! I was ashamed to strip for sports or undress for a swim. I was such a poor specimen of physical development that I was constantly self-conscious and embarrassed. And I felt only HALF-LIVE.

Then I discovered “Dynamic Tension.” It gave me a body that won for me the title “World’s Most Perfectly Developed Man.”

When I say I can make you see that I can turn a man of giant power and energy, I know what I’m talking about. I’ve seen my new system of Dynamic Tension transform hundreds of weak, puny men into Atlas Champions.

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Do you want big, broad shoulders—a fine, powerful chest—biceps like steel—arms and legs rippling with muscular strength—a stomach ridged with bands of sinewy muscle—and a build you can be proud of? Then just give me the opportunity to show you how “Dynamic Tension” is what you need. No “ifs,” “ands,” or “maybes.” Just tell me where you want handled, powerful muscles. Are you fat and lumpy? Or thin and gawky? Are you short-winded, peppyless? Do you hold back and let others walk off with the prettiest girls, best jobs, etc.? Then write me for details about “Dynamic Tension,” and learn how I can make you a healthy, confident, powerful HE-MAN.

“Dynamic Tension” is an entirely NATURAL method. Only 15 minutes of your spare time daily is enough to show amazing results—and it’s actually fun! “Dynamic Tension” does the work.

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Mail this coupon right now for full details and I’ll send you my illustrated book, “Everlasting Health and Strength.” Talk about my Dynamic Tension method. It’s the best book! And it’s FREE. Send your copy today. Mail the coupon to me personally, CHARLES ATLAS, Dept. 83-D, 115 East 23rd St., New York, N.Y.

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I want to prove that your system of Dynamic Tension will help make a New Man of me—give me a healthy, husky body and big muscular development. Send me your free book, Everlasting Health and Strength.

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ASTONISHING STORIES

is accepted as a story of the first issue of the second year, but it would win in any 12-month.

Pertinent facts of 1940: Gottesman was a great find; Jameson, Asimov, and Gregor were consistently entertaining; the introductions of Binder in February, Bok in April, Mayorga in June, Morey in August, and Marconette in October were all warmly accepted.

On the whole, the past year was not a disappointing one as far as Astonishing is concerned, but we can hope for an improved 1941. The first issue is reassuring.—Charles Hildreth, 2541 Aqueduct Avenue, New York City.

Appraisal No. Two

Dear Editor:

Upon reading a story in any science fiction magazine, I immediately rate it on the contents page. Marking is in the following manner: Five stars best, four stars very good, three stars good, two stars poor, and one star very poor.

The following are the five-star stories you’ve published so far in Astonishing:


Honors go to “He Wasn’t There,” which deserves five stars plus.

Let’s not have serials—please!—Chester Payfer, R.F.D. 3, Yale, Michigan.
Calling All Cars!

A Mysterious Discovery SAVES UP TO 30% on GASOLINE!

OR COSTS NOTHING TO TRY

In addition to establishing new mileage records on cars in all sections of the country, the Vacu-matic has proven itself on thousands of road tests and on dynamometer tests which duplicate road conditions and record accurate mileage and horse power increases.

The distance covered was 333 miles in thirteen hours and forty-two minutes, which gave an average of 63.7 M.P.H., based on 465,000 miles per gallon of gasoline.

Before leaving Los Angeles, we made several tests from L.A. with and without the Vacu-matic, using a 50-volt battery and gasoline only. On the tests with Vacu-matic, the miles per gallon were increased by 50.5 miles per gallon. In my own car, I have also very the surprising increase in both acceleration and power.

Yours very truly,

BOB MCKENZIE

Vacu-matic has proven itself on thousands of road tests and on dynamometer tests which duplicate road conditions and record accurate mileage and horse power increases.

VACU-MATIC SETS NEW COAST-TO-CHICAGO RECORD

DEAR SIR:

Having just completed a new record between Los Angeles and Chicago, driving a Chevrolet equipped with a Vacu-matic attachment, I thought I might be interested in hearing about the facts and its importance in the running of an automobile. The facts were as follows:

The distance covered was 333 miles in thirteen hours and forty-two minutes, which gave an average speed of 63.7 M.P.H., based on 465,000 miles per gallon of gasoline.

Before leaving Los Angeles, we made several tests from L.A. with and without the Vacu-matic, using a 50-volt battery and gasoline only. On the tests with Vacu-matic, the miles per gallon were increased by 50.5 miles per gallon. In my own car, I have also very the surprising increase in both acceleration and power.

Yours very truly,

BOB MCKENZIE

Vacu-matic is constructed of six parts assembled and fused into one unit, adjusted and sealed at the factory. Nothing to regulate. Any motorist can install in ten minutes. The free offer coupon will bring all the facts. Mail it today!

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